# Planning & Development Services

1800 Continental Place ▪ Mount Vernon, Washington 98273
office 360-416-1320 ▪ pds@co.skagit.wa.us ▪ www.skagitcounty.net/planning


## Public Comments on First Draft of 2025 Comprehensive Plan Periodic Update

| Count | Name | Organization/ Address | Comment Method | Date Received |
|---|---|---|---|---|
| 1 | Kendra Smith | Forest Advisory Board | Email | 02/14/2025 |
| 2 | Jana Fernandes | 20819 Starbird Rd<br>Mount Vernon, WA 98274 | Email | 02/17/2025 |
| 3 | Jan Edelstein | 17173 West Big Lake Blvd<br>Mount Vernon, WA 98274 | Email | 02/17/2025 |
| 4 | David Strich | WSDOT | Email | 02/19/2025 |
| 5 | Tricia Sears | DNR | Email | 02/20/2025 |
| 6 | Chris Barnes | 7845 Evergreen Lane<br>Anacortes, WA 98227 | Email | 03/06/2025 |
| 7 | Teresa Dix | Mount Vernon, WA 98274 | Email | 03/07/2025 |
| 8 | Robin Haglund | 11430 Walker Rd<br>Mount Vernon, WA 98273 | Email | 03/07/2025 |
| 9 | Gena DiLabio | 3124 Dakota Dr<br>Mount Veron, WA 98274 | Email | 03/07/2025 |
| 10 | John Farnsworth | PO Box 64<br>La Conner, WA 98257 | Email | 03/07/2025 |
| 11 | Kyle Loring | Evergreen Islands | Email | 03/07/2025 |
| 12 | Brad Brown | | Email | 03/09/2025 |
| 13 | Linda McLunkin | 18529 Main Street<br>Conway, WA 98238 | Email | 03/08/2025 |
| 14 | Beverly Faxon | 20757 Anderson Rd<br>Burlington WA 98223 | Email | 03/08/2025 |
| 15 | MaryLee Chamberlain | PO Box 522<br>La Conner, WA 98257 | Email | 03/09/2025 |
| 16 | Carolyn Gastellum | 14451 Ashley Place<br>Anacortes, WA 98221 | Email | 03/09/2025 |
| 17 | Lea Von Pressentin | | Email | 03/08/2025 |
| 18 | Martha Hall | Anacortes, WA | Email | 03/08/2025 |
| 19 | Beth Rosenstiel | 18870 Sulfer Springs Rd<br>Mount Vernon, WA 98274 | Email | 03/10/2025 |
| 20 | Ellen Cross | 1220 S 11th St | Email | 03/10/2025 |

| | | | | |
|---|---|---|---|---|
| | | Mount Vernon, WA 98274 | | |
| 21 | Liam Diephuis | | Email | 03/11/2025 |
| 22 | Robert Albert | 11430 Walker Rd<br>Mount Vernon, WA 98273 | Email | 03/11/2025 |
| 23 | Jim Edris | 15646 Snee Oosh Rd<br>La Conner, WA 98257 | Email | 03/11/2025 |
| 24 | Scott Andrews | Mount Vernon, WA | Email | 03/11/2025 |
| 25 | Ingrid Hannan | 213 E Lawrence St, Unit 7<br>Mount Vernon, WA 98273 | Email | 03/11/2025 |
| 26 | John Verdoes | | Email | 03/11/2025 |
| 27 | Nicole Preston | 1119 36th Street<br>Anacortes, WA 98221 | Email | 03/11/2025 |
| 28 | Randy Good | Friends of Skagit | Hand Delivered | 03/11/2025 |
| 29 | Randy Good | Friends of Skagit | Hand Delivered | 03/11/2025 |
| 30 | David Toyer | Toyer Strategic Advisers | Email | 03/12/2025 |
| 31 | Dane Jepsen | LDC Corp | Email | 03/12/2025 |
| 32 | Nancy Shimeall | La Conner | Email | 03/12/2025 |
| 33 | Mary Pugsley | 1518 Eaglemont Pl<br>Mount Vernon, WA 98273 | Email | 03/12/2025 |
| 34 | Michael Fohn | PO Box 650<br>Burlington WA, 98233 | Email | 03/12/2025 |
| 35 | Kate Smith | 17622 Greenacres Rd<br>Mount Vernon, WA 98273 | Email | 03/12/2025 |
| 36 | Jenna Friebel | Skagit Drainage and Irrigation Districts Consortium | Email | 03/12/2025 |
| 37 | Elizabeth Jann | PO Box 2112<br>Mount Vernon, WA 98273 | Email | 03/12/2025 |
| 38 | Sophia Steele | Western States Petroleum Association | Email | 03/12/2025 |
| 39 | John Day | 6368 Erwin Road<br>Sedro-Woolley, WA 98284 | Email | 03/12/2025 |
| 40 | Mary Ruth and Phillip Holder | 201 S. 7th St.<br>Mount Vernon WA 98274 | Email | 03/12/2025 |
| 41 | Heather Spore | Swinomish Indian Tribal Community<br>11404 Moorage Way<br>LaConner, WA 98257 | Email/Letter | 03/12/2025 |
| 42 | Martha Bray | 6368 Erwin Lane<br>Sedro-Woolley, WA 98284 | Email | 03/13/2025 |
| 43 | Kathleen Rowley | | Email | 03/13/2025 |

| | | | | |
|---|---|---|---|---|
| 44 | Ashley Rowley | | Email | 03/13/2025 |
| 45 | Eiren McKay | 22953 Bumblebee Lane<br>Mount Vernon, WA 98273 | Email | 03/13/2025 |
| 46 | Timothy Manns | Skagit Audubon Society<br>PO Box 1101<br>Mount Vernon, WA 98273 | Letter | 03/13/2025 |
| 47 | John and Ann Parker | Cunningham Crushing, Inc. | Letter | 03/13/2025 |
| 48 | Brenda Cunningham | 1218 S 13th Street<br>Mount Vernon, WA 98274 | Email | 03/13/2025 |
| 49 | Linda Stucks | 1712 E Fairhaven Ave<br>Burlington WA 98233 | Email | 03/13/2025 |
| 50 | Judith Chilcote | 22303 Little Mountain Road<br>Mount Vernon, WA 98274 | Email | 03/13/2025 |
| 51 | Molly Doran | Skagit Land Trust<br>1020 S 3rd, Mount Vernon WA 98273 | Email/Letter | 03/13/2025 |
| 52 | Karen Gardiner | 726 N 14th St<br>Mount Vernon, WA 98273 | Email | 03/13/2025 |
| 53 | Allen Bush | 6628 West Shore Dr<br>Anacortes WA 98221 | Email | 03/13/2025 |
| 54 | Mikala Staples Hughes | Western Washington Agricultural Association | Email | 03/13/2025 |
| 55 | Joyce Siniscal | 429 Cayuse Place<br>La Conner, WA 98257 | Email | 03/13/2025 |
| 56 | Christie Stewart Stein | 16384 Donnelly Road<br>Mount Vernon, WA 98273 | Email | 03/13/2025 |
| 57 | Callie Lowenstein | | Email | 03/13/2025 |
| 58 | Anne Winkes | 18562 Main St,<br>Conway, WA | Email | 03/13/2025 |
| 59 | Kirk Johnson | 1718 Lindsay Loop<br>Mount Vernon, WA | Email | 03/13/2025 |
| 60 | Ellen Gray | 1303 South 11th Street<br>Mount Vernon WA 98274 | Email | 03/13/2025 |
| 61 | Jenna Friebel | Skagit Drainage and Irrigation Districts Consortium LLC | Email | 03/13/2025 |
| 62 | Melinda Brown Randles | 205 South 5th Street<br>Mount Vernon, WA 98274 | Email | 03/13/2025 |
| 63 | Anne Sidbury | 610 Longview Ave<br>Anacortes, WA 98221 | Email | 03/13/2025 |
| 64 | Ellen Bynum | Friends of Skagit County | Email | 03/13/2025 |

| | | | | |
|---|---|---|---|---|
| 65 | Kathy Malley | Guemes Island Planning Advisory Committee | Email | 03/13/2025 |
| 66 | Leahe Swayze | 27877 W. Gilligan Creek Rd. Sedro-Woolley, WA 98284 | Email | 03/13/2025 |
| 67 | Sarah Roberts | 1303 26th St. Anacortes, WA 98221 | Email | 03/13/2025 |
| 68 | Jon Riedel | Skagit Climate Science Consortium | Email | 03/13/2025 |
| 69 | Valerie Rose | 1434 S. 12th St. Mt. Vernon WA 98274 | Email | 03/13/2025 |
| 70 | Annie Lohman | 15283 Sunset Road Bow, WA 98232 | Email/Letter | 03/13/2025 |
| 71 | Lora Claus | Skagitonians to Preserve Farmland | Email/Letter | 03/13/2025 |
| 72 | Benjamin Bryant | 1614 S. 14th St Mount Vernon, WA 98274 | Email | 03/13/2025 |
| 73 | Eddy Urry | RE Sources | Email | 03/13/2025 |
| 74 | Mikala Staples Hughes | Western Washington Agricultural Association | Email/Letter | 3/14/2025 |
| 75 | Michael Hughes | Agricultural Advisory Board | Letter | 3/17/2025 |
| 76 | Tim Trohimovich | Futurewise | Email | 03/13/2025 |

Comment # 1

| Sector | Policy | Element | Guidance/Draft Proposaed Policy | Reasoning | QUESTIONS |
|---|---|---|---|---|---|
| **NEW SECTOR -FOREST RESILIENCE/GHGs** | | | | | |
| Forest Resilience | **CE 11** | Climate | Commerece guidance did not list Forests in any of the Sectors provided in the guidelines for Climate Resilience or GHGs. There needs to be a specific Sector for this and Goals/Policies for both resilience and GHGs can be added. If not a separate Sector than added to Ag and Food | Not sure why a Sector on what our forests provide towards climate resilience and GHGs was omitted **NOTE:** The intergovernmental panel on climate change (IPCC) released a report in 2019 entitled "IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems" that provides guidance relating to how natural and working lands can be utilized to assist with a global climate response strategy. In addition, the food and agricultural organization of the United Nations issued a report in 2016 entitled "forestry for a low-carbon future" with specific recommendations for integrating forest and wood products in climate change strategies. "... the state will: ...(b) minimize the potential to export pollution, jobs, and economic opportunities; (c) support industry sectors that can act as sequesterers of carbon; and (d) reduce emissions at the lowest cost to Washington's economy, consumers, and businesses. | What is the proper name? |
| Forest Resilience | **CE 11.** | Climate Resilience | GOAL (Note- there should be an additional goal(s) whether a new sector or not is added): Promote cliamte resilience through ensuring healthy resilient forests that are sustainably managed | Sustainable Forestry means: Viable and Operable in perpetuity . Healthy and profitable forest. Forest Management can only occur if sustainable forestry is occuring. | |
| Forest Resilience | | | Ensure a resilient, operable and viable forest product sector by promoting and ensuring the well being of timber communities. | | |
| Forest Resilience | **CE 11.** | Climaate Resilience | GOAL Ensure resilient forests by maintaining active forest management and retaining the critical infrastructure | | |
| Forest Resilience | **CE 11.1.1** | Climate Resilience | Ensure a a viable and operable forest products industry can be sustained in perpetuity by supporting State and Federal timebr sales, road building and both the retaining and promoting of local infrastructure | The Rules and Policies setting up sales are established through WACs/RCWs and the Adaptive Management Program with a science body, and HCPs,and are some of the most stringent in the world | |
| Forest Resilience | **CE 11 1.2** | Climate Resilience | Support the Forest Practice Rules, which are vetted through the Adaptive Management Program, and the DNR Sustainable Forest Poicies adopted in 2005 and amended through 2024. | The Rules and Policies setting up sales are established through WACs/RCWs and the Adaptive Management Program with a science body, and HCPs, and are some of the most stringent in the world | |
| Forest Resilience | CE 11.1.3 | Climate Resilience | Encouage a viable forest products community, which includes supporting State and federal timber sales that provide revenues for local schools, roads, hospitals etc. | | |

| | | | | | |
|---|---|---|---|---|---|
| Forest Resilience | CE 11.1.4 | Climate Resilience | Ensure resilient forests by reducing sprawl into forest lands by promoting a viable forest product industry and the associated critical infrastructure | Protect against conversions, ensure wood to the mills | |
| Forest Resilience | CE 11.1.5 | Climate Resilience | Promote Forest management using Forest Practice Rules to protect cool, clean water | Acknowledge that forest management and forest sector policy in Washington State id amoung the highest standards in the world with respect to sustaining healthy forest ecosystems. | |
| Forest Resilience | CE 11.1.6 | Climate Resilience | Encourage collaboration between county and federal agency leadership to develop guidelines/strategies that will reduce fuel loading on Federal lands | Wild Fire ....What's the point if one landowner manages their land to be resilient and his | Get more specific here. Can cross to flooding and health and economics |
| Forest Resilience | CE 11.1.7 | Climate Resilience | Encourage forest management including timber sales on USFS lands | Over half of the State of Washington is covered in forests (22 million acres), of which 57% is public. The majority of the public land is managed by the USFS, over 8 million acres. The DNR manages just over 2 million acres. Other state and counties about 650,000. So the key to our overall forest health and any significant climate benefit in this state from forests, seems to lie in this hands of the feds. Unfortunately, they find it difficult to do much in terms of forest management. | |

| | | | | | |
|---|---|---|---|---|---|
| **Carbon Storage/Sequestration** | CE 11.2.1 | Climate Greenhouse Gases | | Fire and Disease: Managed forests and wood products play a crucial role in addressing climate change by sequestering carbon in both the forest and wood products.<br>SUSTAINABLE FORESTRY FOR CARBON REDUCTION IN WASHINGTON STATE<br>Sustainable forestry involves growing and harvesting trees, with growing trees absorbing carbon and harvested wood storing carbon, thus reducing Washington's carbon footprint. Using natural wood building products as substitutes for more carbon-intensive materials is an effective way to reduce carbon emissions. Working forests not only support carbon-friendly wood products but also create family-wage jobs. These forests also provide environmental benefits, including protecting clean water sources for salmon.<br>The carbon benefits derived from working forestry contribute to cost-effective carbon reduction. Washington's forest products industry operates below net-zero emissions. While various activities in the industry emit greenhouse gases, the growth and use of trees in wood products result in a net carbon reduction of 12%. (Source: University of Washington Forest Carbon Study, 2020). Scientific evidence supports sustainable wood harvesting as a natural method for significant carbon reduction and mitigating the risk of carbon-emitting events like wildfires. Unmanaged Forests Release Carbon<br>Unmanaged forests release carbon, and addressing this issue involves restoring forest ecosystems to enhance their resilience to climate-induced stressors. Unhealthy forests are more prone to wildfires due to overcrowding, dryness, and pest infestations. Unhealthy forests are more susceptible to wildfire because the trees are crowded, dry and often have insects and disease. Forests remove greenhouse gases Note: Washington's forest products industry operates below net-zero emissions. While various activities in the industry emit greenhouse gases, the growth and use of trees in wood products result in a net carbon reduction of 12%. (Source: University of Washington Forest Carbon Study, 2020). Scientific evidence supports sustainable wood harvesting as a natural method for significant carbon reduction and mitigating the risk of carbon-emitting events like wildfires. | On average, the private forest industry, including growing, harvesting, transportation and milling wood is Below Net Zero as it sequesters 12% of WA state's carbon emissions (Source: University of Washington Forest Carbon Study, 2020). |
| **Carbon Storage/Sequestration** | CE 11.2.1 | Climate Greenhouse Gases | GOAL- To balance carbon sequestration, storage and having a viable community (economy) | See note above!!!! | Change from Jamie |
| **Carbon Storage/Sequestration** | CE 11 | Climate Greenhouse Gases | Goal: Promote and encourage forest management actions, which explicitly account for maximizing carbon storage over time, across all pools | Mills each specializing in specific products are crucial to manufaure the wood that stores the carbon. Examples include:mill specializes in a different species, or product or size of product (Cedar, Hardwoods, commodity softwoods, specialty softwoods, veneer, plywood, chips from sawmills and veneer mills going to pulp, bark used to power boilers and generators, or beauty bark and soil amendments, sawdust for fuel and crops, planer shavings for animal bedding, Cross laminated Timber, Glue laminated beams, laminated veneer lumber, pallets, shake and shingles, utility poles, wood treating. | |

| | | | | | |
|---|---|---|---|---|---|
| **Carbon Storage/Sequestration** | CE 11.2.1 | Climate Greenhouse Gases | Determine benefits of all policies ~~under this chapter~~ by employing established protocols consistent with the State Climate Commitment Act,RCW 70A.65, specifically relying on a linked systems approach and life cycle analysis to account for cradle to grave embodied carbon of downstream products. | County policy should conform to and support RCW 70A.45.090 which stipulates, "Washington's existing forest products sector, including public and private working forests and the harvesting, transportation, and manufacturing sectors that enable working to remain on the land and the state to be a global supplier of forest products, is, according to a University of Washington study analyzing the global warming mitigating role of wood products from Washington's private forests, an industrial sector that currently operates as a significant net sequesterer of carbon. This value, which is only provided through the maintenance of an intact and synergistic industrial sector, is an integral component of the state's contribution to the global climate response and efforts to mitigate carbon emissions." | |
| **Carbon Storage/Sequestration** | CE 11.2.2 | Climate Greenhouse Gases | Promote and encourage forest management and forest sector policies which do not result in leakage (i.e., comparable activities in other jurisdictions which induce the same carbon footprint as the avoided activity), and recognize that substitution of wood products for non-renewables such as steel and concrete results in greater reduction of greenhouse gases (GHG) than from sequestration in the forest environment alone. | Mills each specializing in specific products are crucial to manufaure the wood that stores the carbon. Examples include:mill specializes in a different species, or product or size of product (Cedar, Hardwoods, commodity softwoods, specialty softwoods, veneer, plywood, chips from sawmills and veneer mills going to pulp, bark used to power boilers and generators, or beauty bark and soil amendments, sawdust for fuel and crops, planer shavings for animal bedding, Cross laminated Timber, Glue laminated beams, laminated veneer lumber, pallets, shake and shingles, utility poles, wood treating. | |
| **Carbon Storage/Sequestration** | CE 11.2.3 | Climate Greenhouse Gases | Acknowledge that forest management and forest sector policy in Washington State is amoung the highest standards in the world with respect to sustaining healthy forest ecosystems. | Can another policy be developed? | |
| | | | **OTHER PLACES WITHIN THE CLIMATE ELEMENT FORESTMANAGEMENT NEEDS CONSIDERATION** | | |
| Building & Energy | CE 2 GOAL | Climate Resiliance and GHG | | Commerce: Prioritize the use of lower-carbon building materials in new construction and building retrofits to reduce embodied carbon (ID#: P.02). Note: wood more carbon friendly than concrete or steel | |
| Building & Energy | CE 2.5 | Climate Resiliance and GHG | Reduce carbon footprint by Supporting and growing local! | Buildings using local wood products <u>increases carbon storage</u> and <u>reduce carbon footprintfrom (GHG)</u> transporting wood from other locations | |
| LandUses & Ecosystems | CE 6.8 | Climate Resilience | Continue sound ~~forest~~ management practices ~~to~~ protect streams | wildfire | Cross roads with Environment ? |
| Land Use Ecosystems | CE 6 | | Utilize contemporary peer reviewed science to validate the effectiveness of protection measures for streams, riparian zones, estuaries, wetlands, and floodplains while also encouraging restoration efforts in these areas. | Change the proposed | |

| | | | | | |
|---|---|---|---|---|---|
| Zoning | CE 10 | | Promote the management of trees on subdivided tracts by allowing landowners to practice forestry under State Forest Practice Rules. | | |
| Land Use or under new Forest SectorFOREST VIABILTY | CE 6 or CE 11 | | Minimize stream sedimentation from extreme precipitation events and flooding by implementing 1. Implementation and continuance of the RMAP (Road Maintenance and Abandonment Planning) program.<br>2. Application and maintenance of appropriate buffers on typed waters as currently prescribed under WAC 222-30.<br>3. Continued adherence to applicable Watershed Analysis prescriptions. | | |
| Land Uses & Ecosystems | CE 6.4 | | Encourage forest management practices which minimize the size, scope, and impact of future wildfires,including: maintaining healthy, vigorous forests free of disease, insects, and excessive fuel loading;developing fuel breaks where appropriate to protect infrastructure and high value ecosystems; and bolstering wildland fire fighting capacity of rural fire districts. | Change the proposed | |
| Land Use Ecosystems | CE 6.5 | | Promote sustainable practices in forestry, agriculture, and livestock management with a focus on enhancing long-term environmental resilience | Change the proposed language NOTE: Implementation of this policy will require a landscape level coordination effort across public and private landowners. Implementation of local codes and land use classifications will prioritize removal of distressed trees and forests with an emphasis placed on promoting healthy trees and vibrant tree canopies. Focus will consider the tradeoffs between retaining existing healthy trees, the planting of new trees in locations that better support tree health and tree canopy, and the efficient use and strategic use of limited developable land. Ensure the overall plan will facilitate ecologically appropriate management across different ownership types and jurisdictional boundaries. | |
| ECONOMIC DEVELOPMENT or maybe under Land Uses & Ecosystems or NEW SECTOR -Carbon Storage/Sequestration | CE 5 or CE 11.2 or CE 5 | Climate Resilience AND GHG | Promote, foster and invest in the forest industry sectors that promote forest management and development of products that store carbon | Justification: SB 6355/HB2528 recognized the important role working forests play in removing greenhouse gases. Chapter 120, 2020 Laws effective 6/11/2020. This can cross over to economic | |

| | | | | | |
|---|---|---|---|---|---|
| Economic | CE 5 | | Define and identify frontline communities, including low-income communities, outdoor workers, and those employed in carbon- intensive industries, who may be disproportionately impacted by environmental and economic shifts. Recognize that active timber management on public and private lands is vital to maintaining both environmental and economic stability. | Healthy, managed forestsprovide green, carbon positive living wage careers. | |
| Economic | CE 5 | | -Encouarage focusing on sourcing renewable building alternatives including wood products compared to high global carbon emitters in the steel and concrete industry. Partners could include schools, labor unions, businesses, and community-based organizations. | Support schools, technical institutions, labor unions, businesses, and community-based organizations to develop accessible training programs, apprenticeships, and career advancement pathways in living-wage | |
| Zoning | CE 10. EXISTING... .change to 3 policies | | Support the Skagit County Conservation District in implementing the NFPA “Firewise” program. Support SCD in implementing NFPA firewise program and WUI (wildland interface) outreach and education. | low carbon industries, including renewable energy, sustainable infrastructure, energy efficiency, and environmental restoration. | |
| | | | Support existing communities and encourage new community participation within high risk areas as mapped in the Skagit County Community Wildfire Protection Plan, (CWPP). | Commerce Menu of Measures High Priority Action. Support organizations that are committed to building accessible on-ramps to living-wage green careers within frontline communities and leading | |
| | | | Incorporate best management practices outlined in the CWPP and NFPA codes and standards manuals: (1140 – Wildland Fire Protection, 1141 – Infrastructure for Land Development, 1142- Water Supplies, 1143 – Wildfire Management, 1144 – Reducing Structural Ignition). Support active vegetation management as prescribed in the CWPP home ignition zones to reduce wildfire risk and improve forest health. | specialized promotion of green industry sectors catered to frontline communities. Examples of such green jobs could include solar panel and green roof installation and maintenance. | |
| Cultural Resources | CE 4 GOAL | Climate Resilience and socioeconomic Impacts | Promote climate resilience and equity through culturally sensitive relationships with Tribal governments, local leaders, ~~and~~ non-profit groups, and local industry that work with vulnerable communities to effectively manage climate change risks. Climate resiliency and culturally beneficial activities are enhanced by active forest management. | Added to proposed | Dave provided the following: Coordinate with local leaders, Tribal governments, forest industry representatives and non-profit organizations to promote climate resiliency. |

| | | | | | |
|---|---|---|---|---|---|
| Environmet Element of Comp Plan to include Managed F | | | mapped in the Skagit County Community Wildfire Protection Plan, (CWPP). | | |
| Intregrat into other Comp Plan Elements: | | | | | |
| MAYBE UNDER CE 11 | | | **Build the Good Neighbor Authority relationship with the USFS to promote and foster crucial forest management to aid in fire resilience.** | | |
| MAYBE UNDER CE 11 | | | **Build the Good Neighbor Authority relationship with the USFS to promote and foster crucial forest management to aid promoting carbon sequestration** | | |
| | | | Encourage MOUs forState and County bridges | **Fire Resilience** | |
| | | | Support Working Forests Carbon Blueprint of | | |
| | | | Promote forest road system, which includes road building and maintenance to access forested landscape to promote fire resilience | | |
| Environment? | | Chapter 5 | Promote Forest Health by ensuring a viable industry and performing good forest practices management practices outlined in the CWPP and NFPA codes and standards manuals: (1140 – WildlandFire Protection, 1141 – Infrastructure for Land Development, 1142- Water Supplies, 1143 – Wildfire Management, 1144 – Reducing Structural Ignition). Support active vegetation management as prescribed in the CWPP home ignition zones to reduce wildfire risk and improve forest health. | Due to increasing greenhouse gas emissions – carbon dioxide, methane, nitrous oxide and others – heat is trapped in the atmosphere causing changes to climate worldwide. Climate change is expected to affect the Pacific Northwest including Skagit County. The University of Washington Climate Impacts Group has estimated a possible sea level rise of 0.4 meters by 2050 to 2080. In addition to sea level rise, potential effects that are anticipated to occur in Skagit County include: increased risk of wildland-urban interface fires, designated forest land fires, warmer temperatures, more precipitation falling as rain in winter and loss of snowpack altering streamflow timing and changes in flood risk, and changes to terrestrial, freshwater, and marine ecosystems and species composition. As a result of climate change and ecosystem effects, there could be damage to carbon dense forests and associated habitats, low-lying farms and urban development in the floodplain. (Skagit County Natural Hazard Mitigation Plan 2014; Skagit River Basin Climate Science Report, September 2011) As these and other issues and considerations are studied and resolved, the policies in the Environment Element and other Comprehensive Plan elements will have to be revisited as an ongoing part of future updates. | Talk to Planning about cross |
| Environment and/or Ecosystems | | | To protect all environments and ecosystems in the forested landscape, forest management needs to be encouraged and promoted to provide for healthy, fire resilient landscapes, both in our forests and our communities. This includes stream buffers, visual buffers, wildlife areas, old growth forests, etc. | Management scenarios ,of course, would be different for each but this concept of “No Touch” is not working for communities, wildlife, public forests, wilderness areas, National Parks, etc. Hopefully, this would provide landscapes which can coexist with fire and continually support a carbon balance (instead of burning up and adding to increased CO2). | |
| Environment and/or Ecosystems | | | Promote riparian management for fire resilience to protection of streams and their habitats | fire will destroy cool cleam waters including those with anadromous fish | Talk to Planning about cross |

**Tara Satushek**

Comment # 2

**From:** Jana Fernandes <jfjfernandes4@gmail.com>
**Sent:** Monday, February 17, 2025 12:40 PM
**To:** PDS comments
**Subject:** Comprehensive plan Review

I would like to include my comment to the Planning Commision regarding the review of the Comprehensive Plan. I am strongly in favor of any changes made that will only UPDATE, STRENGTHEN, UPHOLD, IMPROVE AND INCREASE the plans Validity, Importance and Authority in the protection of any and all Skagit County farmlands and agricultural endeavors! I am strongly against any proposals or changes to the Plan that would in any way Diminish, Reduce or Limit the Plans Intent, Importance, or Authority regarding the Plans protection of any and all farmlands and agricultural endeavors in Skagit Co. Thank you for reading, considering and allowing me to comment on this issue.

Jana Fernandes
20819 Starbird Rd. Mount Vernon, WA 98274
360-631-9564

**Tara Satushek**

Comment # 3

**From:** Jan Edelstein <jmeten@comcast.net>
**Sent:** Monday, February 17, 2025 2:17 PM
**To:** PDS comments
**Subject:** Skagit County 2025 Comprehensive Plan - Strengthening Surface Water Quality Protection from New Development and other
**Attachments:** SC Comp Plan Review 2.17.2025.docx

Hello,

I submit the attached comments for the 2025 Comprehensive Plan. These comments urge a renewed commitment to protecting our surface waters from stormwater carried pollution. In addition, I offer more information on the adverse health effects of excessive artificial light at night on both humans and salmonoid fish. Hopefully our Comprehensive Plan will call for more active public education on the subject and more effective regulation of new lighting sources, especially on new residential and commercial development in the rural areas.

Thank you for your consideration,
Jan M. Edelstein
17173 West Big Lake Blvd.
Mt. Vernon, WA 98274
208-720-0709
jmeten@comcast.net

# Strengthen Comprehensive Plan to better address the Cumulative Impacts from New Development of Stormwater Runoff on Critical Areas and Artificial Light at Night (ALAN) on both Humans and Salmonid

1. By restricting the review of environmental impact on critical areas to the critical area on the development site plus a 200-foot buffer, Skagit County Code with its Critical Areas Checklist fails to protect critical areas on a watershed basis or basin wide, nor does it protect neighboring humans from the adverse effects of excessive artificial light at night.

2. Stormwater runoff from new development is not, unfortunately, contained on-site. Instead, it typically drains to the nearest surface water body, often a "critical area", even if that water body is ½ mile or more away.

3. Because of the artificially limited review for critical areas, the impact of the pollutants carried in that stormwater runoff to a critical area that is more than 200' from the development parcels, is not considered in the Planning Process.

4. Instead, Planning looks at each development site as an island. No SEPA review is conducted regarding the potential adverse impacts from that development site more than 200' from the perimeter of the site.

5. It is well established that surface water quality, the home of salmonid fish, is at risk from the pollutants carried in stormwater runoff from new residential stormwater. Runoff from new residential stormwater is not benign. See "Potential Contaminants in Residential Rain Barrel Water" Linda Chalker-Soctt, Washington State University Extension (2023).

6. It is equally well established that there are adverse impacts to human health and salmonoid fish from artificial light at night. To date, the County's requirements for new construction has not effectively reduced light trespass as recommended by the Illuminating Engineering Society or as recommended by the American Medical Association. There is also new science developing on the adverse impact of "Artificial Light at Night (ALAN)" on juvenile salmon.[1] https://journalofethics.ama-assn.org/article/were-all-healthier-under-starry-sky/2024-10; https://www.usgs.gov/centers/western-fisheries-research-center/news/shedding-some-light-issue-investigating-how

[1] Artificial light at night (ALAN) can be a threat to aquatic ecosystems. Light in the sky penetrates through the water and brightens the water column. Even small increases in light at night can dramatically improve USGS Western Fisheries Research Center scientists are investigating the relationship between ALAN, predators' hunting ability, and juvenile salmon survival in Lake Washington. This includes using a new instrument that overcomes significant issues experienced when attempting to measure light at night underwater… purposes. The new can measure light at the surface and through the water column by wavelength (color).

# SUGGESTED CODE CHANGES

## Skagit County Code 14.24 Critical Areas
## Amendments Needed to Protect Critical Areas
## as required by the Washington State Growth Management Act

BACKGROUND

1. RCW36.70A.060(2) requires Skagit County to adopt development regulations (DR) to protect Critical Areas likely to be affected by the development.[2] Specifically, "…development regulations must preserve the existing functions and values of critical areas."[3]

2. RCW 36.70A.172 (a) requires Skagit County to include the best available science to develop regulations to protect the functions and values of critical areas.

3. RCW 26.70A.172 (b) requires that Skagit County "shall give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries."

4. WAC 365-196-830 makes clear that the requirement to protect Critical Areas is not limited to critical areas located on the development site or within 200' of the development site as limited by the current Skagit County Code.

   "(6) functions and values must be evaluated at a scale appropriate to the function being evaluated…. Some critical areas, such as wetlands and fish and wildlife habitat conservation areas, may constitute ecosystems or parts of ecosystems that transcend the boundaries of individual parcels and jurisdictions, so that protection of their function, and values should be considered on a larger scale."

5. The Department of Ecology acknowledges that[4]
   a. Although the 'best management practices' advocated by the 2024 manual and other stormwater manuals can reduce the impacts from new development to water quality, these systems cannot remove enough pollutants to replicate the water quality of pre-development conditions, and

   b. Despite using some or all of the practices identified in the manual, some degradation of receiving waters will continue, and some beneficial uses will continue to be impaired or lost due to new development. This is because land development, as practiced today,

[2] See Critical Areas Assistance Handbook, Washington State Department of Community, Trae, and Economic Development (January 2007) page 37.
[3] WAC 365-196-830 (4)
[4] 2024 Stormwater Management Manual for Western Washington, pg. 60.
https://apps.ecology.wa.gov/publications/documents/2410013.pdf

> is incompatible with the achievement of sustainable ecosystems. Unless land use development methods are adopted that cause significantly less disruption of the hydrologic cycle, new development followed by degradation of 'swimmable, fishable' surface waters will continue.

6. In order to fulfill the mandate of the Skagit County Comprehensive Plan 2016-2036 (Comp Plan) regarding Critical Areas, the current Skagit County Critical Areas ordinance should be amended to ensure that applications for new development are accompanied by a Critical Areas site assessment if it is possible that the new development will adversely impact a Critical Area, whether on-site or off-site.

   The Comp Plan calls for the protection of Critical Areas to prevent their continued loss and degradation with priority to be given to the avoidance of impacts to Critical Areas. Comp. Plan Goal 5A-5, policy 5A-1.

7. Further, it is important to specifically identify stormwater runoff to be generated by new development that will travel through, or to, Critical Areas. Department of Ecology states that: "Polluted stormwater runoff is the leading pollution threat to our lakes, rivers, streams, and Puget Sound." [5]

8. The Growth Management Board, as affirmed by Court of Appeals of Washington, Division Three No. 29191-0-III in Stevens County v. E. Wash. Growth Mgmt. Hearings Bd., rejected a Stevens County ordinance that only called for minimizing stormwater impacts. Specifically, the Board concluded:

   > "Stevens County has failed to enact legislation which complies with the Growth Management Act's requirements to protect the functions and values of critical areas as set forth in RCW. 36.07A.020(10), .060(2), and .172."

   In other words, only minimizing the effect of impervious surfaces and stormwater runoff on critical areas, does NOT protect critical areas.

9. Skagit County Code Sec. 14.24.080(4) and the Skagit County Critical Areas Checklist limit the review of impact on critical areas to only those critical areas on the development site itself and within a 200' buffer around the site. The ordinance and checklist do not address the impact of the development's stormwater runoff on off-site critical areas it may pass through or to which it ultimately drains.

10. The County, operating under its General Municipal Stormwater Management NPDES Permit, has required only that the Applicant's engineer certify that the design of stormwater management facilities for new development comply with the current Department of Ecology

[5] https://apps.ecology.wa.gov/publications/publications/1103060.pdf

Stormwater Management Manual for Western Washington. As the Department of Ecology has acknowledged, such compliance leaves the stormwater runoff polluted with sediments, nutrients, and other pollutants. In other words, critical areas in the path of stormwater runoff, or as the receiving water body, are NOT protected from the development's polluted stormwater.

AMENDMENTS NEEDED:

1. Amend the Skagit Critical Area ordinance to clarify that the Applicant and Administration Official are to address the potential impacts of the development on critical areas either on-site or off-site. Remove all references to 200' buffer where it is used as a limitation on the protection of critical areas.

2. Amend the Skagit Critical Area checklist to require the Applicant to identify any Critical Areas likely to be affected by construction and operation of the development. With regard to stormwater runoff, specify any critical areas and/or critical drainage areas[6] to which the development's stormwater runoff may pass through or to which it ultimately drains.

3. Amend the Skagit Critical Area ordinance to clarify that for any development that proposes to add more than 10,000 sq. ft. of impervious area, for which the additional stormwater runoff will drain through or to a critical area, the Critical Area Site Assessment shall include:

    a. an evaluation of the pollutant load to be carried in the new stormwater runoff,
    b. an assessment of the existing water quality of any such critical area to be affected, and
    c. an assessment of the impact of the addition of new pollutants on the existing water quality.

4. Amend Skagit County Stormwater Management Ordinance 14.32.100 Critical drainage areas to require the Administrator to require critical area site assessments by qualified professionals regarding all potential stormwater-related impacts on critical areas which serve as drainage areas for new development.

[66] See 14.32.100 Critical drainage areas

**Tara Satushek** Comment # 4

**From:** Strich, David <david.strich@wsdot.wa.gov>
**Sent:** Wednesday, February 19, 2025 4:32 PM
**To:** PDS comments
**Cc:** Robby Eckroth
**Subject:** Skagit County's 2025 Comprehensive Plan - WSDOT MBA Comments on draft Transportation Goals and Policies

To the Skagit County Comprehensive Plan team,

Thank you for the opportunity to once again review the draft policy revisions to the Skagit County Comprehensive Plan's Transportation Goals and Policies. Please accept this email for the record.

WSDOT Northwest Region Mount Baker Area (MBA) planning is pleased to see that some suggestions from our September 19 comments were incorporated into the current version of the draft goals and policies.

We also want to acknowledge the excellent work that has been done to update many policies, a few of which include:

- Implementing the County ADA Transition Plan.
- Integrating multimodal considerations into many policies; clearly identifying appropriate policies for differentiating between vehicular and multimodal, especially in terms of Levels of Service.
- Articulating Active Transportation needs based on latest available science and industry best practices and promoting modal interconnectivity.
- Supporting compatible land uses on the multimodal regional transportation system including state highways to address all user needs.

Below are comments that we think with further strengthen and clarify this work.

**Re: New Goal 8A**
The current version includes cities, tribes, and transit agencies. Given the volume of WSDOT-based references and data used to draft the Transportation Element, and our shared common interest of creating and maintaining a safe, integrated multimodal transportation network, it is ***suggested to include the state (WSDOT) in this list*** explicitly as a partner in the effort. This also aligns with a transportation user's experience of seamless transitions between and among connections between facilities managed by different jurisdictions/ agencies.

**For your consideration**
Including WSDOT priorities in your update may support our shared vision of maintaining and creating a safe multimodal transportation network. Below are draft templates that you may consider using, editing, and integrating into the appropriate sections of the draft goals and policies.

**Draft Goals**

- Encourage use of existing and new public roads to maximize internal circulation within Skagit County and promote economic development and community connectivity. [Economic Development, Resiliency]
- Develop the local internal road network to increase local circulation at the rural service centers/ areas of rural commercial development/ LAMIRDs.
- Coordinate with state, regional, and local agencies to implement a "safe systems approach" using best practices to advance transportation safety for all users of the transportation system including transit, bicycle, and pedestrian activities.

**Draft Policies**

- Inform and coordinate early and often with WSDOT to:
  a. Identify and plan for projects on or across state facilities.
  b. Identify and plan for projects to support multimodal use along and across the regional transportation network including state highways consistent with RCW 47.04.035 Complete Streets Principles.
  c. Identify and plan for projects to support multimodal use along and across the regional transportation network including state highways consistent with and the WSDOT Active Transportation Plan to meet Bicycle and Pedestrian Levels of Traffic Stress (LTS) of 2 or better.
  d. Pursue support and funding for recommended projects identified in RELEVANT JURISDICTION PLAN(S) [e.g.: MPO/RTPO plans [Safety Action Plan, Regional Transportation Plan], 6-year TIP, CIP, "xxx corridor safety plan", etc.].
  e. Support maintenance in state rights of way.
  f. Ensure effectiveness, connectivity, and safety of I-5 and state highways throughout the county.
  g. Review development projects near or adjacent to state facilities to coordinate local access and address transportation needs for all users.
  h. Minimize private access to state highways to enhance safety and mitigate chances of vehicle collisions.
  i. Ensure WSDOT level of service standards can be maintained or not further degraded for state facilities because they are integral to the local transportation network and regional connectivity. Identify improvements or strategies that may be needed to maintain acceptable level of service.
  j. Establish that proposed improvements on state facilities are consistent with the WSDOT Design Manual.
  k. Establish that alterations to landscaping in WSDOT right-of-way are consistent with WSDOT removal and replacement policies.

**Non-WSDOT specific goals or policies**

- Determine emergency access needs and traffic flow to support rapid evacuation (from natural disasters, etc.) [Resiliency]
- Identify and pursue funding to promote safe and equitable transportation access and mobility needs especially at intersections and near public facilities such as schools, parks, and other community facilities. [Land Use, Parks & Recreation, Economic Development, etc.]

We hope you will find these useful and consider tailoring them to fit your specific needs. We look forward to continued collaboration to support the County's Comprehensive Plan update and are currently reviewing the draft Comprehensive Plan that was recently published.

Thanks again,
David Strich

David Strich, PhD
Senior Multimodal Planner
Northwest Region/Mount Baker Area (MBA) Planning
(360) 757-5996
Él/彼/He/Him
Website: Planning guidance | WSDOT (wa.gov)

**Tara Satushek** Comment # 5

**From:** Sears, Tricia (DNR) <Tricia.Sears@dnr.wa.gov>
**Sent:** Thursday, February 20, 2025 4:40 PM
**To:** Robby Eckroth
**Cc:** Sears, Tricia (DNR); Long, Lexine (COM)
**Subject:** Skagit County's Comprehensive Plan Amendment (2025-S-8103): WGS comments

2/20/25

Hello Robby,

In keeping with the interagency correspondence principles, I am providing you with comments on Skagit County's Comprehensive Plan Amendment (2025-S-8103).

For this proposal submitted via Planview, I looked at the proposal and focused on areas related to WGS work. Of note, but not limited to, I look for language around the geologically hazardous areas, mineral resource lands, mining, climate change, and natural hazards mitigation plans.

Specifically in this proposal, I reviewed the Comp Plan Redlines.PDF.

Introduction and Summary
Good to see the comprehensive plan linked to other plans like the hazard mitigation plan. Good to see this added to the comprehensive plan on page 30 "Closer coordination with natural hazard avoidance: This was identified in the 2005 update emphasizing the need to be more sensitive to the threats posed by devastating natural hazard events, particularly flooding. UGA expansion, rural community development, public facility siting and other forms of growth in identified hazard areas should be avoided through integrated comprehensive and hazard mitigation plans."

Urban, Open Space, and Land Use
Looks good.

Natural Resource Lands
On pages 121-122, in the Mineral Resources Overlay section, you refer to a 2005-2007 update of the MRL. There is no mention in this section of the recent aggregate resource mapping inventory that WGS did. It is very relevant information; suggest including a reference or mention of it at a minimum. You can find Skagit County on the interactive map and download the publications. Aggregate Resources | WA - DNR

On page 123, there is a Natural Resource Lands Information Clearinghouse section. It sounds intriguing; where does someone go to access the information? There is no website or publication identified to obtain the information that is described.

On page 126, it states "Refer to U.S. Geological Survey and Washington State Department of Natural Resources survey maps for explanations of the classifications used below. These maps are available for viewing at Skagit County Planning & Development Services. " For WA DNR/Washington Geological Survey maps you can also cite the Washington Geological Survey's Geologic Information Portal. Geologic Information Portal | WA - DNR

Page 153, has a sentence that is awkwardly written and awkwardly located in the paragraph "This element proposes not to allow chemical leach mining in Skagit County until state laws are enacted to allow such activities." Wouldn't the element either allow or not allow, how could it propose? The language includes a few WAC references for mineral

resource lands. It would useful to include WACs and or RCWs related to the noted sentence, and the sentences preceding it to provide clarity.

Page 159, "Development regulations for mineral resource lands in the county shall be consistent with applicable Washington State mining regulations and Department of Natural Resources rules." Suggest rewording to say "… applicable Washington State mining regulations, including the Washington Department of Natural Resources rules."

This is one of the most detailed comprehensive plans I have seen about MRLs.

Environment
On pages 169-170, it is great to see the natural hazards mitigation plan described. It states "The adopted Natural Hazards Mitigation Plan (2014) includes goals and…" Note that this language needs to be updated with your more current NHMP. NHMP Update 2023.pdf

Page 175, Classification and Designation of Critical Areas; there is no statement that describes which of the geologically hazardous areas hazards are in Skagit County. There is no map of any of the critical areas included in this section. Note, the specific map references are being removed.

Climate and Resiliency
There are a lot of goals and policies! Thank you for noting that climate change can exacerbate existing hazards.

Below, I include our usual language for this and future endeavors.

Recognizing the limitations of the current proposals, I want to mention that it would be great for you to consider these in current or future work, be it in your comprehensive plan, development code, and SMP updates, and in your work in general:

- Consider adding a reference to WAC 365-190-120 geologically hazardous areas for definitions in other areas besides the CAO. In addition, consider adding a reference to WAC 365-196-480 for natural resource lands.
- Consider adding a reference to the WGS Geologic Information Portal in other areas besides the CAO. If you have not checked our interactive database, the WGS Geologic Information Portal, lately, you may wish to do so. Geologic Information Portal | WA - DNR
- Consider adding language that the qualified professional geologists and engineers are licensed in Washington.
- If you have not checked out our Geologic Planning page, you may wish to do so. Geologic Planning | WA - DNR

Thank you for considering our comments. If you have any questions or need additional information, please contact me. For your convenience, if there are no concerns or follow-up discussion, you may consider these comments to be final as of the 60-day comment deadline of 4/13/25.

Cheerio,
Tricia

Tricia R. Sears (she/her/hers)
**Geologic Planning Liaison**
Washington Geological Survey (WGS)
Washington Department of Natural Resources (DNR)
Cell: 360-628-2867 | Email: tricia.sears@dnr.wa.gov

**Tara Satushek** Comment # 6

**From:** Chris Barnes <lgchris.guemes@gmail.com>
**Sent:** Thursday, March 6, 2025 2:23 PM
**To:** PDS comments
**Subject:** Possible Spam: Skagit County Comprehensive Growth Plan

• **Strongly oppose the new provision of policy 3C-1.6.** Four dwelling units per acre has never been an allowable density in the rural area under the Growth Management Act (GMA).
• **Encourage residential development in cities and towns as the best way to promote affordable housing in Skagit.** Allowing certain housing types which may be more affordable is a worthwhile goal, but it should not be coupled with an increase in residential densities in Rural Village Residential.

I really appreciate your consideration of these comments. Rural Skagit County is a magical place that I hope can be preserved for future generations.

Sincerely,
Chris Barnes
7845 Evergreen Lane
Anacortes, WA 98221

Sent from my iPhone

**Tara Satushek** Comment # 7

**From:** tdixrainier@frontier.com
**Sent:** Friday, March 7, 2025 9:57 AM
**To:** PDS comments
**Subject:** public comment comprehensive plan 2025

My name is Teresa Dix. I've lived in Mount Vernon for 19 years. I love this place for it's close proximity to so many beautiful parks, and for the beauty of the valley farms. I volunteered for the Skagit Conservation District for 13 years as a Stream Team member and have made my living as an environmental educator.

In the face of Climate Change and all of the environmental disasters we are witnessing in the U.S. and around the world there is an urgent need for our county to plan ahead and to plan wisely. This is why I think it is essential for an Environmental Advisory Board (EAB) to be put in place to plan for and serve the future needs of our communities. The board would be there to assist the county planners in understanding and implementing the best available science. Those with professional expertise in habitat restoration, conservation, climate science, greenhouse gas emissions reduction, and urban planning for greenways for citizen recreation, and education should be on the board. Younger people as well should be included since it is there future we are planning for.

The EAB would be available to make recommendations to Skagit County Commissioners on natural resources, water and wildlife habitat, land-use decisions that would impact marine shorelines and rivers etc. The EAB could also maintain an active outreach to our county partners, stakeholder groups, tribal governments, and underserved communities.

Thank you for the work you do, and I hope the Comprehensive Plan for 2025 will include an EAB.

Respectfully,
Teresa Dix
Mount Vernon, Wa.
98274

**Tara Satushek** Comment # 8

**From:** Robin Haglund <robin@gardenmentors.com>
**Sent:** Friday, March 7, 2025 1:33 PM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan Draft Policies

I am a Skagit resident living in a Rural Village zoning area (address below)

I am writing to express a few opinions on the Skagit County 2025 Comprehensive Draft Policies.

## 1. RECOMMEND THE ESTABLISHMENT OF AN ENVIRONMENTAL ADVISORY BOARD (EAB)

**Background:** At the start of the 2025 Comprehensive Plan Update process, the County reached out to the public asking for input at Open Houses and later via written comment. Support for an **Environmental Advisory Board** (EAB) was expressed at the Open Houses, and in **59 of the 90 comments** submitted to PDS by the public regarding the Climate element of the revised Comprehensive Plan 2025 Update this past Fall.

Yet the c**reation of an EAB is mentioned nowhere** in the current draft of the Comprehensive Plan. It is imperative that this be taken seriously and included in any forthcoming policies.

Skagit County's natural environment is multi-layered with a variety of diverse ecosystems, open space, and critical areas. County policy states that decisions about these complex areas will be based on "best available science", yet Skagit County does not have an Environmental Advisory Board (EAB) to assist county decision makers in addressing environmental issues that are made increasingly complex as the impacts of climate change intensify. "Best science" can only become available when an Environmental Advisory board is included to consider any opinions, studies or other information that may come under consideration or be required.

• **Recommend:** The County needs to **respond** to what **a clear majority of the public participating in the comprehensive plan process has requested** and include in the Environmental Element of the
Comprehensive Plan a policy creating an Environmental Advisory Board (EAB). The Environmental Advisory Board will be made up of people who have lived experience and
those with professional expertise on a variety of environmental issues, including land conservation and stewardship, habitat restoration, climate science, greenhouse gas emissions reduction, climate impacts mitigation and adaptation, urban planning, geology & geomorphology, open space issues like bike and walking paths, natural sciences, and conservation biology.

This will help the County Commissioners and the Planning Department
look at environmental issues holistically and make decisions based on the best available science. In addition to researchers, scientists, and educators, the Environmental Advisory Board could include younger people and underserved people so the commissioners could hear from people who do not usually have the opportunity to contribute to environmental policy planning.

The EAB would report to and make recommendations to the Skagit County Commissioners on natural resource and environmental plans, policies, and programs. Examples include legislation affecting natural lands, open space, waters and wildlife habitat; land use decisions affecting the long-term sustainability of natural processes like rivers and marine shorelines; natural solutions to improve climate preparedness; environmental justice and environmental stewardship.

An EAB would ensure that best available science is consistently included in local planning. It could maintain active outreach to county partners, stakeholder groups, tribal governments, and underserved community members.

## 2. RURAL ELEMENT: OPPOSE INCREASED DENSITY IN RURAL VILLAGES

Background: According to the Rural Element draft on p. 76 (redlines version) of the draft Comp Plan, the Skagit Council of Governments Growth Monitoring Report shows that the rural area accepted 24.6% of the County's growth from 2017-2022, compared to 75.4% for the urban areas. This reflects a movement in the wrong direction from the 2000 to 2010 period when rural area growth was 21% versus 79% for the urban area.

Recommend: Strongly oppose any effort to create additional development potential in the rural area, as appears to be the intent in policy 3B-1.6, as discussed below.

• **Strongly oppose the new provision of policy 3C-1.6(b)** that the Rural Village Residential land density may be up to "4 dwelling per acres" (sic) for certain housing types which may be more affordable. Four dwelling units per acre has never been an allowable density in the rural area under the Growth Management Act (GMA).

I live in one of these areas, and the growth we are already seeing here is not sustainable. Our ecologies here are very delicate. We already have issues where the town of Bay View is dense and shedding unclean sewage into the delicate ecology of Padilla Bay. The more houses we are seeing built on the ridge are leading to more water issues the roads department are unable to effectively manage. Properties and roads and culverts wash out regularly and receive haphazard repairs. Fields on the flatlands below the ridge remain flooded more often and longer as the ground above struggles to mitigate the water as it carries fewer trees and swamplands and more structures and roads and lawns.

Putting up to 4 dwellings per acre in such situations is asking for disaster. The land slides here as it is, would have us all wash downhill into the farmlands and into the bay? Take away the native vegetation to craft more and denser housing will inevitably cause detriment to our community without providing house relief needed in our community.

We have zero infrastructure to support low income, dense structure building targets. There are no buses. The roads area already struggling. Cramming multiple houses onto single acre lots will not help with low income housing needs. It will simply result in more million dollar homes in the country crammed together. And if those are intended to solve low income housing issues, odds are, we won't see those structures built within urban areas which are designed with public transportation and other amenities these community members need.

• **Encourage residential development in cities and towns as the best way to promote affordable**
**housing in Skagit County.**

The most recent population growth trends show the county moving
away from the GMA goal of limiting growth in the rural area to no more than 20 percent. Allowing additional density in the rural area, even for the important purpose of increasing affordable housing, is moving in the wrong direction.
• Allowing certain housing types which may be more affordable is a worthwhile goal, but it should not be coupled with an increase in residential densities in Rural Village Residential.

Thank you for your work and for considering my input,

Robin Haglund
11430 Walker Road, Mount Vernon, WA 98273

**Tara Satushek** Comment # 9

**From:** dilabiog dilabiog <dilabiog@frontier.com>
**Sent:** Friday, March 7, 2025 2:29 PM
**To:** PDS comments
**Subject:** comprehensive planning 2025

My name is Gena DiLabio and I reside in Mount Vernon for the past 19 years. Originally I am from an urban area, Detroir, MI and happily moved to a rural area to retire for many reasons and would like this area to remain rural.

In the face of Climate Change and all of the environmental disasters we are witnessing in the U.S. and around the world there is an urgent need for our county to plan ahead and to plan wisely. This is why I think it is essential for an Environmental Advisory Board (EAB) to be put in place to plan for and serve the future needs of our communities. The board would be there to assist the county planners in understanding and implementing the best available science. Those with professional expertise in habitat restoration, conservation, climate science, greenhouse gas emissions reduction, and urban planning for greenways for citizen recreation, and education should be on the board. Younger people as well should be included since it is there future we are planning for.

The EAB would be available to make recommendations to Skagit County Commissioners on natural resources, water and wildlife habitat, land-use decisions that would impact marine shorelines and rivers etc. The EAB could also maintain an active outreach to our county partners, stakeholder groups, tribal governments, and underserved communities.

Thank you for the work you do, and I hope the Comprehensive Plan for 2025 will include an EAB.
I will comment on Part 2 in a separate email,

Respectfully,

Gena DiLabio
3124 Dakota Drive
Mount Vernon, WA 98274

**Tara Satushek** Comment # 10

**From:** John Farnsworth <jfarnsworth@scu.edu>
**Sent:** Friday, March 7, 2025 2:48 PM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan Draft Policies

Comments on Skagit County 2025 Comprehensive Plan

John S. Farnsworth, PhD.
PO Box 64
La Conner, WA 98257

7 March 2025

I recommend the establishment of an Environmental Impact Board, EAB, an idea that has had strong support in previous rounds of comments. As I see it, this board would be made up of people with expertise in the conservation of biodiversity, the preservation of open space and agricultural acreage, and the promotion of sustainable agriculture.

The best thing the comprehensive plan can accomplish is to keep the Skagit Valley rural. I oppose any effort to create additional development in rural areas, especially as appears to be the intent in policy 3B-1.6, or to encourage increased density within rural areas, as appears in policy 3C-1.6(b). Any efforts to promote development of affortable housing in Skagit County should be in towns as large as Anacortes, Mt. Vernon, Burlington and Sedro-Woolley. The small towns, such as Edison, La Conner, Hamilton, and Concrete should be encouraged to remain small. People who live in such towns, myself included, cherish them precisely because of their small size. If I wanted to live in Seattle, I wouldn't be living in La Conner.

Finally, the Skagit County Comprehensive Plan should adhere to state guidance in terms of addressing climate policy. We are already behind in this area; let's not wait until our homes are floating away to come up with a plan.

John S. Farnsworth, PhD
*Reading Nature: The Evolution of American Nature Writing*
*Nature Beyond Solitude: Notes from the Field*
*Coves of Departure: Field Notes from the Sea of Cortes*

**Tara Satushek** Comment # 11

**From:** Kyle Loring <kyle@loringadvising.com>
**Sent:** Friday, March 7, 2025 3:14 PM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan Update -- Evergreen Islands comments
**Attachments:** Evergrn Isls cmts -- Skagit Comp Plan update.pdf

Dear Planning and Development Services,

Please find attached comments submitted on behalf of Evergreen Islands to address the complete draft of the Skagit County Comprehensive Plan Update.

Sincerely,
Kyle Loring

Kyle A Loring *(he/him)*
LORING ADVISING PLLC
PO Box 3356 | Friday Harbor, WA 98250
360-622-8060 | www.loringadvising.com

---

CONFIDENTIALITY NOTICE--The information contained in this email message may be privileged, confidential, and protected from disclosure and is intended for the use of the addressee(s) only. If you are not an intended addressee, please be advised that any dissemination, distribution or copying of this e-mail is prohibited. If you receive this communication in error, please notify the sender by reply email and delete the message and any attachments.

LORING ADVISING

By Email

March 7, 2025

Skagit County Planning & Development Services
1800 Continental Place
Mount Vernon, WA 98273
pdscomments@co.skagit.wa.us

Re: Skagit County's 2025 Comprehensive Plan Update – public comments

Dear Skagit County Planning & Development Services:

I am submitting these comments on behalf of Evergreen Islands to address the current (undated) draft of the Skagit County Comprehensive Plan update. Evergreen Islands appreciates the effort that Skagit County has made to improve its Comprehensive Plan to address climate change and greenhouse gas emissions, as well as housing affordability. We offer the comments below first to identify areas of support, and second, to provide additional recommended changes, including some that we are reiterating from November 2024.

**A. Supported Amendments.**

Evergreen Islands appreciates and supports each of the following amendments.

- Agricultural Designations. Policy 4A-1.1(e). The new policy to ensure holistic review of the land use maps when making designation decisions: "Site-specific proposals to de-designate natural resource lands must be deferred until a comprehensive countywide analysis is conducted."

- Critical Areas. Goal 5B. The new goal to "Address climate hazards and GHG reductions through protection, enhancement, and restoration of the natural environment," and related policies.

- Housing. Goal 7. The focus on increasing housing in limited areas of more intensive development and on increasing the housing types that may be constructed there.

- Transportation. Element 8. The new policies to promote active and multimodal transportation and areas identified for upgrades to non-motorized infrastructure. In addition, we are impressed by the County's willingness to measure MultiModal Level of Service ("MMLOS") for its active transportation infrastructure. However, we recommend that the County incorporate the Level of Traffic Stress into its Level of

Service assessment for its active transportation network. While the Comprehensive Plan proposes to exclude factors like traffic volume, speed, and physical separation (characterized as Level of Traffic Stress) from its MMLOS, these factors directly impact whether active transportation infrastructure provides a viable option for many potential users. Furthermore, they are easily and objectively measured. Because they directly affect whether people will use the active transportation infrastructure, their omission would create significant inaccuracies in the level of service measured by the County.

- Energy Conservation. Goal 9A-5. The amended goal to "prioritiz[e] the use of renewable energy sources and energy-efficient technologies," and related policies to phase out non-renewables where possible and use lower carbon building materials.

- Solid Waste Management. Goal 9A-6. The revision to Policy 9A-6.1 to "maintain" the countywide recycling program and the new Policy 9A-6.3 to "Divert food waste from landfill to compost or anaerobic digestion."

- Climate and Resiliency. Element 12. The new goals and policies related to Climate resilience.

**B. Additional Recommended Changes.**

- **Climate and Resiliency Element, No. 12.** We appreciate and fully support the robust new climate goals and policies. We reiterate the following recommended additions from our November 2024 comment letter:

    - **Environmental Advisory Board (EAB).** We recommend that Skagit County establish an EAB to provide recommendations on goals, policies, and development regulations related to climate change and sea level rise. The EAB would consist of people with professional and lived experience regarding environmental issues like climate science, wildlife corridors and habitat, sea level rise, and shoreline processes and conservation.

    - **Goal 12E (Economic Development).** We recommend the addition of a policy promoting a transition from high carbon intensity industries and commercial activities to low carbon intensity industries and commercial activities.

    - **Goal 12G (Transportation).** We recommend the addition of a policy promoting increased nonmotorized transportation to support the goal of reduced Vehicle Miles Traveled. While proposed revisions to the Transportation Element appear

to address nonmotorized transportation, adding the policy above in the Climate Element will increase consistency and send a stronger message.

- **Goal 12J (Sea level rise).** We recommend a more thorough treatment of the landslide risk likely to be exacerbated by more severe storms. This could be achieved with:

  - updated identification, mapping, and zoning of high-risk areas for flooding and landslides and strict limitations on new development and major redevelopment in these areas;

  - the addition of a training policy, such as: "Skagit County will develop internal resources and training materials for staff to use when reviewing permit applications that involve proposals with landslide risks."

  - a focus on reducing landslide and flooding hazards and risks at the scale of the geologic risk, rather than at a parcel scale, to reflect the geographic extent of shoreline processes and geologic hazards.

- **Housing Policies.** We recommend that you decline to adopt the following two new policies:

  - 7A-1.2. A blanket new policy to "Permit accessory dwelling units (ADUs) in rural residential zones to provide additional housing choices for all economic levels, multi-generational, and smaller households." While housing affordability is a critical issue to be addressed, the Growth Management Hearings Board has ruled that sprawl may not provide the solution and violates the Growth Management Act ("GMA"). In *Friends of the San Juans, et al. v. San Juan County*, the Growth Board ruled that, "[t]o allow a freestanding accessory dwelling unit on every single-family lot without regard to the underlying density in rural residential districts, including shoreline rural residential districts, fails to prevent urban sprawl, contain rural development, and, instead, allows growth which is urban in nature outside of an urban growth area." WWGMHB No. 03-3-0003 (Corrected FDO, 4-17-03). The Growth Board reached this conclusion after noting that they had consistently stated that densities of more than one unit per five acres constitute urban growth, and thus allowing a principal residence and an ADU with the same characteristics on parcels smaller than ten aces qualified as urban sprawl. Thus, a housing policy to allow ADUs on rural lands must be narrowly tailored to ensure that it does not promote urban sprawl.

- 7B-1.5. A new policy that would preclude more restrictive standards for ADUs than for the principal units, which could contribute to urban sprawl in violation of the GMA by preventing the narrow tailoring necessary for ADUs allowed in some instances on rural lands.

- **Environmental Policies.** To ensure the protection of critical areas required by the GMA, we continue to recommend that Skagit County decline to make the revisions below. We have used the same convention as the draft Update, with strikethrough indicating language that the County proposes to delete and underline indicating language that would be added.

  - **Comp Plan Goal 5A**. Preserve and protect wetlands to ~~prevent their continual loss and degradation~~ maintain no net loss of wetland functions and values. *While the County must achieve no net loss of wetland functions and values, we also recommend that it prevent their continued loss and degradation.*

  - **Comp Plan Goal 5A.** Minimize risk to life, property, infrastructure, and resources caused by ~~disrupting geologically hazardous areas or by locating development in areas subject to~~ naturally hazardous geologic processes. *This text should be retained because it provides helpful instruction for residents and County staff alike in contemplating areas for new development. It also acknowledges that alterations to geologic processes can increase the risk.*

  - **Comp Plan Policy 5A-5.1.** Critical Areas shall be designated and protected to maintain no net loss of wetland functions and value ~~prevent their continued loss and degradation~~. *Based on the scientific literature that demonstrates that wetland mitigation efforts typically fail,* t*he original language is more likely to achieve protection and no net loss of wetlands and their functions and values.*

  - **Comp Plan Policy 5A-5.1(a)(iii).** Mitigation projects ~~shall~~should, whenever feasible, ~~contribute to an existing wetland system or restore an area that was historically a wetland~~ achieve no net loss of wetland area. *As an initial matter, mitigation projects must, at a minimum, achieve no net loss to satisfy the GMA requirement to protect critical areas, so the proposal to render this a suggestion rather than a mandate violates the GMA. Further, while retaining the same area of wetland is a valuable goal that should be included in this policy, it does not alone ensure no net loss due to the different classes of wetland. Therefore, this policy should be further revised to ensure the same area of the same quality of wetland, as well as no net loss of wetland functions and values. In addition, as noted above the scientific literature indicates that creating new wetlands is not likely to compensate for impacts*

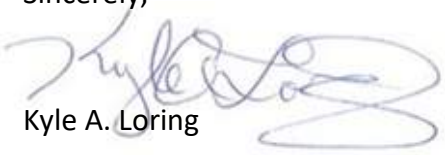
*to existing wetlands, and thus the existing language should be retained to promote mitigation in areas proven to function as wetlands.*

- **Comp Plan Policy 5A-5.4**(b) Land used for critical area mitigation should be preserved in perpetuity. ~~Monitoring and maintenance of critical area mitigation sites shall be provided until the success of the site is established~~. A minimum ~~M~~monitoring period should be established to ensure successful establishment of approved mitigation plans.~~of the mitigation site should take appropriate measures utilizing one or more of the following: (i) Applicants should develop comprehensive mitigation plans in order to ensure long-term success of the mitigation project. Such plans should provide for sufficient monitoring, maintenance, and contingencies to ensure mitigation persistence~~. *By revising the mandatory "shall" to "should" for monitoring and maintenance of mitigation sites, the new language would no longer ensure that mitigation functions as required for the project. In addition, while there may be some redundancy in the second portion of deleted language, it nevertheless provides useful instruction and should be retained.*

- **Comp Plan Policy 5A-5.4(d)**. Critical area mitigation proposals should ~~improve overall~~ provide equivalent or greater critical area functions, recognizing that it may be inappropriate to impact certain critical areas. All critical area functions shall be considered. *The text to be removed acknowledges the reality that the implementation of mitigation proposals typically results in a decrease in critical area functions and values, and thus should be retained to promote the aspirational goal of improved functions.*

Thank you for your attention to these recommendations. If you have any questions, please do not hesitate to contact me at 360-622-8060 or kyle@loringadvising.com.

Sincerely,



Kyle A. Loring

**Tara Satushek** Comment # 12

**From:** Brad Brown <bradleywaynebrown@gmail.com>
**Sent:** Sunday, March 9, 2025 11:21 PM
**To:** Robby Eckroth
**Subject:** ---> final version comment
**Attachments:** Brad Brownbradleywaynebrown.pdf; Washington State has a hunger problem.pdf

Hi,

Thanks for all the help on this.

Here is the final version of my comments that I would like to make regarding the update of the Skagit County Comprelhensive Plan.

Again, thanks.

Peace Be With You, Brad

--
**Blessed are the peacemakers.**

***la paz sea con usted.***

**Isaiah 40:18** *To whom will you liken God? To what image will you compare Him?*

Brad Brown *bradleywaynebrown@gmail.com*
22 Key Dr., Eastsound, WA 98245

Board of the Skagit County Commissioners
and Skagit County Planning Commissioner
c/o 1800 Continental Pl, Mount Vernon, WA 98273

March 7, 2025

Greetings,

My name is Brad Brown and I am a resident of San Juan County. However, I spend a great deal of time in Skagit County particularly as a volunteer with the Sagit County Extension Master Gardener program. I am not speaking as a representative of the Master Gardeners.

I am speaking, though, from knowledge I have learned from the Master Gardener program.

All my adult life I have worked in or volunteered with organizations that help those in need: the unhoused, immigrants, victims of domestic violence. Interestingly, a common thread was the scarcity of food for each of these populations.

It was while working with migrants and teens in Redding and San Luis Obispo, California, that I became a part of the community garden efforts. Through that exposure I have developed a life-long love of working with dirt, plants, and people.

I bring to you today a simple proposition that might be transformational.

In county codes -particularly the zoning codes- there is a phrase "display gardens" which means "horticultural gardens open to the public, including ornamental plants." These *display gardens* can inhabit various spaces in a community -- commercial and residential as well as public. It is my belief that many of these spaces could contain vegetables and fruit plantings that would be not only be attractive and serve the purposes of *display gardens* as specified in the codes but also would provide plants that produce food for community members.

There are a number of community gardens already within the county; there are organizations already established to increase access to food within the county; there are experts in the county who would donate time, talent, and treasure to assure the success of a county-wide effort to reimagine "fallow" spaces into production land.

There are details, certainly, to map out for such an endeavor… and a simple change in definition in the county update now could move the ball forward to a thoughtful and humane adventure into increasing food security for Skagit residents.

We have some of the most fertile land in the world. Even a tiny little spot of ground tucked away at some cross-roads or between two commercial lots could garner great rewards.

I know the value of not only grown food but also of *growing* food.

I am happy to answer any questions, and I am at your disposal for further discussions.

Thank you for this consideration.

Brad Brown

Brad Brown *bradleywaynebrown@gmail.com*

● Skagit County has a hunger problem.

> Food insecurity is defined by the United States Department of Agriculture as the lack of access, at times, to enough food for an active, healthy life. Food insecurity is associated with numerous adverse social and health outcomes and is increasingly considered a critical public health issue. Key drivers of food insecurity include unemployment, poverty, and income shocks, which can prevent adequate access to food. Alternatively, multiple interventions have been shown to reduce food insecurity, including participation in food assistance programs and broader societal-level improvements in economic stability.

U.S. Department of Health & Human Services, National Institutes of Health, *Food Accessibility, Insecurity and Health Outcomes*. https://www.nimhd.nih.gov/resources/understanding-health-disparities/food-accessibility-insecurity-and-health-outcomes.html

> In Washington state, those who cannot consistently put food on their tables more than doubled during the COVID-19 pandemic. The number of food-insecure families remains high.

Univ Wa, Combined Food Drive, "Addressing summer hunger for kids in our communities", May 24, 2023, https://hr.uw.edu/cfd/2023/05/24/addressing-summer-hunger/ Home.

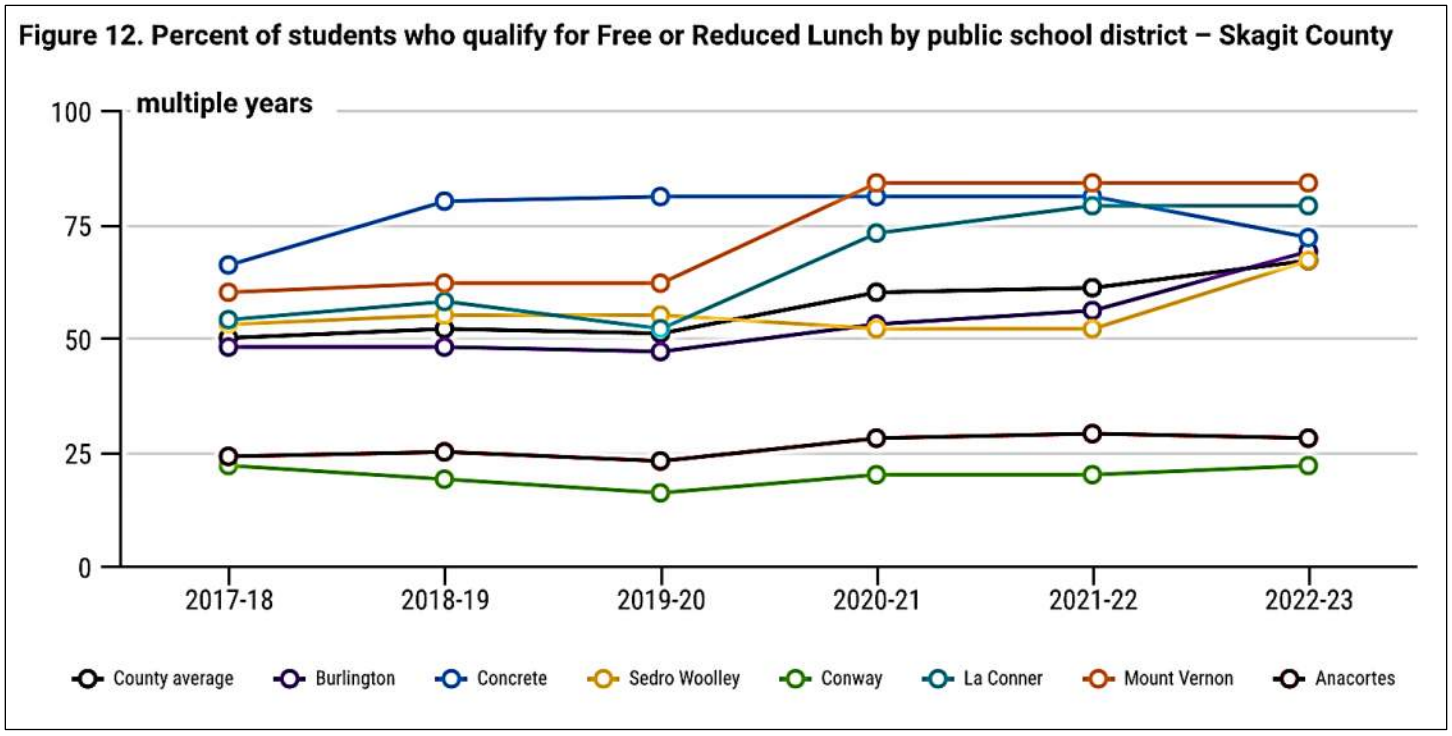
> Skagit County has a rich agricultural history and produces a variety of crops, including: blueberries, raspberries, strawberries, tulips, daffodils, pickling cucumbers, potatoes, apples, and vegetable seed. The population of Skagit County has steadily increased since 1980 and as of 2022, is comprised of 131,197 residents.
>
> The Skagit County Food Security Workgroup Steering Committee collaborated with Public Health to design a food security survey tool to obtain local and timely data. It found that…
>
> 11% of Skagit residents, including 16% of children under 18 years are experiencing food insecurity;
>
> 16% of Skagit County kids (grades 8, 10, 12) are eating the USDA daily recommended amount of vegetables;
>
> 18% of Skagit County adults are eating the USDA daily recommended amount of vegetables;
>
> 38% of Skagit County adults are eating the USDA daily recommended amount of fruit…
>
> No one indicator points to an overall solution to food security in Skagit County as there are so many factors that contribute to this issue. This quantitative review is a start towards identifying strategies that will address food security moving forward.

Skagit County Public Health, *Food Security Data Report*, August 2023

Brad Brown *bradleywaynebrown@gmail.com*




Food Insecurity Report Briefs: Map the Meal Gap 2024 (2022 data). "2022 Food Insecurity in Skagit County, Washington." Published May 14, 2024




Skagit County Public Health, Skagit County Population Health Trust, Food Security Workgroup.
*Skagit County Food Security Data Report*. August, 2023.

Brad Brown *bradleywaynebrown@gmail.com*

● Urban vegetable gardens – personal and community – have helped reduce food insecurity.

> Nutritious, plant-forward meals are crucial to helping kids thrive during the summer months – but without the security of school meals, many families rely on summer meal sites to help.

Univ Wa, Combined Food Drive, "Addressing summer hunger for kids in our communities", May 24, 2023, https://hr.uw.edu/cfd/2023/05/24/addressing-summer-hunger/ Home.

> A large body of research suggests that neighborhood disparities in food access persist. Emerging evidence suggests that the global COVID-19 pandemic likely exacerbated disparities in food access. Given the potential role that alternative food networks (AFNs) and local food sources may play during times of extreme scarcity, this study examines urban agriculture (e.g., community farms and gardens) as a sustainable strategy to address food insecurity… [The study] findings indicate that urban agricultural practices help build social capital, inform and educate community members about healthy eating behaviors, and facilitate the distribution of affordable food. Implications for future research and policy targeting sustainable food distribution in marginalized communities of color are discussed.

Colson-Fearon B, Versey HS. Urban Agriculture as a Means to Food Sovereignty? A Case Study of Baltimore City Residents. Int J Environ Res Public Health. 2022 Oct 5;19(19):12752. doi: 10.3390/ijerph191912752.

● County land-use zoning plans dictate acceptable and compatible activities within its jurisdiction.

Land use laws are a legitimate use of the police power a state government applies to enforce laws for the protection of the public health, safety, morals, and general welfare. Land use laws prevent overcrowding and its accompanying sanitation, fire protection, and law enforcement problems. They, therefore, protect public health, safety, and welfare.

> The constraints that challenge urban farmers fall into several categories: finding land, water, healthy soil, and funding. Some cities have prohibitive policies and ordinances; occasionally there's pushback against gardens and urban agriculture. The size of each of these challenges depends on the city.

DJ McCauley, "Urban Agriculture Combats Food Insecurity, Builds Community." Eos Magazine, American Geophysical Union. January 25, 2021. https://eos.org/articles/urban-agriculture-combats-food-insecurity-builds-community

● Restrictions and permissions are controlled by specific language – defined words.

> Landscaping is essential to provide an aesthetically pleasing balance between the built and natural environment for the residents of Skagit County.

SKAGIT COUNTY CODE - Title 14 UNIFIED DEVELOPMENT CODE - Chapter 14.16 ZONING - 14.16.830 Landscaping requirements.

Brad Brown *bradleywaynebrown@gmail.com*

● In the Skagit Co. Comp Plan the phrase "display garden" seems to mean "ornamental garden."

> **Display gardens**: horticultural gardens open to the public, including ornamental plants.

*Title 14: UNIFIED DEVELOPMENT CODE. SKAGIT COUNTY CODE*: A Codification of the General Ordinances of Skagit County, Washington. The Skagit County Code is current through Ordinance O20240006, passed September 9, 2024.

● A change in the definition of "display garden" to "ornamental, vegetable, or fruit garden" would provide new areas within the county where the growing of plant food is specifically allowed.

● The following locations within the county plan could be changed from the current "display garden" or "gardens" to "ornamental, vegetable, or fruit garden" or "ornamental, vegetable, or fruit gardens."

**SKAGIT COUNTY CODE**
**A Codification of the General Ordinances of Skagit County, Washington**
**The Skagit County Code is current through Ordinance O20240006, passed September 9, 2024.**

**Title 14**
**UNIFIED DEVELOPMENT CODE**

**14.16.130 Small Scale Recreation and Tourism (SRT).**
(2) Permitted Uses.
(i) Display gardens[*].

**14.16.320 Rural Reserve (RRv).**
(4) Hearing Examiner Special Uses.
(h) Display gardens[*].

**14.16.370 Urban Reserve Residential (URR).**
(4) Hearing Examiner Special Uses.
(f) Display gardens[*].

**14.16.850 General provisions.**
(4) Development of Lots of Record.
(d) In the following zones, if the proposed use for the substandard lot of record is one of the following nonresidential uses and otherwise meets all requirements for the use in the zone, it may be allowed regardless of the determination pursuant to SCC 14.06.045(1)(b):
(iv) Urban Reserve Residential.
(B) Hearing Examiner special uses: cemetery; community club/grange hall; display gardens[*]; historic sites open to the public; parks, community; wireless facilities subject to SCC 14.16.720.

* **Display gardens:** horticultural gardens open to the public, including ornamental plants.

Brad Brown *bradleywaynebrown@gmail.com*

- This would make more land surface areas in the county authorized for the public to grow plant food.

> Good urban design in the twenty-first century should start by mimicking natural eco-systems. Above all else, we would be well served to learn from the metabolism of natural, closed-loop systems in which all wastes are recycled into resources for future growth. This is an issue for policymakers. But also for the general public which needs to exert pressure on local and central governments, and on developers, to adopt forward looking practices [*sic*].

André Viljoen, Katrin Bohn, Joe Howe. Continuous Productive Urban Landscapes: Designing Urban Agriculture for Sustainable Cities. 2005, Burlington, MA.

**Tara Satushek** Comment # 13

**From:** LIN MCJUNKIN <mcjunkin@wavecable.com>
**Sent:** Saturday, March 8, 2025 11:35 AM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan Draft Policies

As a long-time resident of Skagit County, I am very concerned about the health and safety of all its residents as well as our surroundings. In general, I support the Comprehensive Plan and wish to encourage you to adhere to the following recommendations (based on what a clear majority of respondents requested and my own concerns):

1- In the Environmental Element of the Comprehensive Plan, include a policy to **create an Environmental Advisory Board t**o ensure that the best available science is consistently included in local planning by maintaining active outreach to county partners, stakeholder groups, tribal governments, and underserved community members.

2- Strongly **oppose efforts to create additional development potential (i.e., "affordable housing") in the Rural Villages,** as appears to be the intent in policy 3B-1.6. Confine residential development to cities and towns as the best way to promote affordable housing in Skagit County.

Thank you for your hard work and attention to these crucial issues.

Linda Jeanne McJunkin
18529 Main, St.
Conway, WA 98238

**Tara Satushek** Comment # 14

**From:** Beverly Faxon <beefaxon@gmail.com>
**Sent:** Saturday, March 8, 2025 12:02 PM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan

To the County Commissioners,

I appreciate the extensive work that has been done to update the Comprehensive Plan, including the attention paid to the state mandates.

I would like to submit the following comments:

1. Past requests for comments resulted in a majority of respondents requesting that the new Comp plan include a provision to form an Environmental Advisory Board in the Environmental Element of the Comp Plan. If we are serious about actually preparing our County for the environmental challenges that are not just waiting in the not-so-distant future, but also for the challenges we are facing now (like drought, fire, smoke, changes in agricultural factors such as pests), then we need to have be serious in setting ourselves up for success. An EAB would provide sources to help us rely on "best available science." Please include an EAB in the Comp Plan.

2. Please do not allow development to encroach upon our rural lands. Provision 3C-1.6 (b) currently allows housing density in our rural villages greater than has ever been allowed by the Growth Management Act. Please focus increased housing in the towns and cities and protect our rural lands, which have been taking on increasing growth in the last eight years. Please omit Provision 3C-1.6 (b).

Thank you,

Beverly Faxon
20757 Anderson Road
Burlington, Washington
Sent from my iPad

**Tara Satushek** Comment # 15

**From:** marylee chamberlain <mchamberlain07@gmail.com>
**Sent:** Sunday, March 9, 2025 4:00 PM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan Draft Policies

Please accept the following public comment on the 2025 Comprehensive Plan Draft with a specific focus on the Climate Resiliency Element:

1. As I stated in an earlier email/public comment I still support the creation of an Environmental Advisory Board (EAB), made up of citizens, similar to the Agriculture, Forestry and Park Advisory Boards as this would provide the necessary perspective for effective and efficient planning.
The EAB should include stakeholders who have lived experience in this county as well as those with professional expertise on climate science and a variety of environmental issues, including habitat restoration, cutting greenhouse gas emissions, urban planning, retrofitting buildings for energy efficiency, and permitting reform. The county decision makers need factual information and research with respect to climate impacts and mitigation strategies.

This Board can advise on policies regarding overall climate protection and resilience with applications in land use, new development, solid waste management, stormwater management, air quality, transportation, energy conservation, renewable energy implementation, groundwater and natural resources

Essentially an EAB can provide an informed perspective to assist the County Commissioners and would strengthen county wide representation and efficiency. I urge your consideration of this vital component in the Comprehensive Plan.

2. And Policy 3C-1.6(b) increasing the allowed density of housing in rural villages.

Our county is already falling behind in placing new housing developments in the urban areas and protecting the rural areas of the county. This new policy would result in more housing in areas with few services, resulting in more driving and fewer rural acres protected. It does not solve the affordable housing crisis to put people in remote areas.

Protect the rural character of Skagit County by reducing residential development outside the cities. Rural development results in increased greenhouse gas emissions due to frequent travel for schools, shopping, jobs, and essential services. Recognize the value of conserving rural lands including agricultural lands, forests, and wetlands because of their important role in carbon sequestration. Also, rural development reduces the land base for farming and forestry in Skagit County.

Thank you for time and consideration and all your work on this vital comprehensive plan.

MaryLee Chamberlain
PO Box 522
La Conner, Wa 98257

**Tara Satushek** Comment # 16

**From:** Carolyn Gastellum <cgastellum67@gmail.com>
**Sent:** Sunday, March 9, 2025 7:00 PM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan Update Policies

To: Skagit County Planning and Development Services

Thank you for the opportunity to continue to make public comments on the 2025 Comprehensive Plan Update. My comments are for the Comp Plan in its entirety even though I do have a specific recommendation as stated below.

Section 12 of the 2025 Comprehensive Plan draft is titled "Climate and Resiliency" and states in the introduction that Skagit County is required to include a Resiliency Sub-Element and Greenhouse Gas Emissions (GHG) Reductions Sub-Element in the Climate Element. The Climate Element is inclusive of agriculture through zoning as is shown on the table titled Sector and Assets and there is a section of Resiliency Goals and Policies. The goals and policies include recommendations that are recognizable from public comments the PDS has received throughout this process. Thank you.

One important recommendation is still missing from the draft. A clear majority of public comments have supported the creation of an Environmental Advisory Board made up of people who have professional expertise and lived experience in the goal and policy areas that are defined under the Climate Element and its Sub-Elements.

I strongly support the creation of an EAB in the Comprehensive Plan. It would be extremely beneficial to the Skagit County Commissioners and PDS because all of the sectors mentioned and policy goals are about needs that are becoming increasingly complex and challenging. If the county will partner with people who have particular expertise in those sectors by forming an EAB it would be ideal to help Skagit County accomplish the worthy goals that are included in the Comprehensive Plan draft.

Here is how it could work as a win-win situation going forward:

- The EAB will be made up of people who have lived experience and those with professional expertise on a variety of environmental issues, including conservation, habitat restoration, climate science, greenhouse gas emissions reduction, climate impacts mitigation, urban planning, open space issues like bike and walking paths, and connected wildlife corridors. This will help the County Commissioners and the Planning Department look at environmental issues holistically and make decisions based on the best available science. In addition to researchers, scientists, and educators, the EAB could include younger people and underserved people so the commissioners could hear from people who do not usually have the opportunity to contribute to environmental policy planning.
- The EAB would report to and make recommendations to the Skagit County Commissioners on natural resource and environmental plans, policies, and programs. Examples include legislation affecting natural lands, open space, waters and wildlife habitat; land use decisions affecting the long-term sustainability of natural processes like rivers and marine shorelines; natural solutions to improve climate preparedness; environmental justice and environmental stewardship.

- An EAB would ensure that best available science is consistently included in local planning. It could maintain active outreach to county partners, stakeholder groups, tribal governments, and underserved community members.

We gave our hearts to Skagit County when our family moved here 36 years ago. Our children went through the Mount Vernon schools, I was a teacher in Mount Vernon, and my husband was a park manager at North Cascades National Park Complex. My husband and I have both been retired for a number of years and have been involved as volunteers in Skagit for various organizations. I love Skagit from the mountains to the salt water and everything in-between. I feel we must work to preserve the complexity of natural, cultural, and community qualities that we all value including assuring that new growth which will happen over the coming years is done carefully following GMA guidelines (80/20). No sprawl, no FCCs. I feel so fortunate to live in Skagit County. Everyone I know feels the same way.

Thank you for working toward the best possible vision in the 2025 Comprehensive Plan Update with solid policies and goals in place for years to come.

Carolyn Gastellum
14451 Ashley Place
Anacortes, WA 98221

**Tara Satushek** Comment # 17

**From:** Lea <vonpres@gmail.com>
**Sent:** Saturday, March 8, 2025 9:17 AM
**To:** PDS comments
**Subject:** Possible Spam: Skagit County's 2025 Comprehensive Plan Draft Policies

I would urge that the plan include protection of natural resource lands , open space and rural areas .
Created urban growth areas where development needs to be directed.
We don't need Mega Communities in Skagit County.
Include good climate policies.

Thank you
Lea von Pressentin
Property Owner and resident for 73 years.

**Tara Satushek** Comment # 18

**From:** Martha Hall <pondfrog.mh@gmail.com>
**Sent:** Saturday, March 8, 2025 6:41 PM
**To:** PDS comments
**Subject:** Possible Spam: Skagit County's 2025 Comprehensive Plan Draft Policies

To: Skagit County
pdscomments@co.skagit.wa.us

Topic: Comments on the "Skagit County's 2025 Comprehensive Plan Draft Policies

From: Martha Hall, 2617 16th Street, Anacortes, WA

My comments on the "*Skagit County's 2025 Comprehensive Plan Draft Policies*"

**#1. Please protect our natural resources by establishing an Environmental Advisory Board.**
I am especially worried that protections in the Critical Area Ordinance and other areas will not be based on the best available science. Understanding what needs to be protected and how requires expertise in ecology, wildlife, aquatic and marine ecosystems, fish and wildlife, all kinds of recreation,and how our natural areas are impacted by humans and climate change. The County lacks this knowledge because this is a lot to ask. This is why I ask again for the County to take protection of our natural areas and our natural resources seriously and establish an Environmental Advisory Board that has members who understand these issues or know how to find the necessary information. The residents of Skagit County care a lot about our marine areas, our lakes, our forests, our mountains and our fish and wildlife, and our rivers, streams and wetlands. Many of us live in Skagit County because we have so many of these natural areas and natural resources. It would be easy to lose these areas and resources through poor land use planning and inadequate Critical Area ordinances. Creation of this Advisory Board would add more opportunities for oversight, expertise and public participation. Our county functions with only three elected county Commissioners. Three Commissioners cannot possibly have the time to understand all of these issues.

**#2. I support a stronger statement and actions than this one to make sure cities are placing development inside their cities before asking to increase their city's boundaries.**
Because developers have found willing sellers outside of Anacortes for building more houses, Anacortes is now asking to enlarge our city limits/boundaries. We have many buildable lots in our city. We do not need to expand our boundaries yet. We need more affordable housing within the City of Anacortes and close to transportation and services. I support the following statement but would like to see accountability added and a public review of available land when city want to enlarge their size into neighboring rural areas.

*Skagit County, the cities and towns will establish a common method to monitor urban development and housing development to evaluate the rate of growth and maintain an inventory of the amount of buildable land remaining and the amount of housing produced in the different AMI categories provided by the Department of Commerce. The GMATACPlanners Committee shall develop a monitoring process, prepare annual monitoring reports and present the reports to the Growth Management Act Steering Committee annually.*

**#3. This fact in the Rural Element Draft about our county is very upsetting: 24.6% of the recent growth in our county, 2017-2022, has been in rural areas. Why wasn't this 24.6% growth placed in our many urban areas. Please oppose this statement, 2.6:**

*2.6: Priority consideration will be given to siting of new rural commercial and industrial uses in areas of existing development, including existing Rural Villages and existing Rural Centers, followed by already developed sites in the rural area, and only lastly to wholly undeveloped sites in the rural area.*

**#4. Please oppose the new part in policy 3C-1.6 (b) which allows Rural Village Residential land density up to 4 dwellings per acre for more affordable housing. This is the wrong place to locate affordable housing.**

This housling belongs within urban areas for many reasons. Urban areas already have easier access to shopping, transportation, schools, and other services and opportunities. When housing occurs outside of urban areas, this is more expensive for the people who live in this housing and this especially matters for lower-income families. Just the costs of transportation to schools, services, the doctor, grocery stores is far greater for rural residents. Who will subsidize transportation to make these available to all parts of our county? Building affordable housing in rural areas to save housing costs is the wrong answer to a serious problem. It only adds costs to the people who live in this housing and the rest of the county's residents who will be asked to pay for expanding these services and transportation to rural areas. This is just an attempt by developers to get hold of cheaper rural land to build on and everyone else will be paying the costs of this urban sprawl after the developers make their money.

*A. 1.10 All growth outside the urban growth boundary shall be rural in nature as defined in the Rural Element, not requiring urban governmental services, except in those limited circumstances shown to be necessary to the satisfaction of both Skagit County and the affected city/town to protect basic public health, safety and the environment, and when such services are financially supportable at rural densities and do not permit urban development Formatted:*

*B. 1.11 Prior to altering urban growth areas, or as part of a periodic update, a climate impact analysis shall be completed. The climate impact analysis shall evaluate the greenhouse gas (GHG) and vehicle miles traveled (VMT) impacts associated with the proposed change and consider climate vulnerability and resilience scenarios created by the change. The analysis shall also consider the GHG and VMT impacts associated with other feasible alternatives for accommodating projected growth. Preference shall be given to alternatives that reduce per capita VMT and GHG emissions and changes that increase climate resilience and protect vulnerable populations and overburdened communities.*

**#5. Please add this to the Transportation section: Require safe underpasses and/or overpasses and/or culverts on county and state roads to provide safe crossings for fish and wildlife.**

One of the main causes of death, mortalities, for many species, is being struck by human vehicles. These crashes also injure and kill humans and cost us millions of dollars a year to repair or replace damaged vehicles.

Fencing is often needed to direct wildlife to these safe passageways. Providing safe ways for fish and wildlife to get across, under, or over our roads and highways is a win/win for all of us. We are all safer when these are provided.Elk are not the problem on Hwy 20 in the Lower Skagit Valley. The problem is Hwy. 20 that was built along our major river and through prime elk and fish and wildlife habitats with no thought about how this highway will impact these habitats and make this area unsafe for elk and other fish and wildlife and unsafe for humans who drive on this road. Another action that is needed is to slow

the traffic down through this part of HWY 20; reduce the speed limit to 40 mph. This would save many lives, human and animal.

**#6. Please oppose and re-write the following section so that it restricts this kind of creeping sprawl and development . A line at the edge of cities needs to be a line.**
Liveable countries in Europe are lovely and liveable because there is an obvious line at the edge of town where the town ends and the rural areas begin. This benefits folks on both sides of this line. The people in the city know exactly where to expect city services, bus lines, and etc. Everyone else is not asked to provide these services to folks 10 or 20 or 50 miles from our cities.

**Oppose the following:**

*2.8 Contiguous and orderly development and provision of urban services to such development within urban growth boundaries shall be required. Development within the urban growth area shall be coordinated and phased through inter- agency agreements. Rural development shall be allowed in areas outside of the urban growth boundaries having limited resource production values (e.g. agriculture, timber, mineral) and having access to public services. Rural development shall have access through suitable county roads, have limited impact on agricultural, timber, mineral lands, critical areas, shorelands, historic landscapes or cultural resources and must address their drainage and ground water impacts.*

**#7. The rights of property owners must be clearer to make sure these rights do not including doing things on private property that harm the neighboring property or its value such as increasing water flow so neighboring properties flood during rainy periods. This does not adequately protect neighboring houses.**

*The rights of property owners operating under current land use regulations shall be preserved unless a clear public health, safety or welfare purpose is served by more restrictive regulation. Surface water runoff and drainage facilities shall be designed and utilized in a manner which protects against the destruction of private property and the degradation of water quality.*

**#8. Please support a strengthened version of this statement because encroachments are happening and must be prevented:**

*8.9 Identified critical areas, shorelands, aquatic resource areas and natural resource lands shall be protected by restricting conversion. Encroachment by incompatible uses shall be prevented by maintenance of adequate buffering between conflicting activities.*

Buffers must be required and these must be required on the land owned by the person who is changing the use or is likely to impact the natural resource lands. Buffers should not be required on the natural resource lands.

**#9. Please support and strengthen the following protections for "open space corridors" within urban areas as well as in growth areas to make these areas more liveable and attractive and healthier.**

*9.8 Open space corridors within and between urban growth areas shall be identified. These areas shall include lands useful for recreation, fish and wildlife habitat, trails, and connection of critical areas.*

*To preserve open space and create recreational opportunities, innovative regulatory techniques and incentives such as but not limited to, purchase of development rights, transfer of development rights, conservation easements, land trusts and community acquisition of lands for public ownership shall be encouraged.*
*The use of Open Space Taxation Laws shall be encouraged as a useful method of land use control and resource preservation.*
*Expansion and enhancement of parks, recreation and scenic areas and viewing points shall be identified, planned for and improved in shorelands, and urban and rural designated areas.*

Many studies show that people are healthier mentally and physically and socially when they live near big trees, near parks, near open spaces. These also address the heat issues caused by climate change. They cool the earth
and they add oxygen. People get outside more when these are available near their homes.

**#10. Please support and strengthen the following protections for "natural resources lands":**

10.8 Natural resource lands, including aquatic resource areas and critical areas shall be classified and designated, and regulations adopted to assure their long-term conservation.
Land uses and developments which are incompatible with critical areas shall be prohibited except when impacts from such uses and developments can be mitigated.
Land use decisions shall take into account the immediate and long-range cumulative effects of proposed uses on the environment, both on- and off-site.
Reduce the loss of critical aquatic and terrestrial habitat by minimizing habitat fragmentation.
Wetlands, woodlands, watersheds and aquifers are essential components of the hydrologic system and shall be managed to protect surface and groundwater quality.
Recognize the river systems within Skagit County as pivotal freshwater resources and manage development within the greater watershed in a manner consistent with planning practices that enhance the integrity of the aquatic resource, fish and wildlife habitat, and recreational and aesthetic qualities.
Rural character shall be preserved by regulatory mechanisms through which development can occur with minimal environmental impact.
Development shall be directed away from designated natural resource lands, aquatic resource areas and critical areas.

The conversion of tidelands to uplands by means of diking, drainage and filling shall be prohibited, except when carried out by a public body to implement Comprehensive Plans for flood plain management or to respond to a natural disaster threatening life and property.

10.9 Septic systems, disposal of dredge spoils and land excavation, filling and clearing activities shall not have an adverse significant effect on Skagit County waters with respect to public health, fisheries, aquifers, water quality, wetlands, wildlife habitat, natural marine ecology and aquatic based resources.

**#11. Please clarify what is meant by "usual and accustomed activities" in natural resource lands and aquatic resources. These could include shooting targets, camping, trapping beavers, or cutting trees.**
**Please do not support "traditional uses" just because someone once did this, such as slavery was a traditional use of some people. People and their ideas about what is a good use change.**

**Many traditional uses are no longer popular or even supported by most Washingtonians. This statement does not belong in this document.**

*10.10 Usual and accustomed activities on natural resource lands and aquatic resource areas shall be protected from interference when they are conducted in accordance with best management practices and environmental laws*

***#12. This section on floodplains must be updated to address issues like insurance not being available and the public and federal government being asked to pay for damage and moving people our ot floodplains. Who has the responsible for those who live in floodplains? The goal must be to get people and our stuff out of floodplains and out of marine areas impacted by high tides.***

*10.14 The Skagit River Floodway and the Skagit River Floodplain shall be regulated to protect human life, property and the public health and safety of the citizens of Skagit County; minimize the expenditure of public money; and maintain flood insurance eligibility while avoiding regulations which are unnecessary restrictive or difficult to administer. 10.15 Work together to provide ongoing public education about flooding in a coordinated and consistent program, and adopt a flood hazard reduction plan, that works together with the natural and beneficial functions of floodplains.*

**#13. Please support and strengthen these statements and others related to preparing our county for climate change and reducing our greenhouse gases so we are not contributing to climate change.**

*14.1 VMT reduction targets will meet or exceed Washington State VMT reduction targets and be consistent with Washington State law. a. Direct the majority of urban population growth to mixed use transit accessible corridors. b. Prioritize transit service in urban corridors with high ridership potential or where dense concentrations of housing, employment, and services exist or are planned, and as a means of providing frequent, reliable, and direct connections between regional centers. c. Local and regional plans shall include multimodal level of service standards and measures to ensure growth related transportation system impacts are mitigated through active transportation improvements, increased or enhanced public transportation service, ride sharing programs, demand management, or other appropriate measures that can be shown to reduce VMT*

**Thank you for considering my comments,**
**Martha Hall, Anacortes, WA**

**Tara Satushek**

Comment # 19

**From:** Beth Rosenstiel <biglakex2@gmail.com>
**Sent:** Monday, March 10, 2025 12:46 PM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan Draft Policies

From: Beth Rosenstiel
18870 Sulfer Springs Road
(Big Lake) Mount Vernon 98274

As a resident of Skagit County for more than 50 years, I would like to express my concerns regarding the Comprehensive Plan update. Having attended planning commission meetings, there are two parts of the proposed plan I want to address:

Establishment of an Environmental Advisory Board

Despite community support for an EAB in earlier meetings by the majority of commenters, there is no mention of creating one in the current draft. The Commissioners and Planning Commission could benefit from the variety of engaged citizens who would look holistically to preserve the environment that makes our County unique and such a special place to live.

Do not designate Big Lake and Clear Lake as "Rural Villages"

The Growth Management Act aims to keep housing density in cities and towns. The suggestion that Big Lake housing density would be 4 dwellings per acre in the future would push development out of Skagit County cities to our rural area. Big Lake already has overburdened Fire, School, Sewer, Ground Water and road issues. The issues of the water quality in the lake will only be exacerbated with increased housing in our community.

Please consider adding an Environmental Advisory Board in the Plan and deleting the Rural Village Residential Land Density.

Thank You,
beth rosenstiel

**Tara Satushek**

Comment # 20

**From:** Ellie Cross <elliecross@gmail.com>
**Sent:** Monday, March 10, 2025 8:42 PM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan Draft Policies

This is from Ellen Cross, 1220 S 11th St. Mount Vernon WA 98274
Thank you!

I recommend an Environmental Advisory Board (EAB) to assist county decision makers in addressing environmental issues made increasingly complex as the impacts of climate change intensify.

At the start of the 2025 Comprehensive Plan Update process, the County reached out to the public asking for input at Open Houses and later via written comment. Support for an EAB was expressed at the Open Houses, and in 59 of the 90 comments submitted to PDS by the public regarding the Climate element of the revised Comprehensive Plan 2025 Update this past Fall.
Yet the creation of an EAB is mentioned nowhere in the current draft of the Comprehensive Plan. The County needs to respond to what a clear majority of the public participating in the comprehensive plan process has requested and include in the Environmental Element of the Comprehensive Plan a policy creating an EAB.

The EAB would be made up of people who have lived experience and those with professional expertise on a variety of environmental issues, including conservation, habitat restoration, climate science, greenhouse gas emissions reduction, climate impacts mitigation, urban planning, open space issues like bike and walking paths, and connected wildlife corridors. This will help the County Commissioners and the Planning Department look at environmental issues holistically and make decisions based on the best available science. In addition to researchers, scientists, and educators, the EAB could include younger people and underserved people so the commissioners could hear from people who do not usually have the opportunity to contribute to environmental policy planning.The EAB would report to and make recommendations to the Skagit County Commissioners on natural resource and environmental plans, policies, and programs.

--
www.artworkworks.com

**Tara Satushek** Comment # 21

**From:** Liam Diephuis <lrdiephuis@gmail.com>
**Sent:** Tuesday, March 11, 2025 8:00 AM
**To:** PDS comments
**Subject:** Comment for Comprehensive Plan Public Hearing

Good day to the Skagit County Commission and staff. After reading the draft of the county's comprehensive plan, I'd like to comment to express my appreciation for certain parts of the plan.

Policy 8B-1.3: Thank you for the additional emphasis on multimodal transportation for everyone as a serious component of the County's transportation strategy.

policy 8b-1.5: Any mention of a new bridge across the Skagit River must include a requirement that the bridge have physically protected corridors for pedestrians and cyclists. It may even be more helpful for the County's Climate Planning Element to have a new bridge be pedestrian-only.

8D-1.1 & 1.8; 8G-1.14: It's absolutely essential that Skagit Transit becomes a practical and attractive alternative for commuting and other trips in personal cars. In my experience as a transit commuter, even the best routes between Skagit Transit hubs (Skagit Station and Chuckanut Park & Ride for example) are slower and less convenient than driving, and that needs to change.

Greenhouse gas reduction policies: I'm glad to see that preserving forests and soil health, reducing urban sprawl, and reducing vehicle-miles traveled is key to Skagit County's strategy for reducing greenhouse gases, because these are the most evidence-based and holistic approaches.

**Tara Satushek** Comment # 22

**From:** Bob Albert <bob@superstan.com>
**Sent:** Tuesday, March 11, 2025 9:44 AM
**To:** PDS comments
**Subject:** Possible Spam: Skagit County's 2025 Comprehensive Plan Draft Policies

Spam

I am a Skagit resident living in a Rural Village zoning area (address below)

I am writing to express a few opinions on the Skagit County 2025 Comprehensive Draft Policies.

## 1. RECOMMEND THE ESTABLISHMENT OF AN ENVIRONMENTAL ADVISORY BOARD (EAB)

**Background:** At the start of the 2025 Comprehensive Plan Update process, the County reached out to the public asking for input at Open Houses and later via written comment. Support for an **Environmental Advisory Board** (EAB) was expressed at the Open Houses, and in **59 of the 90 comments** submitted to PDS by the public regarding the Climate element of the revised Comprehensive Plan 2025 Update this past Fall.

Yet the c**reation of an EAB is mentioned nowhere** in the current draft of the Comprehensive Plan. It is imperative that this be taken seriously and included in any forthcoming policies.

Skagit County's natural environment is multi-layered with a variety of diverse ecosystems, open space, and critical areas. County policy states that decisions about these complex areas will be based on "best available science", yet Skagit County does not have an Environmental Advisory Board (EAB) to assist county decision makers in addressing environmental issues that are made increasingly complex as the impacts of climate change intensify. "Best science" can only become available when an Environmental Advisory board is included to consider any opinions, studies or other information that may come under consideration or be required.

• **Recommend:** The County needs to **respond** to what **a clear majority of the public participating in the comprehensive plan process has requested** and include in the Environmental Element of the
Comprehensive Plan a policy creating an Environmental Advisory Board (EAB). The Environmental Advisory Board will be made up of people who have lived experience and
those with professional expertise on a variety of environmental issues, including land conservation and stewardship, habitat restoration, climate science, greenhouse gas emissions reduction, climate impacts mitigation and adaptation, urban planning, geology & geomorphology, open space issues like bike and walking paths, natural sciences, and conservation biology.

This will help the County Commissioners and the Planning Department
look at environmental issues holistically and make decisions based on the best available science. In addition to researchers, scientists, and educators, the Environmental Advisory Board could include younger people and underserved people so the commissioners could

hear from people who do not usually have the opportunity to contribute to environmental policy planning.

The EAB would report to and make recommendations to the Skagit County Commissioners on natural resource and environmental plans, policies, and programs. Examples include legislation affecting natural lands, open space, waters and wildlife habitat; land use decisions affecting the long-term sustainability of natural processes like rivers and marine shorelines; natural solutions to improve climate preparedness; environmental justice and environmental stewardship.

An EAB would ensure that best available science is consistently included in local planning. It could maintain active outreach to county partners, stakeholder groups, tribal governments, and underserved community members.

## 2. RURAL ELEMENT: OPPOSE INCREASED DENSITY IN RURAL VILLAGES

Background: According to the Rural Element draft on p. 76 (redlines version) of the draft Comp Plan, the Skagit Council of Governments Growth Monitoring Report shows that the rural area accepted 24.6% of the County's growth from 2017-2022, compared to 75.4% for the urban areas. This reflects a movement in the wrong direction from the 2000 to 2010 period when rural area growth was 21% versus 79% for the urban area.

Recommend: Strongly oppose any effort to create additional development potential in the rural area, as appears to be the intent in policy 3B-1.6, as discussed below.

• **Strongly oppose the new provision of policy 3C-1.6(b)** that the Rural Village Residential land density may be up to "4 dwelling per acres" (sic) for certain housing types which may be more affordable. Four dwelling units per acre has never been an allowable density in the rural area under the Growth Management Act (GMA).

I live in one of these areas, and the growth we are already seeing here is not sustainable. Our ecologies here are very delicate. We already have issues where the town of Bay View is dense and shedding unclean sewage into the delicate ecology of Padilla Bay. The more houses we are seeing built on the ridge are leading to more water issues the roads department are unable to effectively manage. Properties and roads and culverts wash out regularly and receive haphazard repairs. Fields on the flatlands below the ridge remain flooded more often and longer as the ground above struggles to mitigate the water as it carries fewer trees and swamplands and more structures and roads and lawns.

Putting up to 4 dwellings per acre in such situations is asking for disaster. The land slides here as it is, would have us all wash downhill into the farmlands and into the bay? Take away the native vegetation to craft more and denser housing will inevitably cause detriment to our community without providing house relief needed in our community.

We have zero infrastructure to support low income, dense structure building targets. There are no buses. The roads area already struggling. Cramming multiple houses onto single acre lots will not help with low income housing needs. It will simply result in more million dollar homes in the country crammed together. And if those are intended to solve low income housing issues, odds are, we won't

see those structures built within urban areas which are designed with public transportation and other amenities these community members need.

**• Encourage residential development in cities and towns as the best way to promote affordable**
**housing in Skagit County.**

The most recent population growth trends show the county moving
away from the GMA goal of limiting growth in the rural area to no more than 20 percent.
Allowing additional density in the rural area, even for the important purpose of increasing affordable housing, is moving in the wrong direction.
• Allowing certain housing types which may be more affordable is a worthwhile goal, but it should not be coupled with an increase in residential densities in Rural Village Residential.

Thank you for your work and for considering my input,

Robert Albert
11430 Walker Road
Mount Vernon, WA 98273

**Tara Satushek** Comment # 23

**From:** Jim Edris <jimedris@gmail.com>
**Sent:** Tuesday, March 11, 2025 11:29 AM
**To:** PDS comments
**Subject:** Possible Spam: Skagit County's 2025 Comp Plan Draft Policies

I want to express my opinion on two matters addressed in the draft plan:

1. Rural Elements Density - I have over 40 years professional experience in property development and management. I strongly oppose any increase in rural density beyond the 20% goal of the State GMA. My experience is that increased development in rural areas has secondary impacts on roadways, water supplies, sewage treatment, as well as increased loads on police and fire districts. The costs of those impacts are never fully covered by developer fees and thus the County ends up bearing a large share of the financial burden. Increasing residential housing development in Burlington and Mt Vernon to increase the supply of affordable housing will be much more cost effective and have fewer long term adverse impacts.

2. It has been recommended that the County establish an Environmental Advisory Board that would advise and assist on policy matters. There is much historical, scientific and local knowledge in the community that should be tapped into to help the County make the best policy decisions, as well as providing stakeholders input opportunities. I fully support the establishment of an EAB.

Thank you

--

Jim Edris
15646 Snee Oosh Road
La Conner, WA 98257
(206) 755-1606

**Tara Satushek** Comment # 24

**From:** Scott Andrews <scottaandrews12@gmail.com>
**Sent:** Tuesday, March 11, 2025 12:14 PM
**To:** PDS comments
**Subject:** Possible Spam: Skagit County 2025 Comprehensive Plan

RE: Comments on the draft Skagit County 2025 Comprehensive Plan

I would like to comment on the draft Comprehensive Plan (as posted 2/13/2025). In particular, I will focus on climate change and related impacts to the people and resources of the County.

The Planning staff and consultants have done an excellent job on this initial draft, meeting the requirements of state law for local comp plans including the requirements enacted by the Legislature in SB 1181 and starting to address the need to plan and regulate for adaptation to climate change impacts and reduction of GHG emission from the County.

I strongly support many of the policies related to climate change in this draft and urge the Planning Commission to maintain them in the Comp Plan draft forwarded to the Board of County Commissioners for adoption. Some of the particular goals and policies I wish to highlight for support are listed below.

Goal 5B “Address climate hazards and GHG reductions through protection, enhancement, and restoration of the natural environment”.

5B 1.3 “Identify and address the impacts of climate change on the region’s hydrological systems”.

12A 1.6 Which reads in part, “To holistically address sea level rise, habitat enhancement, and farmland preservation on the Skagit/Samish Delta…”

12B 1.1 “Develop regulations that require commercial developments to address climate resilience through best management practices…”

12 F “Protect and enhance natural ecosystems to support climate change resilience, carbon sequestration, and GHG emissions reduction.”

12 J “Enhance community resilience by integrating climate change projections into land use, infrastructure planning, and development regulations, ensuring long-term safety from sea-level rise, flooding, wildfires, and other climate-exacerbated hazards while protecting natural ecosystems.”

12 J 1.1 “Develop regulations for elevating or setting back new and substantially improved structures to reduce the risk of damage caused by sea level rise.”

12 J 1.3 “Consider climate change, including sea level rise, extreme precipitation, increased winter streamflow, and other impacts, in floodplain management.”

12 J 1.4 “Require that proposals for shoreline stabilization demonstrate a need, and require the use of soft shore stabilization methods to the extent practicable to protect sites from wave-driven erosion or flooding exacerbated by sea level rise.”

12 J 1.7 “Assess the sea level rise vulnerability of wetlands, aquatic vegetation, beaches and dunes, and other valuable natural assets and collaborate with landowners and partners to support resilience-building, as needed.”

12 J 1.8 “ All residential and commercial development … should be located, designed, and maintained to avoid, or if necessary, withstand 100-year flood frequency flooding and/or storm tides or surges without becoming hazards and without the placement of flood hazard reduction measures or other hard structural shoreline stabilization. Incorporate climate projections to account for anticipated changes in flood frequency, storm intensity, and sea-level rise. Ensure that designs and maintenance plans adapt to these projections to enhance long-term resilience against evolving climate impacts.”

While these goals and policies are a good start, I suggest the changes and additions below are needed to better address the impact of sea level rise.

5B 1.3 is an important policy, but should be clarified to address impacts of the interactions of the hydrologic systems such as increased flooding, with sea level rise which will increase the impacts of flooding in the lower reaches of the Skagit and Samish Rivers.

12 J 1.1 add “any existing structure damaged 50% or more over its functional life by sea level rise or storm surge shall be elevated above, or removed from, the floodplain or areas at risk of storm surge.” Similar language has been suggested for amending the County Shoreline Management Plan for a decade and a half.

12 J 1.4, clarification is needed to interpret “to the extent practicable” as narrow as possible and not allowing this to become a major loophole.

12 J 1.7, this goal regarding vulnerability assessment requires more detail and development of regulatory requirements beyond “assess” and “collaborate”, to address the potential impacts of sea level rise on important assets such as wetlands and beaches.

12 J 1.8, the projections for sea level rise, and increases in storm intensity and flood frequency, should be for the anticipated lifetime of a development or facility, to ensure that designs and maintenance plans adapt to these projections for long-term resilience against climate impacts.

Scott Andrews
Mount Vernon, WA

**Tara Satushek** Comment # 25

**From:** Ingrid <ivhannan@gmail.com>
**Sent:** Tuesday, March 11, 2025 12:41 PM
**To:** PDS comments
**Subject:** Comments for : Skagit County's 2025 Comprehensive Plan

Spam

*Resubmitting with my full address included in my message* Thank you.

Hello to the individuals and teams working on the comprehensive plan!
Thank you for all your hard work to coordinate and communicate and produce these visions and goals for our community. I know it is a lot of effort, and such an important one.

In the tradition of political organizer and writer Norma Wong, I would like to share my comment first in the format of a story. A story about how I envision Skagit county in the future. This is, after all, what planning asks us to do, is dream about how we want things to be for our children and grandchildren, and then strategize about how to get there.

I foresee a Skagit county in which people can travel from town to town without needing a car. Bike paths and lanes are plentiful and well used because it is fun, safe, and healthy. Buses and trains take us from Mount Vernon to Burlington to Anacortes to Concrete and all around. The transportation is easy to use, runs regularly, and has reduced traffic jams to only being a rare occasion. Can you imagine hopping on a quiet, smooth train ride to visit someone across the county in less time than you could drive? It happens every day in places like Japan and Europe; places the world looks to as the highest quality of life. The tulip and summer farms are enjoyed by many, without road congestion or the need for more parking lots. There are paths along the rivers, pedestrian and bike and rail friendly bridges take people across and are beautifully designed. Our rivers are clean enough to swim in. The hills are forested with lush trees and trails that are easy for everyone to access. We are stewards of the oceans and bays- supporting thriving populations of salmon, oysters, fish, kelp. Wild orcas and otters and seabirds are a daily sight on the shore. Our communities are well connected, neighbors know one another and greet each other at markets, parks, lively events with art and music and food. No one in our community feels afraid to be who they are- regardless of their skin color, gender, sexuality, age, ability, immigration status, income level, education level, or spiritual beliefs. There is enough affordable housing to accommodate our growing populations while balancing that effort without the need to develop over existing farmland and greenspaces because our thoughtful urban planning involved using vacant lots, density in the spaces near town, refurbishing existing buildings, and limiting outside investors from owning and flipping multiple houses that should belong to the individuals in our community. We are known as one of the best places to live in the world- where nature is verdant, people are healthy and supported, and we live with pride in a place that uplifts art, festivities, a diverse range of people and values, including honoring and taking care of our indigenous community members, immigrant neighbors, the children, and the elderly. I can envision a Skagit county in which we people and the natural landscapes around us are all thriving; beckoning people to visit and celebrate this wonderful place.

We have the tools and resources to keep this area lively and well taken care of to ensure we are "striving for and creating a better, more healthful, efficient and aesthetically pleasing environment in which to live." (pg 18)

I echo and fully support and add to the call for those who have advocated and asked for Environmental and Forest Advisory Boards. I understand that the questions of balancing resource management and environmental impact is complicated and nuanced, and thus requires the need for experts and people with relevant experience to weigh in with depth and thoughtfulness. Can we move away from clear cut forestry to a more sustainable, silviculture based logging strategy which promotes ecological growth, fire safety, managing forests for outdoor recreation and enjoyment, while also still providing work and tree product production for our region?

I encourage and support the plan mentioning an effort to "Prohibit new zoning that furthers the continuation of strip commercial development." (pg 37) This ties in directly with car traffic, parking lot development, and big box chain stores- all of which have enormous impacts on the local ecology, and prevent local shops and businesses from thriving.

And on the topic of housing, the plan notes "About half (2,625) of the remaining 6,141 vacant units were considered “seasonal, recreational or occasional use.” Could Skagit county promote planning in which first time homebuyers and renters are given priority over folks that are seasonally renting/ airbnb renting their second/third homes? Could home buyers be limited to having second homes if their community is struggling to provide enough housing for their workers and families? Could we prioritize stability over recreational rentals that provide more income for those who don't need it, and having useable housing sit empty and unused during off season times?

It is important to emphasize that it is noted in the section on Weaknesses that "The Latinx population was disproportionately represented in essential workforces during the COVID-19 pandemic, and therefore was overexposed to the virus" and "Wide-scale disconnection of some communities from services and programs was revealed during the pandemic, including broadband internet access, transportation, and childcare, due to barriers" (pg 283). We need to be consistent across the county in making sure that community members who are working in our fields as laborers, folks who are working in high impact roles in our communities like essential workers, people who do not speak English as a first language, youth who are first generation Americans in immigrant households; these people in our communities provide invaluable work, bring culture and vibrancy to our neighborhoods; and they are deeply vulnerable, and we should be working hard to protect and support them and uplift their quality of life.

I especially want to highlight and uplift the goal to "Promote climate resilience and equity through culturally sensitive outreach and education, and strengthen collaborative relationships with Tribal governments, local leaders, and non-profit groups that work with vulnerable communities to effectively manage climate change risks" (pg 299). As someone who studied both Environmental Science and Social Work, there is ample evidence that environment and humanity are deeply linked; taking care of one means taking care of the other. Our Tribal community members know this and have leaned on the wisdom of Traditional Ecological Knowledge for millenia; we need to be turning to them as leaders to help us navigate the impacts we are already seeing of climate change.

These are my first and most pressing reflections on this plan draft. Thank you for providing us as community members to weigh in and share our voices in the process. I look forward to being a part of ongoing conversations and discussions and dreams about how to preserve the beauty of this region while efforting to improve and evolve the ways we live and work and travel here.

Thank you!
Ingrid Hannan, Masters of Social Work, Bachelors of Environmental Science
Resident of Mount Vernon

213 E Lawrence St, Unit 7, Mount Vernon Wa 98273
636-234-3255

**Tara Satushek** Comment # 26

**From:** John and Beth <verose@usa.net>
**Sent:** Tuesday, March 11, 2025 4:21 PM
**To:** PDS comments
**Subject:** Possible Spam: Skagit County 2025Comprehensive Plan Draft Policies

From: John Verdoes
18870 Sulfer Springs Road
(Big Lake) Mount Vernon 98274

As a resident of Skagit County for more than 60 years, I would like to express my concerns regarding the Comprehensive Plan update. Having attended planning commission meetings, there are two parts of the proposed plan I want to address:

Establishment of an Environmental Advisory Board

Despite community support for an EAB in earlier meetings by the majority of commenters, there is no mention of creating one in the current draft. The Commissioners and Planning Commission could benefit from the variety of engaged citizens who would look holistically to preserve the environment that makes our County unique and such a special place to live.

Do not designate Big Lake and Clear Lake as "Rural Villages"

The Growth Management Act aims to keep housing density in cities and towns. The suggestion that Big Lake housing density would be 4 dwellings per acre in the future would push development out of Skagit County cities to our rural area. Big Lake already has overburdened Fire, School, Sewer, Ground Water and road issues. The issues of the water quality in the lake will only be exacerbated with increased housing in our community.

Please consider adding an Environmental Advisory Board in the Plan and deleting the Rural Village Residential Land Density.

Thank You,
John Verdoes

**Tara Satushek**

Comment # 27

**From:** Nicole Joy Preston <cocopreston@gmail.com>
**Sent:** Tuesday, March 11, 2025 8:31 PM
**To:** PDS comments
**Subject:** Possible Spam: Skagit County's 2025 Comprehensive Plan Draft Policies

# Public Comment on County Plan Draft Update

I am writing to express concerns regarding the current draft update of the county plan. After careful review, there are two key issues that require attention:

## Environmental Advisory Board Oversight

Despite significant public support—with a majority of commenters requesting the creation of an Environmental Advisory Board comprised of citizens (similar to existing Agriculture, Forestry, and Park Advisory Boards)—the draft update fails to address this recommendation. Establishing such a board would ensure environmental considerations receive the same structured citizen input that other important aspects of county planning already benefit from.

## Rural Development Density Concerns

Policy 3C-1.6(b), which increases allowed housing density in rural villages, is problematic for our county's development goals. Currently, our county struggles to concentrate new housing developments in urban areas where infrastructure and services already exist. This policy change would:

- Accelerate housing development in areas with limited services
- Increase vehicle miles traveled and associated emissions
- Reduce protection of valuable rural lands
- Fail to meaningfully address affordable housing needs, as residents in remote areas face higher transportation costs and limited access to services

True solutions to our affordable housing challenges require focusing development in areas with existing infrastructure, transportation options, and community services—not dispersing population to rural regions with fewer resources.

I respectfully request reconsideration of these two important issues before finalizing the county plan update.

Nicole Preston

1119 36th Street

Anacortes, WA 98221

Comment #28

RECEIVED
MAR 11 2025
SKAGIT COUNTY
PDS

Skagit County Planning Commission
Mount Vernon Wa.

March 11, 2025

Skagit Planning Commission

Re: Comments on 2025-2045 Skagit County Comp Plan Update. **(Clean version)**
Speaking on behalf of Friends of Skagit County.

The 2009 Skagit County Open Space Concept Plan (OSCP) is only a non-regulatory concept plan with no legal binding merit. It is only an advisory plan.
Identified on pages Page-29 and 230 of this draft.

**Page 29- Open Space Areas.** Last paragraph. (Copy attached)

**Page 230- Policy 8G-1.13** states "Encourage updates…..2009 Open Space Concept Plan ..." (Copy attached)

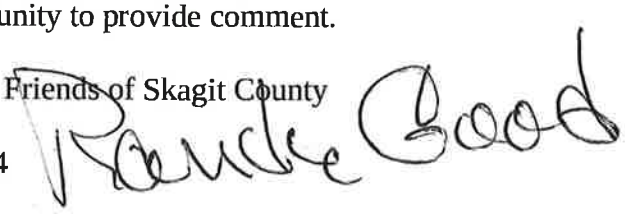
SkagitCounty.net website language " The plan does not mandate that identified areas be regulated or protected, and does not create a regulatory land use designation nor allow public access by default. Instead, the plan identifies priority areas within the county to be considered for strictly voluntary open space preservation program." Encourage adding this language to this 2025-2045 Plan. (Website copy attached.)

**Page 95 Agricultural Support Programs Goal 4A-2,**
As one of the founding members of the Farmland Legacy Program I feel the revised language does not mention the Farmland Legacy Program as managed by the Conservation Futures Advisory Committee. Please add in the definitions or in at one place in the plan so that readers know the relationship between the two entities and the purpose and function of each.

**Page 362- Envision Skagit 2060,**
This document is a study, non-regulatory and needs to be identified as such.

Thank you for the opportunity to provide comment.

Randy Good, President Friends of Skagit County
35482 State Route 20
Sedro Woolley Wa. 98284
360-856-1199






requirements of RCW 36.70A.110(2) to permit "greenbelt and open space areas" within urban growth areas and the requirement of RCW 36.70A.160 to "identify open space corridors within and between urban growth areas." The plan includes lands useful for recreation, wildlife habitat, trails, and connection of critical areas. The plan does not mandate that identified areas be regulated or protected, and does not create a regulatory land use designation nor allow public access by default. Instead, the plan identifies priority areas within the county to be considered for a strictly voluntary open space preservation program

**Adopted Plan**

The Board of Commissioners adopted the plan in September 2009 by Ordinance O20090009. It is available below in four parts:

- Narrative Report, AppendixA
- Appendix B-1
- Appendix B-2
- Appendix C-G

**Smart Communities Award**

Skagit County received the Governor's 2010 Smart Communities Award for the Open Space Plan:

- Skagit County Press Release
- Governor's Press Release (Pdf)
- Governor's 2010 Smart Community Award brochure (Pdf)

**Historical Information**

- Frequently Asked Questions
- Department Report to the Planning Commission
- Public Hearing Transcript (March 17th, 2009)
- Response to Public Comments (April 9, 2009)

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
13 Implementation
Appendices

smooth and continuous road shoulders, including asphalt overlays or enhanced chip sealing where appropriate and feasible.

policy 8G-1.13 Encourage updates to both the 2004 Non-Motorized Plan and the 2009 Open Space Concept Plan to support expansion of the multiuse trail network for transportation, recreation, eco-tourism, and resilience to flooding and adverse climate impacts.

policy 8G-1.14 The County will strive to reduce air pollution and greenhouse gas emissions by promoting the use of alternative transportation modes, reducing vehicular traffic, maintaining acceptable traffic flow, and siting of facilities.

policy 8G-1.15 Encourage Skagit County school districts to consider implementing the US EPA Idle-Free Schools Toolkit for a Healthy School Environment to reduce local impacts to regional air quality.

### Freight and Economic Development

**Goal 8H** Support economic development goals by providing adequate air, rail and surface freight handling routes and facilities throughout the County transportation system.

policy 8H-1.1 Freight and Goods Transport System – Invest in road improvements to create an All-Weather Road System as part of the Freight and Goods Transportation System (FGTS). In conjunction with the state, designate portions of the road system as truck routes.

policy 8H-1.2 Provide roads structurally adequate to handle anticipated commercial traffic demand, particularly on the FGTS.

policy 8H-1.3 Encourage the enhancement and expansion of freight rail service to and from economic activity centers.

policy 8H-1.4 Encourage improvements to air transportation facilities consistent with the ports of Skagit County and the state Aviation System Plan. Improve road and transit linkages to airport facilities.

### Tourism and Recreation

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
13 Implementation
Appendices



- *Aviation Related (AVR)*
- *Aviation-Related Limited (AVR-L)*

These designations have been created to respond to the existing and anticipated future growth conditions within the subarea based on an extensive community-based planning process including environmental review. The subarea plan includes a capital facilities element and utilities element identifying needs and solutions for infrastructure improvements in support of anticipated growth.

## Swinomish UGA

The Swinomish UGA is located within a portion of the Swinomish Indian Reservation. The County's authority and responsibility for planning and land use management within the Reservation is promulgated by federal and case law. In general terms, within the exterior boundary of the Swinomish Indian Reservation the interests of the Tribe extend to all lands regardless of ownership while the County's regulatory authority extends only to non-trust and non-tribal fee-simple lands. As such, the County's regulatory authority is put into practice by adopting the Residential District (R) land use designation for the non-trust and non-tribal fee-simple lands within the Swinomish UGA, with the exception of the Hope Island Inn which is designated Commercial (C).

# Open Space Areas

There are a variety of types of open space lands in Skagit County. Open space areas include greenbelt corridors within and between urban growth areas, green belts which connect critical areas, lands receiving open space tax incentives, resource lands, conservation easements, rural open space areas, park lands, and significant historic, archaeological, scenic and cultural lands.

In January 2009, Skagit County adopted the Skagit Countywide UGA Open Space Concept Plan, which identifies and prioritizes open space corridors and greenbelts within and between UGAs that include lands useful for recreation, wildlife habitat, trails, and connection of critical areas, and working farm and forestlands. The plan identifies and prioritizes open space and greenbelt lands desirable for public acquisition or continued private ownership and conservation. Any land acquisition under the plan will not include any condemnation actions but instead will only be achieved by voluntary donation, CaRD subdivision, or mutually agreeable sale.

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
13 Implementation
Appendices



Kelley Molstad, Linda Storbakken, Craig Swenter, John Weiss (Staff: Pat Bunting)

**Transportation**

Bob Boudinot, Bill Carlisle, Robert Eakins, James Falk, Dale Fisher, Harland Forrest, Steve Hood, Donald Hoye, Chuck McConnell, Bruce Wells (Staff: Jim Cahill)

**Economic**

Ruth Aven, Peter Avondo, Dan Davis, Don Fero, Dave Hedlin, Stewart Jones, Patsy Martin, Kelley Molstad, Danielle Mullen, Ian Munce, Harry Ota, Pat Pearce, John Piazza, Don Slocum, Bill Taylor, Bob Vozar, Don Wick, Bert Williamson (Consultant: Eric Hovee, Staff: Edwyna Fong)

**Environment**

Dave Chamberlain, John Day, Woody Deryckx, Lorna Ellestad, Elsa Gruber, Ranger Kidwell-Ross, Anita Klein, Roger Knutzen, Bobbi Krebs-McMullen, George McFadden, Brian McGuiness, Ian Munce, Allan Olson, Bill Reinard, Jim Scott, Paul Taylor, Don Van Etten, Don Wick, Margaret Yeoman, Nancy Paine-Donovan (Facilitator: Claire S. Reiner, Staff: Gary Christensen, Oscar Graham, Edwyna Fong)

**Environment Technical Advisory Committee**

Jon Aarstad, Jim Beaster, Martha Bray, Dave Brookings, Kurt Buchanan, Jim Chu, Mike Davison, Terry Doran, David Fredrick, Noel Gilbrough, Jerry Heller, Carolyn Kelly, Steve Nissley, Terry Nyman, Bill Paleck, Britt Pfaff, Zoë Pfahl, Ann Remsburg, Alice Schisel, Brad Spangler, Art Stendal, Terry Stevens, Gary Voorman, Larry Wasserman

# Envision Skagit 2060: looking forward 50 years

Many of these same themes were reinforced by a planning and visioning process the County undertook between 2009 and 2012 called Envision Skagit 2060. Envision Skagit was a collaborative process intended to identify long-term opportunities and challenges facing residents and communities in Skagit County over the next 50 years. The process received assistance from numerous local partner organizations and was funded with two federal grants and local in-kind contributions from participating organizations;

Skagit County launched the project with the help of a Steering Committee consisting of 18 community leaders representing cities, towns, tribes, and the Port of Skagit, conservation organizations and agencies and the farm and forestry sectors, and Skagit Valley College. The

Comment # 29

RECEIVED
MAR 11 2025
SKAGIT COUNTY
PDS

# (No Subject)

From: Randy Good (rlgood30@frontier.com)
To: rlgood30@frontier.com
Date: Tuesday, March 11, 2025 at 04:34 PM PDT

Skagit County Planning Commission

March 11, 2025

RE: 2025 - 2045 Comp Plan Update
Resource Lands - Agricultural Resource Lands

Under GMA the order for conserving "prime agricultural soils" is identification, designation, conservation, protection and preservation. Please change the order in the proposed changes to reflect the RCWs requirements. Please cite the appropriate RCWs as references so the public can read the processes counties are to take for each required action.

Examples:
RCW 36.70A.050 Guidelines to classify agricultural, forest, mineral and critical areas.
RCW 36.70A.170 Natural resource lands and critical areas -- Designations.

RCW 36.70A. 210 Countywide planning policies.
(3) A countywide planning policy shall at a minimum, address the following:
(a) Policies to implement RCW 36.70A.110 (Comprehensive Plans -- Urban Growth Areas);
(b) Policies for promotion of contiguous and orderly development and provision of urban services to such development;
(c) Policies for siting public capital facilities of a countywide or statewide nature, including transportation facilities of statewide significance as defined in RCW 47.06.140;
(d) Policies for countywide transportation facilities and strategies;
(e) Policies that consider the need for affordable housing, such as housing for all economic segments of the population and parameters for its distribution;
(f) Policies for joint county and city planning within urban growth areas;
(g) Policies for countywide economic development and employment, which must include consideration of the future development of commercial and industrial facilities;
(h) An analysis of the fiscal impact; and
(i) Policies that address the protection of tribal cultural resources in collaboration with federally recognized Indian tribes that are invited pursuant to subsection (4) of this section, provided that a tribe, or more than one tribe, chooses to participate in the process.

Page 93-94 Policy 4A-1.1. (e)

The language on de-designation of Ag-NRL needs to be stronger. The GMA requirements meant that the planning counties got the identification, designation and protection right, early on or through appeals decisions and state law changes. De-designation should be difficult and only used as an emergency or a public health and safety need. How many acres have been de-designated in Skagit County?

Section (e): Please clarify and explain what a comprehensive countywide analysis is and what it would show. How would the decision to dedesignate happen? . Did you mean a land use analysis in general or an Ag-NRL lands analysis?

Additional comments will be submitted by Executive Director Ellen Bynum.

Randy Good

Randy Good President Friends of Skagit County.
35482 State Route 20
Sedro Woolley Wa. 98284
360-856-1199

**Tara Satushek** Comment # 30

**From:** David Toyer <david@toyerstrategic.com>
**Sent:** Wednesday, March 12, 2025 12:15 PM
**To:** PDS comments
**Cc:** Robby Eckroth
**Subject:** Skagit County's 2025 Comprehensive Plan Comments
**Attachments:** Appendix A.pdf; Appendix B.pdf; Port of Skagit WIN.pdf; AEO Zones Map.pdf

March 12, 2025

Planning and Development Services
Comments on "Skagit County's 2025 Comprehensive Plan"
1800 Continental Place
Mount Vernon WA 98273

## COMMENTS ON SKAGIT COUNTY'S 2025 COMPREHENSIVE PLAN

To Whom It May Concern:

Our firm is a land use and economic development consultancy that works with public and private sector clients, providing a range of services that includes planning for, attracting, and permitting successful development projects. Since 2020, we've help secure entitlements for over 25 million square feet of industrial development along the I-5 corridor in Washington, including a 426-acre industrial park within the Arlington-Marysville Manufacturing Industrial Center (aka Cascade Industrial Center).

We continue to see strong demand for a range of new industrial projects; however, there is a declining number of large developable industrial sites that exist along the I-5 corridor, especially now that approximately 90% of the Cascade Industrial Center's 4,019 acres are developed or entitled.

Because our firm believes strongly that Skagit County could be in a unique position to compete for future economic development opportunities, we have been studying the county's UGAs with a particular focus on the availability of industrial land near the I-5 corridor – particularly large sites (≥40 acres). In doing this, we've grown concerned that the BVR UGA:

- Does not have sufficient employment capacity to achieve its 2045 targets;
- Does not have enough large (over 40 acre) parcels to accommodate large industrial projects (such as warehousing and distribution, manufacturing, etc.); and
- Could benefit from an update to the 2014 Bayview Ridge Subarea Plan.

### STRESS TESTING EMPLOYMENT CAPACITY

The 2024 Growth Monitoring Report[i] prepared by the Skagit Council of Governments (SCOG) identifies the BVR UGA as having current employment totaling 2,394 as shown in Table 1 (below). This figure is less than the assumed 2022 employment figure of 2,962 used by SCOG to determine that the BVR employment target of 4,901 required job growth of 1,938 by 2045.[ij] However, based on the more current data, the actual employment needed by 2045 is 2,507 jobs.

*Table 1*

| | 2017 Employment | 2024 Employment | % Change | Net Employment Change | % of Total Growth |
|---|---|---|---|---|---|
| **Anacortes** | 9012 | 8322 | -7.7% | -690 | |
| **Burlington** | 10140 | 10666 | 5.2% | 526 | **16%** |
| **Mount Vernon** | 16319 | 17091 | 4.7% | 772 | **24%** |
| **Sedro-Woolley** | 4412 | 4768 | 8.1% | 356 | **11%** |
| **Concrete** | 377 | 393 | 4.2% | 16 | **0%** |
| **Hamilton** | *Suppressed* | *Suppressed* | | | |
| **La Conner** | 898 | 1049 | 16.8% | 151 | 5% |
| **Lyman** | *Suppressed* | *Suppressed* | | | |
| **Bayview Ridge** | 2143 | 2394 | 11.7% | 251 | **8%** |
| **Swinomish** | 1224 | 1102 | -10.0% | -122 | |
| **Rural Area** | 7507 | 8710 | 16.0% | 1203 | **37%** |
| **Totals** | **52032** | **54495** | **4.7%** | **2463** | **100%** |

To understand what this could mean for the BVR UGA, we reviewed the November 4, 2024, memorandum by Kimley-Horn & Associates which Exhibit 2 establishes an employment capacity of 2,426 jobs using the standard land capacity methodology. While this methodology is valid (and we have no issues with Kimley-Horn's work), such standard methodology often does not fully account for localized conditions and other factors that jurisdictions should consider.

Thus, we conducted a parcel-by-parcel "stress test" of the BVR employment capacity using information on local conditions and factors gathered by reviewing additional wetland information (including recorded critical areas easements and site plans, the Port's Wetland Industry Negotiation[iii] map, etc. that don't appear on GIS), evaluating recorded binding site plans to identify non-buildable lots, evaluating the impact of pipeline and utility corridors based on mapping in easements, assessing zoning code limitations related to the UGA's airport proximity, and contemplating site plan limitations related to open space requirements imposed by the various Airport Compatibility Zones[iv] (ACZs).

Appendices A and B (attached) contain a map and the corresponding parcel by parcel notes highlighting assessment, which identified 151 fewer "net developable acres" and 129 fewer "net buildable acres" based on the following:

- We deducted critical areas that were included in the Port's Wetlands Industry Negotiation, which includes tracts in the Port's revised binding site plan that appear to otherwise be parcels in the County's GIS.

- We fully removed development capacity in the Aviation Related (AVR) zone due to the parcel's location withing ACZ 1, which requires the land be 100% open space except for limited airport related structures. We assumed such structures would neither be large, have significant height (due to runway approach), nor employ many persons physically on-site.

- We included partial reductions for required open spaces that ranged between 5% and 100% depending on the associated ACZ requirements. The required open space must be permanently kept as vegetation with a height limit. Thus, landscaping or open stormwater ponds are not likely to comply, resulting in an additional set aside.

- Removed development capacity associated with easements for pipelines and other utilities, which in several cases bisect sites and constrain future development.[v]

- We removed two vacant parcels as they have recently been permitted for a BESS facility and the SEPA indicates no permanent jobs will be created on-site.

- We adjusted the "Market Factor" for the vacant PACCAR properties as they are gated and secured sites at a research and development facility, making it less likely they'll be market available to a non-PACCAR opportunity. Partial future development by the company was still assumed.

    - Although we contemplated increased the market reduction factor for Port owner properties due to the apprehension of some businesses to build facilities on leased land, we opted to keep the existing factor.

- We reduced the Aviation Related Limited (AVR-L) employment capacity to 20 net buildable acres for purpose of calculating employment density based on limitations on uses per SCC 14.16.205 which establishes a maximum of 20 acres that can be developed with BR-LI permitted or special uses. This resulted in two new assumptions:

    - We increased the employment density for these 20 acres to 6.5 (from 4) based on the uses being the those permitted in the BR-LI zone.

    - Because remaining land would only be able to support outdoor storage, utilities, temporary events, and other such uses that would not result in permanent job creation, these acres we excluded from the development capacity calculation.

Utilizing these figures in Table 2 (next page) we determined that the actual employment capacity for the BVR UGA may support less than 1,800 new jobs, which could mean an employment deficit between 148 and 255 jobs depending on whether this capacity figure is compared to the 2022 employment base tied to the growth allocations or the current 2024 employment base cited in the Growth Monitoring Report.

*Table 2*

| | Less Critical Areas, Buffers, Encumberances, ACZ Open Space | Infrastructure Deduction (20%) | Market Factor (Variable) | Net Buildable | Job Density | Employment Capacity |
|---|---|---|---|---|---|---|
| Aviation Related (AVR) | 0 | 0 | 0 | 0 | 4 | 0 |
| Aviation Related-Limited (AVR-L) | 74 | 59 | 44 | 20 | 6.5 | 130 |
| Light Industrial (BR-LI) | 317 | 254 | 190 | 190 | 6.5 | 1236 |
| ***Paccar* Light Industrial (BR-LI)*** | *35* | *28* | *7* | *7* | *6.5* | *46* |
| Heavy Industrial (BR-HI) | 97 | 78 | 58 | 58 | 6.5 | 378 |
| **Totals** | **522** | **418** | **299** | **275** | | **1790** |
| **Assumed 75% market reduction factor due to fenced and secure corporate campus for Research & Development* | | | | | | |

### A Lack of Adequately Sized Industrial Parcels

Like many other counties, Skagit County has a lack of large industrially zoned parcels or assemblages that have 40 or more contiguous buildable acres – the typical size threshold needed to accommodate large industrial projects having buildings larger than 250,000 square feet. Looking at the BVR UGA and referencing the Site/Map Id numbers used in Appendix A (attached) we identify two *potential* sites having enough buildable acreage to support a large project:

<u>BVR UGA Parcels or Assemblages Ruled Out:</u>

- An assemblage of sites 6, 7, 8, 9 and 11 cumulative total approximately 91 buildable acres, but the location of critical areas and buffers and existing pipelines and other utilities would not likely support development of a project requiring of 40 or more acres.

- Site 64 has approximately 46 buildable acres, but the site is bisected by what appears to be newly installed utilities running through the middle of the site. While optimal for creating a multi-lot future business park, it would not be likely to support development of a project requiring of 40 or more acres.

- Site 63 could be assembled with Site 62 and a portion of Site 64 to achieve more than 40 buildable acres, but the existence of a pipeline that bisects Site 63 at a diagonal would not support development of a project requiring of 40 or more acres.

- Sites 19, 20, 21 and 22 if assembled would have more than 40 gross acres, but the net developable acreage after critical areas and buffers, plus pipelines and other utilities is less than 40 developable acres.

    - Note that all the sites listed above are generally pre-planned for small lot business park development according to the Watershed Business Park Plan.[vi]

BVR UGA Parcels or Assemblages Having More than 40 Developable Acres:

- Sites 53 and 54 combined could account for approximately 44 buildable acres and *may* have potential to support a project requiring 40 or more acres.

- Site 61, which has approximately 93 buildable acres *may* support a project requiring 40 or more acres depending on the confirmed delineation of mapped critical areas and buffers.

**CONCLUSION & RECOMMENDATIONS**

We recognize that Skagit County is nearing the end of their periodic comprehensive plan update and to make changes that would substantively address our concerns may be too late. However, we respectfully request that the Planning Commission prioritize adding an update to the BVR Subarea Plan and completion of an industrial lands assessment to the implementation goals/policies recommends be added to the Comprehensive Plan. We suggest that such update include the following:

- A detailed review of the land capacity available within the existing UGA boundary.

- An evaluation of the current target industries the County desires to locate in the BVR UGA and a reconciliation between these targets and uses permitted in the zoning code.

- An evaluation of current market conditions and future demand for large industrial sites to determine whether the County has sufficient large parcels (or assemblages) that can support projects requiring more than 40 contiguous acres.[vii]

- A revised assessment of future infrastructure needs, especially those that can address both power supply and power quality related to target industries.

- Identification of an official BVR reserve area that could established and available should the County need to accommodate a very large (100+ acre) industrial project.

By taking action during this Comprehensive Plan Update to commit to analyzing the County's industrial lands and updating the Bayview Ridge Subarea Plan, the County can best ensure it fully realizes the benefits and financial stability that comes from having an unincorporated UGA which primary focus is economic development.

Should you have additional questions, please do not hesitate to contact me.

Very Sincerely,

David Toyer, President

**Footnotes & Links to Reference Documents:**

[i] 2024 Growth Monitoring Report

[i][i] 2022 Employment Figure is from Exhibit 43 of the SCOG Forecast & Growth Allocations Report from April 29, 2024.

[iii] Bayview Ridge Subarea Plan Wetlands Map (including the Wetland Industrial Negotiations mapping) also reference wetland and hydric soil maps here and here

[iv] Airport Compatibility Zones Map and link to zoning code requirements

[v] See Skagit County Pipeline Map and

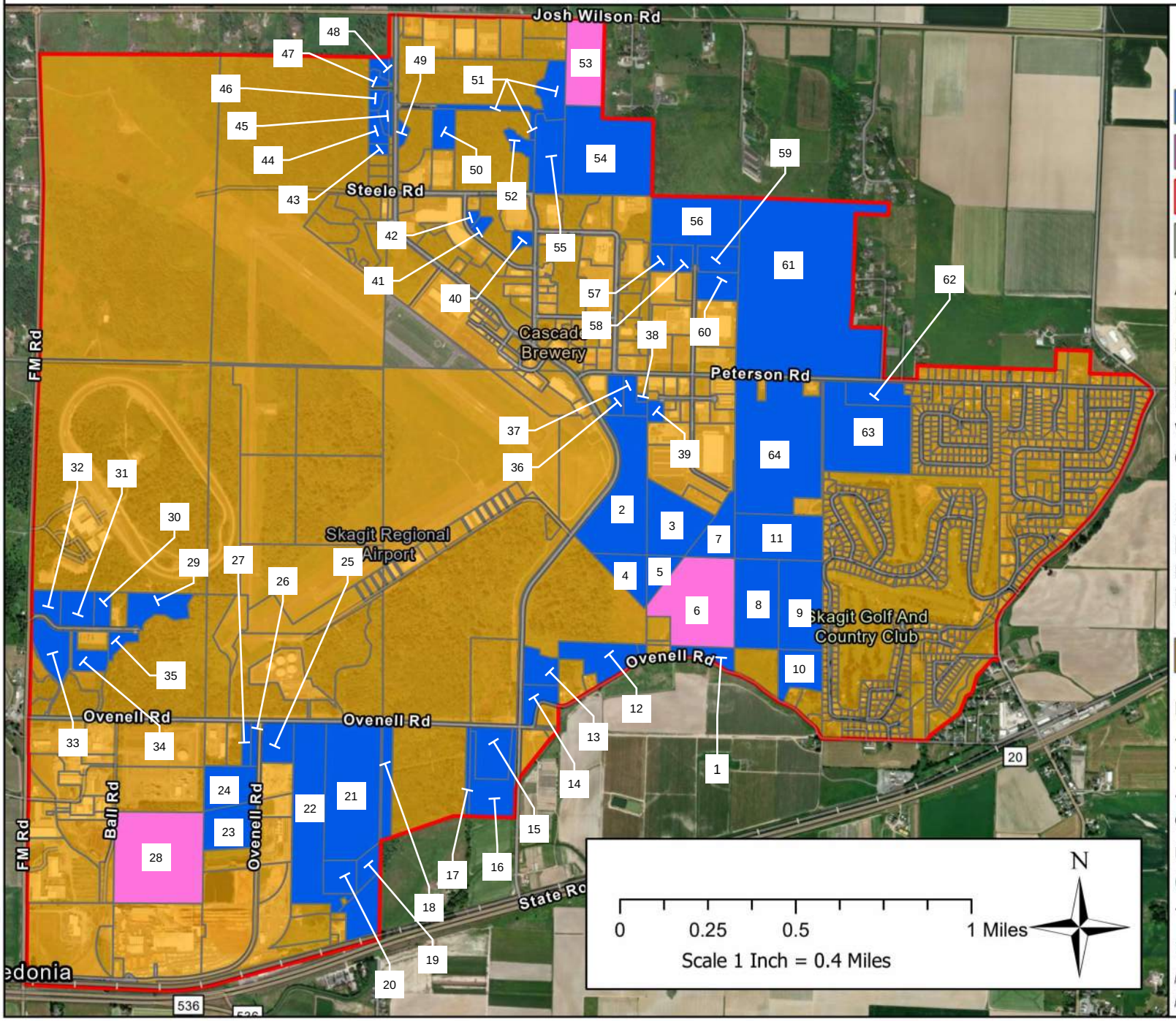
[vi] Watershed Business Park Development Plan

[vii] See Thurston County Industrial Lands Study for a recent example, which study informed a subarea plan update for the unincorporated Grand Mound UGA, including two UGA expansions.

**Contact:**
TOYER STRATEGIC ADVISORS, INC.
3705 COLBY AVE, *STE 1*, EVERETT, WA 98201
425-344-1523
toyerstrategic.com

***NOTICE:*** *This e-mail message and any attachments are intended solely for the use of the intended recipient(s), and may contain information that is confidential, privileged and/or exempt from disclosure under applicable law. If you are not the intended recipient, you are not permitted to read, disclose, reproduce, distribute, use or act upon the contents of this message including any attachments. Please promptly notify the sender of this error and immediately delete this message and any attachments, as well as any copies thereof. Delivery of this message, including attachments, to an unintended recipient is not intended to waive any rights or privileges.*

# Bayview Ridge UGA Commercial and Industrial Land Capacity Analysis Map




## Legend

- Vacant
- Partially Used
- UGA Boundary
- Tax Parcels

As part of the Skagit County Land Capacity Analysis, this map has been prepared to portray the parcels in the Bayview Ridge UGA which were identified to have employment capacity.

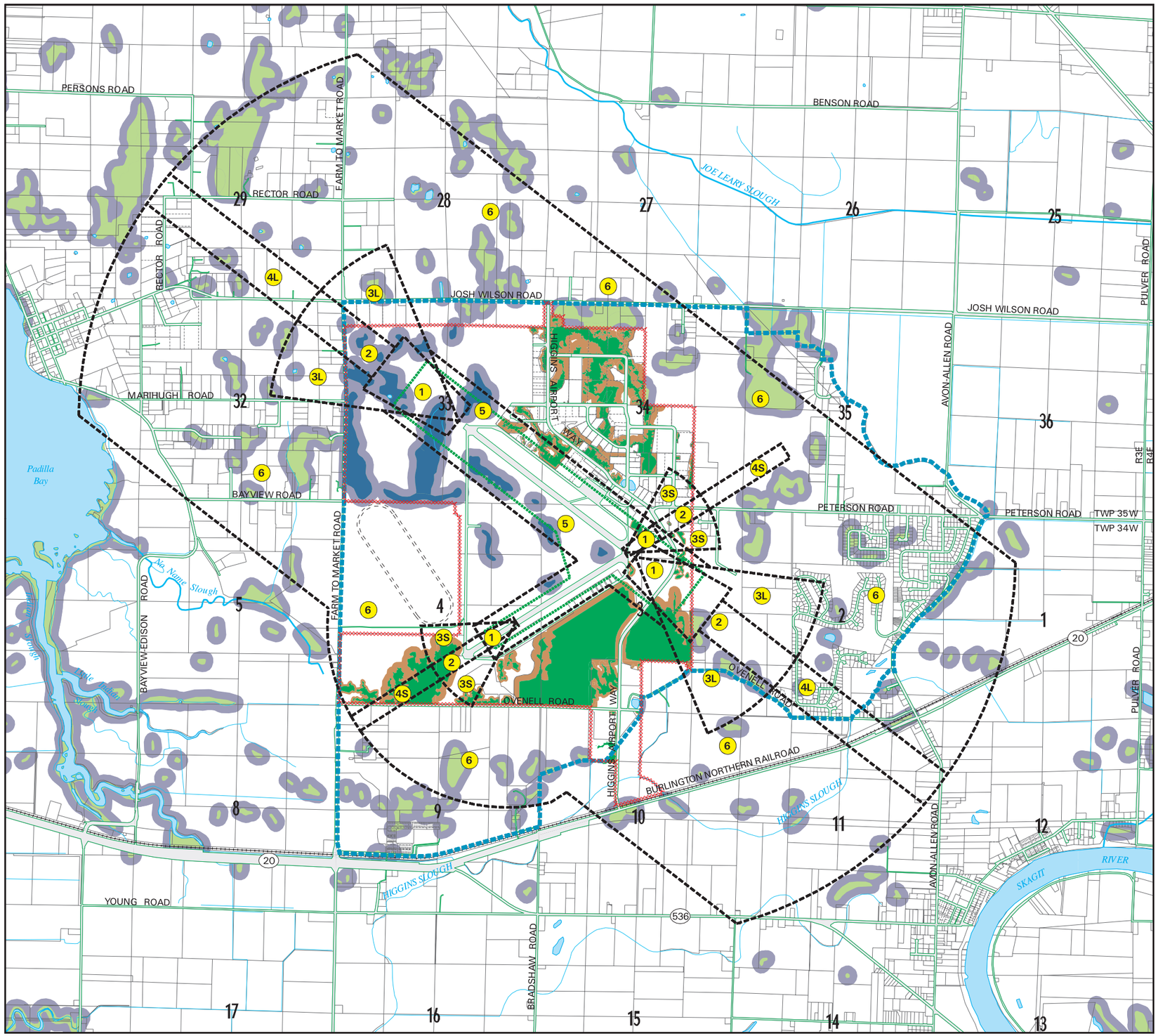
Per the methodology, certain parcels were removed and are not shown as having capacity in the analysis.

- Undevelopable Parcels

Undevelopable parcels include:
- Fully developed lots
- Small lots (under 10,000 sf)
- Lots encumbered more than 90% by critical areas or undevelopable land (easements)
- Lots zoned Residential (BR-R)

*This map was prepared using best available public data and should not be used for any purpose outside of this land capacity analysis.*

| Map ID | Site Acres | Notes: | Initial Reduction Actions | Net after Critical Areas + Buffers | Market Reduction Factor | Zone |
|---|---|---|---|---|---|---|
| 1 | 4.7 | 1.2 ac in ACZ 2 (30% open space), 1.1 ac in ACZ 6 (10% open space), 2.4 ac in ACZ 3L (15% open space); 2.22 ac of wetlands + buffer; terrible site configuration and insufficient remaining developable area | Not developable, exclude | 0 | Port | AVR-L |
| 2 | 31.17 | 26.66 ac in ACZ 1 (100% open space except airport structures), 4.1 acres in ACZ 2 (30% open space), 0.4 ac in ACZ 3L (15% open space), and 0.01 ac in ACZ 3S (15% open space); Site shown as partially covered in Weltands and Industry Negotiation Map (WIN) with nearly 100% of the area outside ACZ 1 covered by critical areas and buffers | Not developable with employment generating structures, exclude | 0 | Port | AVR |
| 3 | 17.82 | 100% in ACZ 1 (100% open space except airport structures) | Not developable, exclude | 0 | Port | AVR |
| 4 | 7.91 | Site 100% identified as critical areas and buffers on WIN map | Not developable, exclude | 0 | Port | AVR |
| 5 | 4.87 | 3.88 ac in wetlands + buffers; located in ACZ 2 (30% open space) | Not developable, exclude | 0 | Port | AVR |
| 6 | 32.33 | 4.11 ac in wetlands + buffers; located in ACZ 2 (30% open space) | Reduce net developable area | 28.22 | Port | AVR-L |
| 7 | 9.4 | 0.3 ac in ACZ 1 (100% open space), 5.6 ac in ACZ 2 (30% open space), 3.5 ac in ACZ 3L (15% open space) | Reduce net developable area for ACZ 1 + 10% reduction for ACZ open space | 8.19 | Port | BR-LI |
| 8 | 20.44 | 20.36 ac in ACZ 2 (30% open space), 0.8 ac in ACZ 3L (15% open space), 0.01 ac in ACZ 6 (10% open space) | Reduce net developable by 10% for ACZ open space | 18.396 | Port | AVR-L |
| 9 | 20.43 | 13.33 ac in ACZ 2 (30% open space), 0.1 ac in ACZ 3L (15% open space), 7 ac in ACZ 6 (10% open space) | Reduce net developable by 10% for ACZ open space | 18.387 | Port | AVR-L |
| 10 | 9.49 | Entire site in ACZ 2 (30% open space) | Reduce net developable by 10% for ACZ open space | 8.541 | Port | AVR-L |
| 11 | 20.6 | 12.9 ac in ACZ 3L (15% open space), 1.1 acres in ACZ 2 (30% open space), 6.6 acres unencumbered | Reduce net developable by 10% for ACZ open space | 18.54 | Port | BR-LI |
| 12 | 11.07 | 3 acres in ACZ 3L (15% open space), 10.84 acres in ACZ 6 (10% open space); 6.09 acres in wetlands and buffers | Reduce net developable by 10% for ACZ open space | 7.263 | Port | BR-LI |
| 13 | 5.88 | Located in ACZ 6 (10% open space) | Reduce net developable by 5% for ACZ open space | 5.586 | Port | BR-LI |
| 14 | 4.76 | Located in ACZ 6 (10% open space) | Reduce net developable by 5% for ACZ open space | 4.522 | Port | BR-LI |
| 15 | 9.32 | Located in ACZ 6 (10% open space); critical areas and buffers shown on WIN map | Reduce net developable by 5% for ACZ open space | 8.854 | Port | BR-LI |
| 16 | 11.87 | Located in ACZ 6 (10% open space); critical areas and buffers shown on WIN map (~4.5 acres) | Reduce net developable by critical areas and 5% for ACZ open space | 7.0015 | Port | BR-LI |
| 17 | 1.85 | Located in ACZ 6; configuration means site not developable unless combined with Parcels 15 & 16 | Exclude | 0 | | BR-LI |
| 18 | 7.12 | Two very narrow parcels | Exclude | 0 | | BR-HI |
| 19 | 3.85 | Site is bi-sected by pipleines; PHS mapping shows likely wetland in southeastern corner of site; owned by utility/gas transmission companiy | Exclude | 0 | | BR-HI |
| 20 | 5.74 | Site has +/-0.4 acres of wetlands and critical areas | Reduce net developable by 5% for ACZ open space | 5.073 | | BR-HI |
| 21 | 38.18 | Owned by Olympic Pipeline, westernmost 80', northernmost 50' and southernmost 130 feet encumbered by AFN 200008080059 et al. | Reduce for encumberances plus 5% reduction for ACZ open space | 31.046 | | BR-HI |
| 22 | 31.78 | Site is bi-sected by pipelines; Wetlands affect most of site (see AFNs 200910050102, 200912020038) | Exclude | 0 | | BR-HI |
| 23 | 11.67 | Approved BESS Facility | Exclude - No Jobs Per SEPA | 0 | | BR-HI |
| 24 | 10.88 | Approved BESS Facility | Exclude - No Jobs Per SEPA | 0 | | BR-HI |
| 25 | 6.63 | 100% impacted by critical areas and buffers (AFN 200912020038) | Exclude | 0 | | BR-HI |
| 26 | 1.55 | Impacted by 30' future road easement (see AFN 20010720006); within ACZ 3S (15% open space) | Reduce by easement area | 0.9861 | | BR-HI |
| 27 | 2.01 | Impacted by easement (cascade gas); within ACZ 3S (15% open space) | Reduce by 5% for ACZ | 1.9095 | | BR-HI |
| 28 | 41.87 | Partially impacted by critical areas under AFN 201011290194, additional critical areas likely under PHS/NWI & WIN mapping, bisected by pipeline. | Reduce by actual + 5% for ACZ open space | 22.9235 | | BR-HI |
| 29 | 8.71 | Located in ACZ 3S (15% open space) | Reduce by 5% for ACZ | 8.2745 | Yes | BR-HI |
| 30 | 3.04 | Located in ACZ 3S (15% open space) | Reduce by 5% for ACZ | 2.888 | Yes | BR-HI |
| 31 | 6.085 | Located in ACZ 3S (15% open space) | Reduce by 5% for ACZ | 5.78075 | Yes | BR-HI |
| 32 | 4.12 | Located in ACZ 3S (15% open space) | Reduce by 5% for ACZ | 3.914 | Yes | BR-HI |
| 33 | 8.454 | Located in ACZ 6 (10% open space) | Reduce by 5% for ACZ | 8.0313 | Yes | BR-HI |
| 34 | 4.32 | 2.2 ac in ACZ 6 (10% open space), 1.8 ac ACZ 3S (15% open space), 0.4 ac in ACZ 2 (30% open space) | Reduce by 15% for ACZ | 3.672 | Yes | BR-HI |
| 35 | 2.52 | Located in ACZ 3S (15% open space) | Reduce by 5% for ACZ | 2.394 | Yes | BR-HI |
| 36 | 3.26 | Mostly located in ACZ 2 (30% open space) | Reduce by 15% for ACZ | 2.771 | Port | BR-LI |
| 37 | 3.58 | Located in ACZ 2 (30% open space) | Reduce by 15% for ACZ | 3.043 | Port | BR-LI |
| 38 | 0.46 | Located in ACZ 2 (30% open space) | Reduce by 15% for ACZ | 0.391 | Port | BR-LI |
| 39 | 1.83 | Located in ACZ 2 (30% open space) | Reduce by 15% for ACZ | 1.5555 | Port | BR-LI |
| 40 | 1.85 | Located in ACZ 6 (10% open space) | Reduce by 5% for ACZ | 1.7575 | Port | BR-LI |
| 41 | 1.35 | Located in ACZ 6 (10% open space) | Reduce by 5% for ACZ | 1.2825 | Port | BR-LI |
| 42 | 0.89 | Located in ACZ 6 (10% open space) | Reduce by 5% for ACZ | 0.8455 | Port | BR-LI |
| 43 | 1.34 | Located in ACZ 6 (10% open space) | Reduce by 5% for ACZ | 1.273 | Port | BR-LI |
| 44 | 2.65 | Located in ACZ 6 (10% open space) | Reduce by 5% for ACZ | 2.5175 | Port | BR-LI |
| 45 | 1.61 | Part of WIN identified wetlands and currently a Tract "Q" in AFN 200303040030 | Exclude | 0 | Port | BR-LI |
| 46 | 1.51 | Located in ACZ 6 (10% open space) | Reduce by 5% for ACZ | 1.4345 | Port | BR-LI |
| 47 | 1.37 | Located in ACZ 6 (10% open space) | Reduce by 5% for ACZ | 1.3015 | Port | BR-LI |
| 48 | 2.29 | Located in ACZ 6 (10% open space) | Reduce by 5% for ACZ | 2.1755 | Port | BR-LI |
| 49 | 1.08 | Located in ACZ 6 (10% open space) | Reduce by 5% for ACZ | 1.026 | Port | BR-LI |
| 50 | 4.76 | Located in ACZ 6 (10% open space) | Reduce by 5% for ACZ | 4.522 | Port | BR-LI |
| 51 | 10.76 | Area includes Watertank Trail; no vehicular access, except from the east through non-Port owned property | Reduce developable acreage to easterly portion | 6.9 | Port | BR-LI |
| 52 | 3.53 | Area includes Watertank Trail, no vehicular access possible given trail location and adjacent wetlands on WIN map | Exclude | 0 | Port | BR-LI |
| 53 | 16.96 | Listed as partially used; located in ACZ 6 (10% open space) | Reduce by 5% for ACZ | 16.112 | | BR-LI |
| 54 | 37.59 | Located in ACZ 6 (10% open space); critical areas & buffers shown on PHS, NWI and WIN mapping (+/- 7.77 ac) | Reduce for critical areas and buffers, reduce 5% for ACZ | 28.329 | | BR-LI |
| 55 | 11.57 | Listed as Tract "E" in AFN 200303040030 and shown as almost entirely encumbered by critical areas and buffers on the WIN map | Exclude | 0 | Port | BR-LI |
| 56 | 22.83 | Located in ACZ 6 (10% open space | Reduce by 5% for ACZ | 21.6885 | | BR-LI |
| 57 | 2.95 | Located in ACZ 6 (10% open space) | Reduce by 5% for ACZ | 2.8025 | | BR-LI |
| 58 | 2.96 | Located in ACZ 6 (10% open space) | Reduce by 5% for ACZ | 2.812 | | BR-LI |
| 59 | 5.6 | Located in ACZ 6 (10% open space) | Reduce by 5% for ACZ | 5.32 | | BR-LI |
| 60 | 6 | Located in ACZ 6 (10% open space) | Reduce by 5% for ACZ | 5.7 | | BR-LI |
| 61 | 115.9 | 72.4 ac in ACZ 4S (10% open space), 43.5 ac in ACZ 6 (10% open space); Critical reas and buffers on-site as identified by PHS, NWI and WIN mapping | Reduce for critical areas and buffers, reduce 5% for ACZ | 93.0715 | | BR-LI |
| 62 | 7.44 | Located in ACZ 6 (10% open space) | Reduce by 5% for ACZ | 7.068 | Port | BR-LI |
| 63 | 33.12 | Site is crossed (SW to NE) by pipeline | Reduce by 5% for ACZ, reduce by area for pipeline | 30.1815 | | BR-LI |
| 64 | 55.58 | Site has critical areas identified by PHS, NWI and WIN mapping. 12.14 ac in ACZ 3L (15% open space) and 43.44 located in ACZ 6 (10% open space) | Reduce for critical areas and buffers, reduce 5% for ACZ | 46.3505 | | BR-LI |
| | | | | 522.6247 | | |




# LEGEND

- Subarea Plan Boundary
- Port Of Skagit County Boundary
- Airport Environs Zone
- Building Restriction Zone

**PORT OF SKAGIT COUNTY WETLANDS**

- Port Of Skagit County WIN Buffer
- Port Of Skagit County WIN
- Port Of Skagit County NWI (National Wetland Inventory) And Air Photo Interp

**WETLANDS OUTSIDE OF PORT PROPERTY**

- Wetland Buffer
- NWI (National Wetland Inventory) And Air Photo Interp

## AIRPORT ACCIDENT SAFETY ZONES

1. Runway Protection Zone
2. Inner Safety Zone
3. Inner Turning Zone (60 Degree Sector)
4. Outer Safety Zone
5. Sideline Safety Zone
6. Traffic Pattern Zone

For a Description of Recommended Safety Compatibility Criteria Addressing Land Use and Densities, Open Space Requirements, and Representative Land Uses
See Report Titled: *Skagit Regional Airport - Land Use Compatibility Study (Table 5)*

February 2004

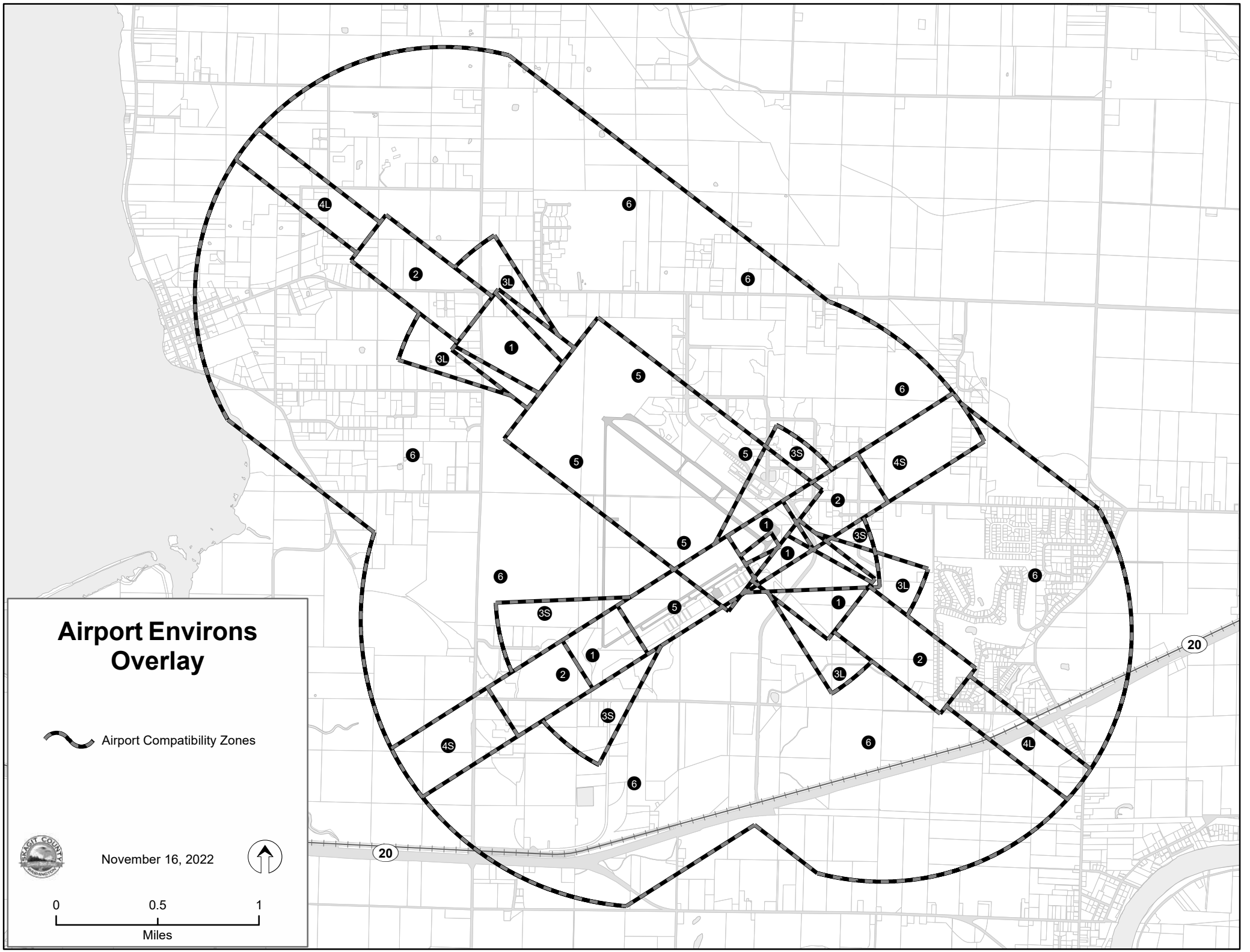
N
W E
S

0 mi. 1/2 mi. 1 mi.

SKAGIT COUNTY GIS DEPARTMENT

# BAYVIEW RIDGE SUBAREA PLAN

# WETLANDS


Airport Environs Overlay
Airport Compatibility Zones
November 16, 2022
0
0.5
1
Miles
20
20
4L
2
3L
1
3L
6
6
6
5
5
5
5
3S
4S
2
1
3S
1
3L
6
6
3S
5
1
2
3L
3S
4S
6
4L
6

**Tara Satushek** Comment # 31

| | |
|---|---|
| **From:** | Dane Jepsen <djepsen@LDCcorp.com> |
| **Sent:** | Wednesday, March 12, 2025 1:55 PM |
| **To:** | PDS comments |
| **Cc:** | Robby Eckroth; Mark Riley; Yeni Li; Kim Zuppiger |
| **Subject:** | Skagit County's 2025 Comprehensive Plan - LDC comments on the Bayview Ridge UGA LCA |
| **Attachments:** | B -Bayview Ridge Subarea Plan – Port of Skagit Wetlands.pdf; 20250312 LDC Bayview UGA LCA Comment Letter.pdf; A - Airport Master Plan For Skagit Regional Airport (Bvs) Burlington, Washington – Exhibits 5a & 5c.pdf |

Hello,

Regarding the 2025 Skagit County Comprehensive Plan update, LDC has reviewed and would like to submit comments on the draft Land Use Element and the appendices supporting it's demonstration of employment capacity as required by RCW 36.70A.070(1) and RCW 36.70A.110.

LDC has been involved in numerous developments in the Bayview Ridge UGA and is interested in Skagit County's draft Comprehensive Plan and its path for accommodating future growth projected for the area.

LDC analyzed the Bayview Ridge UGA's LCA prepared for the 2025 Skagit County Comprehensive Plan update and identified several issues with the analysis which reduce the projected 20-year development capacity by 450 jobs for a total capacity of 1,976 jobs when incorporated. Based on this projected capacity, the Bayview Ridge UGA's 20-year employment target of 1,939 jobs will be exceeded by 37 jobs. LDC's analysis was limited to sparse publicly available data and should in no way indicate that the UGA does have sufficient employment capacity for the 20-year planning period.

LDC recommends Skagit County re-evaluate the employment capacity of the Bayview Ridge UGA and consider updating the UGA's subarea plan to reflect current conditions and related local plans.

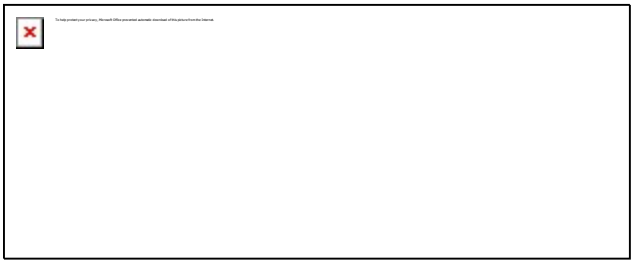
The attached letter and attachments A & B detail the extent of LDC's review and findings supporting these comments.

Please let us know if there are any issues with the county accepting these comments in this format.
We desire to have our comments recognized in this comment period and can accommodate an in-person submittal if necessary.

Thank you,

**Dane Jepsen**
Planner
E: djepsen@LDCcorp.com
D: 425-892-9513 | C: 509-240-2914

20210 142nd Ave NE Woodinville, WA 98072
www.LDCCorp.com 425-806-1869



LDC Surveying Engineering Planning

# Memo

To: Skagit County Planning Commission

From: Dane Jepsen, Planner, LDC Inc.
Weston Sitterding, Permit Technician, LDC Inc.

CC: Mark Riley, Senior Vice President, LDC Inc.

Date: March 12, 2025

Re: Skagit County Draft 2025 Comprehensive Plan – 2025 Bayview Ridge UGA Land Capacity Analysis

---

The final LCA prepared for Skagit County's 2025 Comprehensive Plan update projected a surplus of 487 jobs in the Bayview ridge UGA. However, deviations from State's guidance for calculating land capacity, along with un-accounted for Port of Skagit land-use plans, reveal that this anticipated growth is not reasonable under current conditions.

LDC analyzed the results of the 2025 LCA of Bayview Ridge UGA by reconstructing the analysis inputs and making slight adjustments to the assumptions and data as potential issues were identified. LDC's analysis revealed the following four major issues with the details of this LCA:

1. Market Factor Calculation
2. Runway Protection Zone
3. Critical Area Evaluation
4. Partially Vacant Land Assumptions

LDC has extensive experience conducting LCAs to demonstrate capacity for employment and housing under the requirements of the Growth Management Act. Based on their experience, understanding of state requirements and guidance for identifying capacity, and knowledge of best practices, LDC has prepared the following analysis of the LCA conducted for the Bayview Ridge UGA.

## Background

Per RCW 36.70A.110, fully planning counties are required to designate Urban Growth Areas (UGAs) for the development of urban densities. Counties, and the cities within them, are required to plan for projected growth in population in their Comprehensive Plans and other land use plans.

## Analysis

LDC's analysis utilized parcel-level data provided by the County, all parcel specific information remained the same in the analysis other than factors specifically covered in this memo. Table 1 (next page) expands on the employment capacity table of the Skagit County Bayview Ridge LCA (White & Farias, 2025, Exhibit 2).

The remainder of this memo will review LDC's findings in relation to each of these issues.

20210 142nd Avenue NE • Woodinville, WA 98072 • ph: 425.806.1869 • fx: 425.482.2893 • www.LDCcorp.com

| Table 1 – Base LCA Calculation | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Zone** | **Total Acres** | **Total Critical Areas** | **Net Acres** | **Infrastructure Deduction (Acres)** | **Market Factor (Acres)** | **Net Buildable Acres** | **Job Density** | **Employment Capacity (Jobs)** |
| AVR | 61.76 | 7.65 | 54.11 | 10.82 | 10.82 | 32.47 | 4 | 130 |
| AVR-L | 87.47 | 7.52 | 79.94 | 15.99 | 15.99 | 47.97 | 4 | 192 |
| BR-HI | 207.30 | 35.92 | 171.38 | 34.28 | 34.28 | 102.83 | 6.5 | 668 |
| BR-LI | 438.42 | 69.63 | 368.79 | 73.76 | 73.76 | 221.27 | 6.5 | 1,438 |
| | | | **674.22** | | | | | **2,428**[1] |

## *1. Market Factor Calculation*

The first erroneous calculation identified by LDC was the implementation of market factor in this analysis. Per RCW 36.70A.110(2), counties may include a "reasonable land market supply factor" in their LCAs and they have discretion for the consideration of local conditions when applying them. Skagit County staff have communicated that a consistent market factor of 25% was applied uniformly throughout the County for the purposes of projecting capacity for development; this is a reasonable market factor to assume, but it was implemented in the LCA in a way that reduces its overall effect and may overestimate land capacity.

Market factors and infrastructure deductions are typically both applied to developable lands as reducing factors for the purpose of estimating land capacity. LDC identified that the calculation performed by Kimley-Horn instead applied the market factor reduction against the area of developable land after critical areas were removed and the infrastructure deduction was applied. Tables 2 and 3 below contrast the steps and results of Kimley-Horn's calculation with LDC's using an arbitrary measure of 10 acres of developable land and two acres of critical areas.

| Table 2 - Kimley-Horn Land Capacity Calculation | | | | | |
|---|---|---|---|---|---|
| **Total Acres** | **Total Critical Areas** | **Net Acres** | **Infrastructure Deduction (Acres)** | **Market Factor (Acres)** | **Net Buildable Acres** |
| Total area of developable lands | Total area of critical areas identified on developable lands | Net area of developable lands after removing critical areas | 20% of Net Acres | 25% of (80% of Net Acres) | Net Acres after removing infrastructure deduction and market factor |
| 10.00 | 2.00 | 8.00 | 1.60 | 1.60 | 4.80 |

| Table 3 - LDC Land Capacity Calculation | | | | | |
|---|---|---|---|---|---|
| **Total Acres** | **Total Critical Areas** | **Net Acres** | **Infrastructure Deduction (Acres)** | **Market Factor (Acres)** | **Net Buildable Acres** |
| Total area of developable lands | Total area of critical areas identified on developable lands | Net area of developable lands after removing critical areas | 20% of Net Acres | 25% of Net Acres | Net Acres after removing infrastructure deduction and market factor |
| 10.00 | 2.00 | 8.00 | 1.60 | 2.00 | 4.4 |

[1] Note, Kimley-Horn calculated 2,426 jobs of capacity. The two-job increase in this table is due to rounding calculations that LDC could not replicate.

LDC, Inc. • Surveying • Engineering • Planning • www.LDCcorp.com

These different methods of calculation of land capacity result in approximately 8% difference in the area of developable land identified in the analysis. While the County has stated assumptions for a 25% Market factor, the actual effect on developable lands included in the analysis is only a 20% Market Factor.

LDC revised the calculation of Market Factor in the analysis to properly represent a 25% reduction in the area of developable lands considered for capacity. The resulting capacity calculation estimated 202 fewer jobs of capacity, see table 4 for reference.

Table 4 - Market Factor Adjustment

| Zone | Total Acres | Total Critical Areas | Net Acres | Infrastructure Deduction (Acres) | Market Factor (Acres) | Net Buildable Acres | Job Density | Employment Capacity (Jobs) |
|---|---|---|---|---|---|---|---|---|
| AVR | 61.76 | 7.65 | 54.11 | 10.82 | 13.53 | 29.76 | 4 | 119 |
| AVR-L | 87.47 | 7.52 | 79.94 | 15.99 | 19.99 | 43.97 | 4 | 176 |
| BR-HI | 207.30 | 35.92 | 171.38 | 34.28 | 42.84 | 94.26 | 6.5 | 613 |
| BR-LI | 438.42 | 69.63 | 368.79 | 73.76 | 92.20 | 202.83 | 6.5 | 1,318 |
| | | | **674.22** | | | | | **2,226** |

## *2. Runway Protection Zone*

The Bayview Ridge UGA is home to the Skagit County Regional Airport and the largest landowner in the UGA is the Port of Skagit. The Skagit County Regional Airport has a master plan that was most recently updated in 2022 with Coffman Associates (Coffman Associates, 2022). The master plan includes assessment of compatible land uses and designation of uses for port-owned land. Attachment A contains the Airport Concept and Airport Land Use maps included in the plan. These plans clearly indicate areas around and at either end of the runway are intended for "Airfield Operations". These areas at the terminus of either end of the runway are referred to as "Runway Protection Zones" or RPZs. The master plan identifies the following uses as being incompatible within these zones:

- Building and Structures
- Recreational Land Use
- Transportation Facilities
- Fuel Storage Facilities
- Hazardous Material Storage
- Above-Ground Utility Infrastructure

LDC identified 23 acres of land within the RPZ that were considered developable in Kimley-Horn's analysis. LDC removed these lands from the calculation; the resulting capacity calculation estimated 51 fewer jobs of capacity, see table 5 for reference.

Table 5 - Runway Protection Zone Adjustment

| Zone | Total Acres | Total Critical Areas | Net Acres | Infrastructure Deduction (Acres) | Market Factor (Acres) | Net Buildable Acres | Job Density | Employment Capacity (Jobs) |
|---|---|---|---|---|---|---|---|---|
| AVR | 31.16 | 0.44 | 30.72 | 6.14 | 7.68 | 16.89 | 4 | 68 |
| AVR-L | 87.47 | 7.52 | 79.94 | 15.99 | 19.99 | 43.97 | 4 | 176 |
| BR-HI | 207.30 | 35.92 | 171.38 | 34.28 | 42.84 | 94.26 | 6.5 | 613 |
| BR-LI | 438.42 | 69.63 | 368.79 | 73.76 | 92.20 | 202.83 | 6.5 | 1,318 |
| | | | **650.82** | | | | | **2,175** |

## *3. Critical Area Evaluation*

Consideration of critical areas such as wetlands, streams, and steep slopes is a major component of assessing land capacity. Washington State Depart of Commerce (Commerce) guidance for calculating land capacity highlights that critical areas are a major consideration that should be included in this analysis (Hunt, 2012, p.86). Some critical areas that Jurisdictions should consider include:

- Wetlands
- flood plains
- wildlife habitat
- geologic hazard areas
- ground water

Jurisdictions do have discretion to incorporate these areas in their analysis as they see appropriate. It is uncertain what critical areas were considered in Kimley-Horn's LCA. LDC performed a high-level review of critical areas to verify their analysis.

LDC mapped Critical Areas from public sources with assumptions detailed in table 6.

Table 6 - Critical Area Sources

| **Critical Area Type** | **Data Source** | **Assumptions/ Data Transformations** |
|---|---|---|
| Wetlands | National Wetland Inventory | Applied 100-foot buffer. |
| Water Bodies | Washington State Department of Natural Resources | Removed manmade waterbodies.<br>Applied 50-foot buffer. |
| Streams | Washington State Department of Natural Resources | Removed ditches.<br>Applied 50-foot buffer. |
| 100-Year Floodplain | Federal Emergency Management Agency | No Buffer or modification applied. |

As the largest landowner in the area, the Port of Skagit has adopted a program for the protection of wetlands on its property. In 2000, Port of Skagit created and implemented the Wetlands and Industrial Negotiations (WIN) program which provides wetland protection for properties owned by the port. These wetlands are protected under the Port's ownership and some of them are actively maintained as a result of mitigation measures. Based on maps prepared in 2014, LDC identified five parcels categorized as developable land that are included in the WIN program, see table 7 for comparison and attachment B for reference.

Table 7 - LCA parcels impacted by WIN

| **Parcel ID** | **Acres** | **Mapped Critical Areas** | | |
|---|---|---|---|---|
| | | **Kimley-Horn** | **LDC** | **WIN** |
| P118884 | 16.28 | 0 | 2.41 | 16.28 |
| P21081 | 87.23 | 0.44 | 4.72 | 14.36 |
| P115584 | 10.67 | 10.67 | 4.13 | 10.67 |
| P115669 | 2.56 | 0 | 0 | 2.56 |
| P115671 | 2.29 | 0 | 0 | 1.77 |

| | | | | |
|---|---|---|---|---|
| **SUM** | **119.03** | **11.11** | **11.26** | **45.64** |

LDC cannot confirm how Kimley-Horn mapped their critical areas, yet LDC is sure that a reasonable assessment of critical areas would have a great impact on the analysis. Additionally, site specific resources such as the WIN maps for the Port-owned property are extremely important to include they will always out-perform high-level analysis that are typically for LCAs and better reflect the actual condition and intended uses of the area.

Between LDC's critical area mapping and additional wetlands identified from the WIN maps, LDC identified an additional 41 acres of critical areas that were not accounted for in Kimley-Horn's analysis. LDC added these lands to the calculation; the resulting capacity calculation estimated 139 fewer jobs of capacity, see table 8 for reference.

Table 8 - Critical Areas Adjustment

| Zone | Total Acres | Total Critical Areas | Net Acres | Infrastructure Deduction (Acres) | Market Factor (Acres) | Net Buildable Acres | Job Density | Employment Capacity (Jobs) |
|---|---|---|---|---|---|---|---|---|
| AVR | 31.16 | 3.78 | 27.38 | 5.48 | 6.85 | 15.06 | 4 | 60 |
| AVR-L | 87.47 | 10.58 | 76.89 | 15.38 | 19.22 | 42.29 | 4 | 169 |
| BR-HI | 207.30 | 51.92 | 155.38 | 31.08 | 38.84 | 85.46 | 6.5 | 555 |
| BR-LI | 438.42 | 88.33 | 350.09 | 70.02 | 87.52 | 192.55 | 6.5 | 1,252 |
| | | | **609.74** | | | | | **2,036** |

## *4. Partially Vacant Land Assumptions*

Earlier in this memo, we reviewed issues with Kimley-Horn's calculation of Market Factor in their LCA. Kimley-Horn's analysis did include the categorization of developable lands into vacant and partially vacant lands, but it did not utilize any unique assumptions to treat capacity on these lands differently. Most LCAs will account for differences between Vacant and Partially Vacant land in two ways:

1. Adopting different market factors for Vacant and Partially Vacant land
2. Removing existing development on Partially Vacant lands from land capacity

While Skagit County does not participate in the Buildable Lands program, Commerce has provided much applicable guidance in their *Buildable Lands Guidelines* (Washington State - Department of Commerce, 2018). Commerce advises market factors for employment land in the UGA range from 10%-20% for vacant land and 25%-50% for Partially Vacant and Under-utilized lands (Washington State - Department of Commerce, 2018, p.18). Whatcom County's buildable lands methodology detailed in the *Urban Growth Area Guidebook* includes a provision for removing the building square footage for existing structures on Partially Vacant and Under-utilized lands from developable land capacity through use of Floor-Area-Ratio (FAR) assumptions (Hunt, 2012, p.106).

Kimley-Horn did not implement either of these methodologies in their LCA. At a minimum, this LCA should include a different market factor for Partially Vacant land to more accurately project the buildable capacity of the Bayview Ridge UGA.

LDC added a 40% market factor to Partially Vant lands included in the analysis; the resulting capacity calculation estimated 60 fewer jobs of capacity, see table 9 for reference.

LDC, Inc. • Surveying • Engineering • Planning • www.LDCcorp.com

| Table 9 - Partially Vacant Adjustment | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Zone** | **Designation** | **Total Acres** | **Total Critical Areas** | **Net Acres** | **Infrastructure Deduction (Acres)** | **Market Factor (Percent)** | **Market Factor (Acres)** | **Net Buildable Acres** | **Job Density** | **Employment Capacity (Jobs)** |
| AVR | Vacant | 31.16 | 3.78 | 27.38 | 5.48 | 25% | 6.85 | 15.06 | 4 | 60 |
| AVR | Partially Vacant | 0.00 | 0.00 | 0.00 | 0.00 | 40% | 0.00 | 0.00 | 4 | 0 |
| AVR-L | Vacant | 55.14 | 4.58 | 50.56 | 10.11 | 25% | 12.64 | 27.81 | 4 | 111 |
| AVR-L | Partially Vacant | 32.32 | 5.99 | 26.33 | 5.27 | 40% | 10.53 | 10.53 | 4 | 42 |
| BR-HI | Vacant | 165.44 | 37.75 | 127.69 | 25.54 | 25% | 31.92 | 70.23 | 6.5 | 456 |
| BR-HI | Partially Vacant | 41.86 | 14.17 | 27.69 | 5.54 | 40% | 11.08 | 11.08 | 6.5 | 72 |
| BR-LI | Vacant | 421.46 | 88.33 | 333.14 | 66.63 | 25% | 83.28 | 183.23 | 6.5 | 1,191 |
| BR-LI | Partially Vacant | 16.95 | 0.00 | 16.95 | 3.39 | 40% | 6.78 | 6.78 | 6.5 | 44 |
| | | | | **609.74** | | | | | | **1,976** |

## Summary

LDC analyzed the Bayview Ridge UGA's LCA prepared for the 2025 Skagit County Comprehensive Plan update and identified several issues with the analysis which reduce the projected 20-year development capacity by 450 jobs for a total capacity of 1,976 jobs when incorporated. Based on this projected capacity, the Bayview Ridge UGA's 20-year employment target of 1,939 jobs will be exceeded by 37 jobs. LDC's analysis was limited to sparse publicly available data and should in no way indicate that the UGA does have sufficient employment capacity for the 20-year planning period.

LDC recommends Skagit County re-evaluate the employment capacity of the Bayview Ridge UGA and consider updating the UGA's subarea plan to reflect current conditions and related local plans.

Sincerely,

Dane Jepsen

Dane Jepsen
Planner
LDC, Inc.
20210 142nd Ave NE
Woodinville, WA 98072

LDC, Inc. • Surveying • Engineering • Planning • www.LDCcorp.com

## References

Coffman Associates (2022), *Airport Master Plan For Skagit Regional Airport (Bvs) Burlington, Washington*. Port of Skagit

Hunt, B (2012). *Urban Growth Area Guidebook*. Washington State – Department of Commerce

Parker, R & Goodman, B (2014), *Skagit County Industrial Land Study*. ECONorthwest

Washington State – Department of Commerce (2018). *Buildable Lands Guidelines*. Washington State – Department of Commerce

White, C & Farias, J (2025). *Skagit County Bayview Ridge Employment Land Capacity Analysis*. Kimley-Horn

## Attachments

A - Airport Master Plan For Skagit Regional Airport (Bvs) Burlington, Washington – Exhibits 5a & 5c

B – Bayview Ridge Subarea Plan – Port of Skagit Wetlands

Bayview Business Park
Knudson Rd
Water Tank Rd
Bay Ridge Rd
Higgins Airport Way
Airport Dr
60′ x 60′ Hangars
60′ x 50′ Hangars
Remove Angled Taxiways
RPZ ¾-mile
RPZ ½-mile
Taxiway A Extension at 400′ Separation
No-Taxi Island
Aircraft Washrack
A
A1
A2
A3
A4
745′
Runway 11-29 (5,478′ x 100′)
Ultimate Runway 11-29 (7,000′ x 100′)
1,522′ Extension
400′
400′
Existing Incompatible Land Use to Remain
0.02 Incompatible Land (Requires FAA Approval)
1,000′
500′
AWOS Critical Area
500′
B1
200′ x 100′ Hangars
50′ x 50′ Hangars
100′ x 100′ Hangars
100′ x 100′ Hangars
60′ x 60′ Hangars
C
B
B2
B3
Runway 4-22 (3,000′ x 60′)
Crosswind Dr
New Taxiway to Eliminate Lead-in Taxiway
Bayview Rd
Farm to Market Rd
Ovenell Rd
PACCAR Technical Center
NORTH
0
800
SCALE IN FEET
Aerial Photo: Google Earth 7-24-17

## LEGEND

- Airport Property Line
- # Taxiway Designator
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- 35′ Building Restriction Line (BRL)
- Runway Protection Zone (RPZ)
- Ultimate Airfield Pavement
- Ultimate Building
- Ultimate Roadway
- To Be Removed
- Aviation Reserve

Bayview Business Park
Knudson Rd
Water Tank Rd
Higgins Airport Way
Airport Dr
Bay Ridge Rd
A
A4
A3
A2
A1
745'
Runway 11-29 (5,478' x 100') Ultimate Runway 11-29 (7,000' x 100')
1,522' Extension
400'
1,000'
500'
500'
AWOS Critical Area
B1
B
B2
B3
C
Runway 4-22 (3,000' x 60')
Crosswind Dr
Bayview Rd
Farm to Market Rd
PACCAR
Technical Center
Ovenell Rd

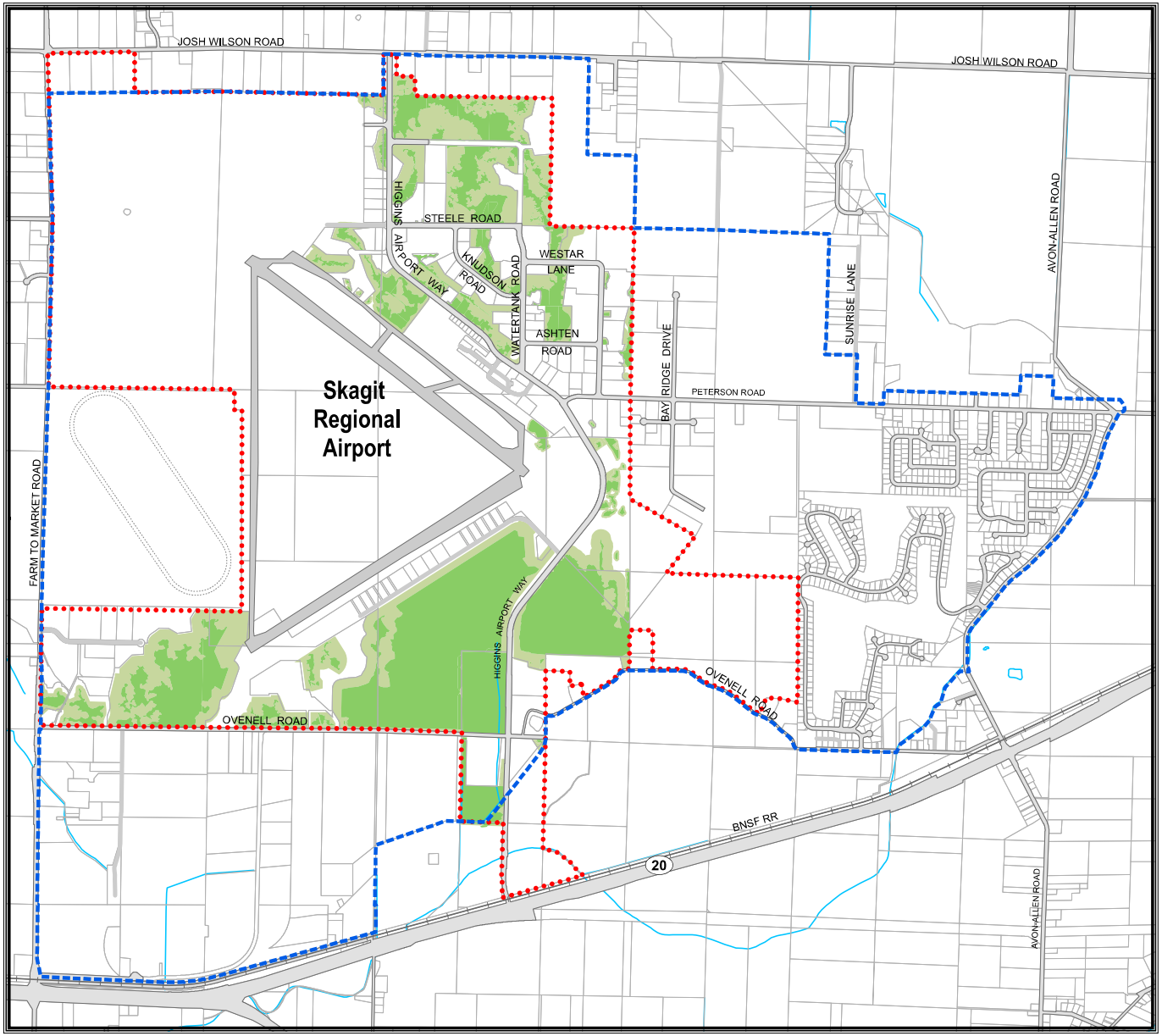
**LEGEND**

- Airport Property Line
- # Taxiway Designator
- Airfield Operations
- Aviation Development
- Non-Aviation Revenue Support
- Undesignated

NORTH

0 1000
SCALE IN FEET

Aerial Photo: Google Earth 7-24-17




## LEGEND

- Proposed Urban Growth Area Boundary
- Port of Skagit County Boundary
- Port of Skagit County WIN *
- Port of Skagit County WIN Buffer

*Wetland Data Source: Port of Skagit program of wetland Protection known as Skagit Wetlands and Industrial Negotiations (WIN)

August 27, 2014

0 0.25 0.5 Miles

N W E S

# BAYVIEW RIDGE SUBAREA PLAN

## Port of Skagit Wetlands

Figure 9-1

**Tara Satushek** Comment # 32

**From:** Nancy Shimeall <nshimeall@gmail.com>
**Sent:** Wednesday, March 12, 2025 11:18 AM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan Draft Policies

To the Planning Department, Planning Commissioners, and County Commissioners:

I am a homeowner in La Conner with a vested interest in our county's future and deeply concerned about my family's future. I also own a small (80 acre) industrial forest in east Skagit County so I am also concerned about the increasing threats of wildfire, drought, and excessive heat to a sustainable forest.

In November a majority of Skagit County voters rejected I-2117, voting to uphold the Climate Commitment Act. Our citizens understand the need for action to reduce emissions to take care of our air, water and soil, and to prepare for the increase in extreme weather events. This Comp Plan must reflect our understanding of the science and the economic benefits of transitioning to renewables.

I am working to keep the trees on my small industrial forest healthy; this small but essential ecosystem supports a variety of species and sequesters some the carbon that we need to keep out of the atmosphere. I need your help to keep my trees alive.

I have reviewed this draft of comp plan and I am concerned about the lack of scientific justification, tribal consultation, and accountability for achieving the policies. Please consider this feedback:

1. Our main concern with this draft is the lack of an Environmental Advisory Board. **Why was this not included, after the majority of community comments asked for one?** In the 1997 plan, there were TWO citizen advisory boards for the environment (page 362). At a time when changes are accelerating and threats are increasing, this absence is even more important and consequential. This lack of an advisory committee must be addressed especially since this was mentioned in a majority of public comments. (Please respond to the question about why it was not included)

2. Another issue is the medium priority placed on renewable energy in policy 9A-5.3 and 9A-5.7; the transition to renewable energy should be a High priority. We are seeing prices fall and availability increase through local manufacturers, installers, and consumer assistance through such groups as Skagit Valley Clean Energy Alliance. The economic signs point toward a future in green renewable energy, despite the current federal administration's denial. Further, policy 12G-1.3 regarding EV infrastructure, should also be a High priority. These specific policies impact our GHGs reduction goals and assist the county in meeting the 2030 target date.

At the public hearing on March 11, we heard from the Swinomish and other community members. We agree with concerns about changes to the wording, lack of tribal consultation, and lack of scientific data to back up the plan.

The citizens of this county are looking to you to make tough choices; to stop contributing to the emissions that are causing extreme weather events and threats to our health. It is your moral obligation and the right thing to do for our future.

We look forward to seeing the next draft.

Thank you,
Nancy Shimeall

*I live on reservation land that has been stewarded for thousands of years by the Swinomish Coast Salish People, and I am grateful that the Swinomish people will continue to hold sacred this land for future generations.*

**Tara Satushek** Comment # 33

**From:** Mary Pugsley <mppugsley@gmail.com>
**Sent:** Wednesday, March 12, 2025 11:36 AM
**To:** PDS comments
**Subject:** Skagit County 2025 Comprehensive Plan

Hello,
First, I second the thanks that the Planning Team received at last night's public meeting. In particular, the open house last year was a great venue for introducing the many facets of this task to the public. Thank you, Robby and Tara.

Second, The comments last night were broad in scope as befits the breadth of the plan, and I agree with the thrust of them: let's be very very cognizant of how we protect this beautiful part of the state over the next ten years for the benefit of all of us. Especially in the coming few years our local governmental actions are going to be more important than ever. To that end, I strongly agree that an Environmental Advisory Board be formed to, as one commenter said, to tap into the wealth of knowledge about environmental best practices that exists in the folks who live here. We heard from some of them last night! Please make a formal process for accessing this wisdom on an ongoing basis.
Thank you for your thoughtful attention to all that was presented and for the work you are doing.
Mary Pugsley
1518 Eaglemont Pl. Mount Vernon. 98274
541-225-8119

Sent from my iPad

**Tara Satushek**

Comment # 34

**From:** Michael Fohn <michael@fohn.co>
**Sent:** Wednesday, March 12, 2025 2:08 PM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan
**Attachments:** 11-04-2024 BayviewRidgeLandCapacityMemoFINAL_11042024.pdf; 03-10-2025 LCA Email Exhibit 1.pdf; 03-10-2025 LCA Email Exhibit 2.pdf; 08-27-2014 POSC Wetland Map Figure 9-1 Port of Skagit Wetlands Map.pdf; 11-04-2024 BayviewRidge LCA.pdf; 11-17-2014 BayviewRidgeSubarea2014-adopted.pdf

Dear Planning Commission Members,

Please accept the following comments related to the Bayview Ridge Employment Land Capacity Analysis dated November 4, 2024, please see attachment 1, for careful consideration as you deliberate the Skagit County 2025 Comprehensive Plan Update.

General Comments:

1) Currently there is a shortage of commercial/industrial land available for development outside of City UGA's, not zoned as farmland and off the flood plain that is centrally located to the population of Skagit County and to existing infrastructure that will support commercial/industrial development. In short, these desired requirements describe the Bayview Ridge UGA, an independent UGA surrounding the Skagit Regional Airport.

2) The attached Bayview Ridge Employment Land Capacity Analysis (BVR UGA LCA) attempts to determine if there is adequate developable land currently in the BVR UGA, to accommodate the expected job growth for this area through 2035.

3) Having carefully considered the methodology used to prepare the BVR UGA LCA, I offer that there are at least four revisions/adjustments to the BVR UGA LCA that need to be incorporated into a revised BVR UGA LCA. These revisions/ adjustments are reflected in Exhibit 1 below and the second attachment.

The proposed revisions/adjustments are:

1)The six parcels identified below are designated as Wetlands per the Port of Skagit Wetlands WIN Map dated 08-14-2014. See attachment 4. As designated wetlands, these parcels are not developable and therefore should not be included in the LCA as developable lands. These six parcels total 51.91 acres and reduce the surplus jobs estimate from 488 jobs to 286 jobs.

2) Six parcels included in the buildable lands inventory are currently under various stages of construction with construction estimated to be completed within one year. These six parcels should not be included in the estimated buildable lands inventory for the period 2025 to 2036. These six parcels total 48.75 acres and reduce the surplus jobs estimate to 95 jobs.

3) The LCA analysis includes a Market Adjustment of the estimated development lands that may not be available for development in the 2025-2035 time period. This adjustment is estimated at 25% and attempts to make allowance for owners of land, who for whatever reason may choose to not sell or develop their land. While an adjustment of 25% is reasonable for land held by private individuals and it not a reasonable estimate of developable land owned by the Port of Skagit County. While the POSC makes many valuable contributions to Skagit County, its land development policies and practices are guided by different goals and objectives than the development policies and practices of private landowners. The POSC owns 47.75 %, 327 acres of the 674

acres included in the 11-04-2024 LCA. Please see Exhibit 2 below and third attachment. Increasing the Market Adjustment factor to 37.5% for land owned by the POSC would reduce the buildable land inventory by 46.88 acres and result in a job deficit of 87 jobs.

4) Per the fifth attachment the BVR Employment Land Capacity Analysis was based on the following acreages:

| | |
|---|---|
| Gross area of developable parcels | 794.94 |
| **Critical area deduction** | **120.94 (15.21%** |
| Area of developable parcels after removing critical areas | 674.00 |
| Net developable area after infrastructure, market factor and critical areas | 405.00 |

The estimate of the critical areas contained in the remaining developable land in the BVR UGA of 15.21% Is unreasonable considering the historical portions of land set aside for critical areas when parcels in the BVR UGA have been developed. An examination of the 08-27-2014 WIN Maps, attachment 4, illustrated that a more reasonable estimate would be 25 to 50% of the currently undeveloped land in the BVR UGA are likely to be critical areas.

More detailed analysis of the likely critical areas needs to be incorporated into the 2025 Bayview Ridge Employment Land Capacity Analysis. In Exhibit 1, below and attachment 2, increase the estimated critical area percentage from 15.21% to 25% results in a reduction of employment capacity of 269 jobs.

**Summary:**

**In sum the four adjustments above total a reduction of employment capacity of 844 jobs and resulting in a Total Employment Capacity Deficit of 356 jobs.**

**Prior to adopting the 2025 Comprehensive Plan Update more time and effort needs to be spent on the Bayview Ridge Employment and Land Capacity Analysis as the current report dated November 4, 2024 has omitted to consider certain circumstances that would have the material effect of the analysis resulting in a Total Employment Capacity Deficit.**

**In order for Skagit County to have a strong financially secure future more developable land, both large and small format, needs to be readily available. Currently there a no small format, less than 5 acres of privately owned land that is fully serviced with roads and utilities available in the BVR UGA. Likewise, there are no large format, greater than 40 acres, of privately owned land that is fully serviced with roads and utilities available in the BVR UGA.**

**If the 2025 Comprehensive Plan Update timeline does not allow for the proper consideration of the issues raised above, then at a minimum, Skagit County needs to commit to updating the Bay View Ridge Sub Area Plan, last updated 11-17-2014, see attachment 6, a priority in 2026 or 2027.**

**Respectfully submitted,**

**Michael Fohn**
**P.O. Box 650**
**Burlington WA 98233**
**360-708-0245**

**michael@fohn.co**

**EXHIBIT 1**
**BAYVIEW RIDGE EMPLOYMENT AND LAND CAPACITY ANAL**
**Potential Job Available Analysis**

**Per Kimbley Horn 11-04-2024 Memorandum**

| | | | | [tax reported acreage of lot] | [GIS calculated critical area and buffer on each lot (acres)] | Percent Critical Areas | Total developable (ac) | Infrastructure deduction |
|---|---|---|---|---|---|---|---|---|
| Zones | | | | | | | | 20% |
| AVR | | | | 61.76 | (7.65) | 12.38% | **54.11** | **43.29** |
| AVR-L | | | | 87.47 | (7.52) | 8.60% | **79.94** | **63.95** |
| BR-HI | | | | 207.30 | (35.92) | 17.33% | **171.38** | **137.10** |
| BR-LI | | | | 438.42 | (69.63) | 15.88% | **368.79** | **295.03** |
| Sum | | | | 794.94 | (120.72) | 15.19% | **674.22** | 539.37 |

| | | | | | |
|---|---|---|---|---|---|
| Average Wetland Percentage | **-15.19%** | | | | |

**Alternative Analysis**

| | | | | | |
|---|---|---|---|---|---|
| **Amounts Per Above** | | **794.94** | **(120.72)** | **15.19%** | **674.22** |
| Adjustments | | | | | |
| Designated Wetland Per WIN Maps | | | | | |
| P21081 | (10.00) | | | (10.00) | (8.00) |
| P21091 | (8.06) | | | (8.06) | (6.45) |
| P15584 | (16.21) | | | (16.21) | (12.97) |
| P115669 | (2.55) | | | (2.55) | (2.04) |
| P115671 | (2.29) | | | (2.29) | (1.83) |
| P118884 | (12.80) | | | (12.80) | (10.24) |
| | -51.91 | | | -51.91 | -41.528 |
| Subtotal | 743.03 | (120.72) | 0.15 | 622.31 | 497.85 |
| Current Construction | | | | | |
| P21265 | (19.61) | | | (19.61) | (15.69) |
| P127385 | (6.00) | | | (6.00) | (4.80) |
| P127386 | (5.50) | | | (5.50) | (4.40) |
| P127387 | (3.00) | | | (3.00) | (2.40) |
| P129949 | (11.68) | | | (11.68) | (9.34) |
| P134381 | (2.96) | | | (2.96) | (2.37) |
| | (48.75) | | | (48.75) | (39.00) |
| Subtotal | 694.28 | (120.72) | 0.15 | 573.56 | 458.85 |
| Increase POSC Market Factor to 37.5% | | -46.88 | | | -46.88 |
| | 647.40 | (120.72) | 0.15 | 526.68 | 421.34 |
| Increase Critical Area From 15% to 25% | | -78.01 | -78.01 | | 0 |
| **Adjusted Totals** | | **569.39** | **(198.73)** | **0.15** | **526.68** |

**As Adjusted**

| | | | | [tax reported acreage of lot] | [GIS calculated critical area and buffer on each lot (acres)] | Percent Critical Areas | Total developable (ac) | Infrastructure deduction |
|---|---|---|---|---|---|---|---|---|
| Zones | | | | | | | | 20% |
| AVR | | | | 61.76 | (15.44) | 0.12 | 46.32 | 37.05 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AVR-L | | | | 87.47 | (21.87) | 0.09 | 65.60 | 52.48 |
| BR-HI | | | | 207.30 | (51.83) | 0.17 | 155.48 | 124.38 |
| BR-LI | | | | 438.42 | (109.60) | 0.16 | 181.27 | 145.02 |
| Sum | | | | 794.94 | (198.74) | 25.00% | 448.67 | 358.93 |

Average Wetland Percentage **-25.00%**

**EXHIBIT 2**
**BAYVIEW RIDGE EMPLOYMENT AND LAND CAPACITY ANAL**
**BVR UGA PARCELS SORTED BY OWNER**

| | | Owner | Area Per Skagit County Assessor | Delta | Area | [tax reporte acreage of |
|---|---|---|---|---|---|---|
| PARCELID | LUD_ZONING | | | | | Acreage |
| P122632 | BR-LI | Bouslog | 1,004,058.00 | (9,487.02) | 994,570.98 | 22.83 |
| P35378 | BR-LI | Bouslog | 4,908,340.80 | 139,911.32 | 5,048,252.12 | 115.8 |
| P127387 | BR-LI | Flex Engineering | 130,680.00 | (1,926.70) | 128,753.30 | 2.955 |
| P35341 | BR-LI | Fraser | 1,502,820.00 | 134,307.24 | 1,637,127.24 | 37.58 |
| P35335 | BR-LI | Fraser | 780,595.20 | (42,095.90) | 738,499.30 | 16.95 |
| P127385 | BR-LI | J N J Propert Holdings | 261,360.00 | 96.40 | 261,456.40 | 6.002 |
| P21271 | BR-HI | Olympic Pipeline | 54,450.00 | (7,412.82) | 47,037.18 | 1.079 |
| P21337 | BR-HI | Olympic Pipeline | 253,954.00 | 9,024.47 | 262,978.47 | 6.037 |
| P21270 | BR-HI | Olympic Pipeline | 1,600,394.00 | 62,471.54 | 1,662,865.54 | 38.17 |
| P126292 | BR-HI | Paccar Inc. | 109,162.00 | (1,530.25) | 107,631.75 | 2.470 |
| P126290 | BR-HI | Paccar Inc. | 132,194.00 | 24.15 | 132,218.15 | 3.035 |
| P126298 | BR-HI | Paccar Inc. | 179,477.00 | 2,507.05 | 181,984.05 | 4.177 |
| P126293 | BR-HI | Paccar Inc. | 184,248.00 | 3,956.46 | 188,204.46 | 4.32 |
| P126297 | BR-HI | Paccar Inc. | 265,064.00 | 44.56 | 265,108.56 | 6.086 |
| P126299 | BR-HI | Paccar Inc. | 368,264.00 | (1,304.37) | 366,959.63 | 8.424 |
| P126289 | BR-HI | Paccar Inc. | 380,838.76 | (1,386.12) | 379,452.64 | 8.711 |
| P115560 | BR-LI | POSC | 19,982.00 | 1.15 | 19,983.15 | 0.45 |
| P115671 | BR-LI | POSC | 99,951.00 | (77,260.51) | 22,690.49 | 0.520 |
| P21095 | BR-LI | POSC | 24,393.60 | (447.49) | 23,946.11 | 0.549 |
| P115664 | BR-LI | POSC | 57,961.00 | (9,660.02) | 48,300.98 | 1.108 |
| P115626 | BR-LI | POSC | 38,711.00 | (0.06) | 38,710.94 | 0.888 |
| P119974 | AVR | POSC | 216,929.00 | (4,766.36) | 212,162.64 | 4.870 |
| P115669 | BR-LI | POSC | 111,149.00 | (70,047.57) | 41,101.43 | 0.943 |
| P115684 | BR-LI | POSC | 46,989.00 | 0.22 | 46,989.22 | 1.078 |
| P115668 | BR-LI | POSC | 59,503.00 | (3,357.64) | 56,145.36 | 1.28 |
| P115625 | BR-LI | POSC | 58,832.00 | (2.35) | 58,829.65 | 1.350 |

| | | | | | | |
|---|---|---|---|---|---|---|
| P115667 | BR-LI | POSC | 66,003.00 | (399.33) | 65,603.67 | 1.506 |
| P118884 | BR-LI | POSC | 557,568.00 | (40,397.41) | 517,170.59 | 11.8 |
| P115669 | BR-LI | POSC | - | 70,317.51 | 70,317.51 | 1.614 |
| P115671 | BR-LI | POSC | - | 77,215.28 | 77,215.28 | 1.772 |
| P118505 | BR-LI | POSC | 79,279.00 | 506.11 | 79,785.11 | 1.831 |
| P116431 | BR-LI | POSC | 80,503.00 | 0.80 | 80,503.80 | 1.848 |
| P103458 | AVR-L | POSC | 228,254.40 | (20,038.91) | 208,215.49 | 4.77 |
| P115666 | BR-LI | POSC | 115,383.00 | (7,197.69) | 108,185.31 | 2.483 |
| P115561 | BR-LI | POSC | 142,073.00 | (12.04) | 142,060.96 | 3.261 |
| P115696 | BR-LI | POSC | 153,524.00 | 53.84 | 153,577.84 | 3.525 |
| P120165 | BR-LI | POSC | 156,026.00 | (10.42) | 156,015.59 | 3.581 |
| P118877 | BR-LI | POSC | 206,039.00 | 1,390.28 | 207,429.28 | 4.761 |
| P115694 | BR-LI | POSC | 206,901.00 | 281.47 | 207,182.47 | 4.756 |
| P21091 | AVR | POSC | 351,094.00 | (6,434.78) | 344,659.22 | 7.912 |
| P118876 | BR-LI | POSC | 258,311.00 | (2,130.33) | 256,180.67 | 5.881 |
| P118879 | BR-LI | POSC | 367,211.00 | 38,914.13 | 406,125.13 | 9.32 |
| P21003 | BR-LI | POSC | 328,442.40 | (4,406.66) | 324,035.74 | 7.438 |
| P134144 | BR-LI | POSC | 382,021.20 | 27,539.72 | 409,560.92 | 9.402 |
| P21036 | AVR-L | POSC | 414,255.60 | (710.07) | 413,545.53 | 9.493 |
| P131435 | BR-LI | POSC | 474,804.00 | 7,283.41 | 482,087.41 | 11.0 |
| P115677 | BR-LI | POSC | 467,738.00 | 906.53 | 468,644.53 | 10.7 |
| P115584 | BR-LI | POSC | 706,200.00 | (202,466.19) | 503,733.81 | 11.56 |
| P122848 | AVR | POSC | 1,579,100.00 | (803,123.73) | 775,976.27 | 17.81 |
| P21034 | AVR-L | POSC | 871,200.00 | 18,664.41 | 889,864.41 | 20.42 |
| P21033 | AVR-L | POSC | 871,200.00 | 19,126.85 | 890,326.85 | 20.43 |
| P21031 | BR-LI | POSC | 871,200.00 | 29,121.86 | 900,321.86 | 20.66 |
| P21081 | AVR | POSC | 3,423,380.40 | (2,066,017.22) | 1,357,363.18 | 31.16 |
| P20979 | BR-LI | POSC | 1,390,435.20 | 52,083.12 | 1,442,518.32 | 33.11 |
| P20983 | BR-LI | POSC | 2,370,970.80 | 49,818.79 | 2,420,789.59 | 55.57 |
| P21088 | AVR-L | POSC | 1,359,072.00 | 48,951.29 | 1,408,023.29 | 32.32 |
| P21265 | BR-HI | Sierra Pacific RE LLC | 854,212.00 | (565,248.55) | 288,963.45 | 6.633 |
| P21265 | BR-HI | Sierra Pacific RE LLC | - | 474,068.23 | 474,068.23 | 10.88 |
| P129949 | BR-HI | Sierra Pacific RE LLC | 508,644.00 | (423.73) | 508,220.27 | 11.66 |
| P21269 | BR-HI | Sierra Pacific RE LLC | 1,270,645.00 | 113,716.85 | 1,384,361.85 | 31.78 |
| P21287 | BR-HI | Silver Spirit Inc. | 1,742,400.00 | 81,134.46 | 1,823,534.46 | 41.86 |
| P134381 | BR-LI | Skagit Transit | 128,937.60 | (565.06) | 128,372.54 | 2.947 |
| P127386 | BR-LI | TGM Burlington LLC | 239,580.00 | 4,500.14 | 244,080.14 | 5.603 |
| P109669 | BR-HI | Vorobik Investments | 87,453.00 | (19,807.24) | 67,645.76 | 1.552 |
| P109668 | BR-HI | Vorobik Investments | 87,453.00 | 7.42 | 87,460.42 | 2.007 |

| | | | | | | |
|---|---|---|---|---|---|---|
| P21339 | BR-LI | W Good | 30,492.00 | 50,117.13 | 80,609.13 | 1.850 |
| P21239 | BR-HI | W Good | 160,300.80 | 7,462.22 | 167,763.02 | 3.851 |
| P21253 | BR-HI | W Good | 250,470.00 | (459.95) | 250,010.05 | 5.739 |
| P21319 | BR-HI | W Good | 348,480.00 | 35,040.71 | 383,520.71 | 8.804 |
| | | | 37,037,556.76 | (2,409,967.35) | 34,627,589.41 | 794.94 |
| | | | 850.27 | (55.33) | 794.94 | |
| | | Bouslog | 5,912,398.80 | 130,424.30 | 6,042,823.10 | 138.72 |
| | | Flex Engineering | 130,680.00 | (1,926.70) | 128,753.30 | 2.96 |
| | | Fraser | 2,283,415.20 | 92,211.34 | 2,375,626.54 | 54.54 |
| | | J N J Propert Holdings | 261,360.00 | 96.40 | 261,456.40 | 6.00 |
| | | Olympic Pipeline | 1,908,798.00 | 64,083.19 | 1,972,881.19 | 45.29 |
| | | Paccar Inc. | 1,619,247.76 | 2,311.49 | 1,621,559.25 | 37.23 |
| | | Sierra Pacific RE LLC | 2,633,501.00 | 22,112.79 | 2,655,613.79 | 60.96 |
| | | Silver Spirit Inc. | 1,742,400.00 | 81,134.46 | 1,823,534.46 | 41.86 |
| | | Skagit Transit | 128,937.60 | (565.06) | 128,372.54 | 2.95 |
| | | TGM Burlington LLC | 239,580.00 | 4,500.14 | 244,080.14 | 5.60 |
| | | Vorobik Investments | 174,906.00 | (19,799.82) | 155,106.18 | 3.56 |
| | | W Good | 789,742.80 | 92,160.11 | 881,902.91 | 20.25 |
| **Non POSC Total** | | | | | **17,824,967.16** | **466,74** |
| **Non POSC** | | | **48.13%** | **-19.37%** | **52.82%** | **52.** |
| **POSC** | | | **19,212,589.60** | **(2,876,709.99)** | **16,335,879.61** | **375.02** |
| **POSC** | | | **51.87%** | **119.37%** | **47.18%** | **47.** |
| **Totals** | | | **37,037,556.76** | **(2,409,967.35)** | **34,627,589.41** | **794.94** |
| | | | 100.00% | 100.00% | 100.00% | 100. |

**EXHIBIT 1**
**BAYVIEW RIDGE EMPLOYMENT AND LAND CAPACITY ANALYSIS**
**Potential Job Available Analysis**

**Per Kimbley Horn 11-04-2024 Memorandum**

| | | | | [tax reported acreage of lot] | [GIS calculated critical area and buffer on each lot (acres)] | Percent Critical Areas | Total developable (ac) | Infrastructure deduction | Market factor | Employment density | Total employment capacity | **Surplus** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Zones | | | | | | | | 20% | 25% | | | |
| AVR | | | | 61.76 | (7.65) | 12.38% | **54.11** | **43.29** | **32.47** | 4 | **129** | |
| AVR-L | | | | 87.47 | (7.52) | 8.60% | **79.94** | **63.95** | **47.97** | 4 | **191** | |
| BR-HI | | | | 207.30 | (35.92) | 17.33% | **171.38** | **137.10** | **102.83** | 6.5 | **668** | |
| BR-LI | | | | 438.42 | (69.63) | 15.88% | **368.79** | **295.03** | **221.27** | 6.5 | **1,438** | |
| Sum | | | | 794.94 | (120.72) | 15.19% | **674.22** | 539.37 | 404.53 | **Total** | **2,426** | **488** |
| | | | | | | | | | | *Target* | *1,938* | |
| | | Average Wetland Percentage | | | **-15.19%** | | | | | **Surplus** | **488** | |

**Alternative Analysis**

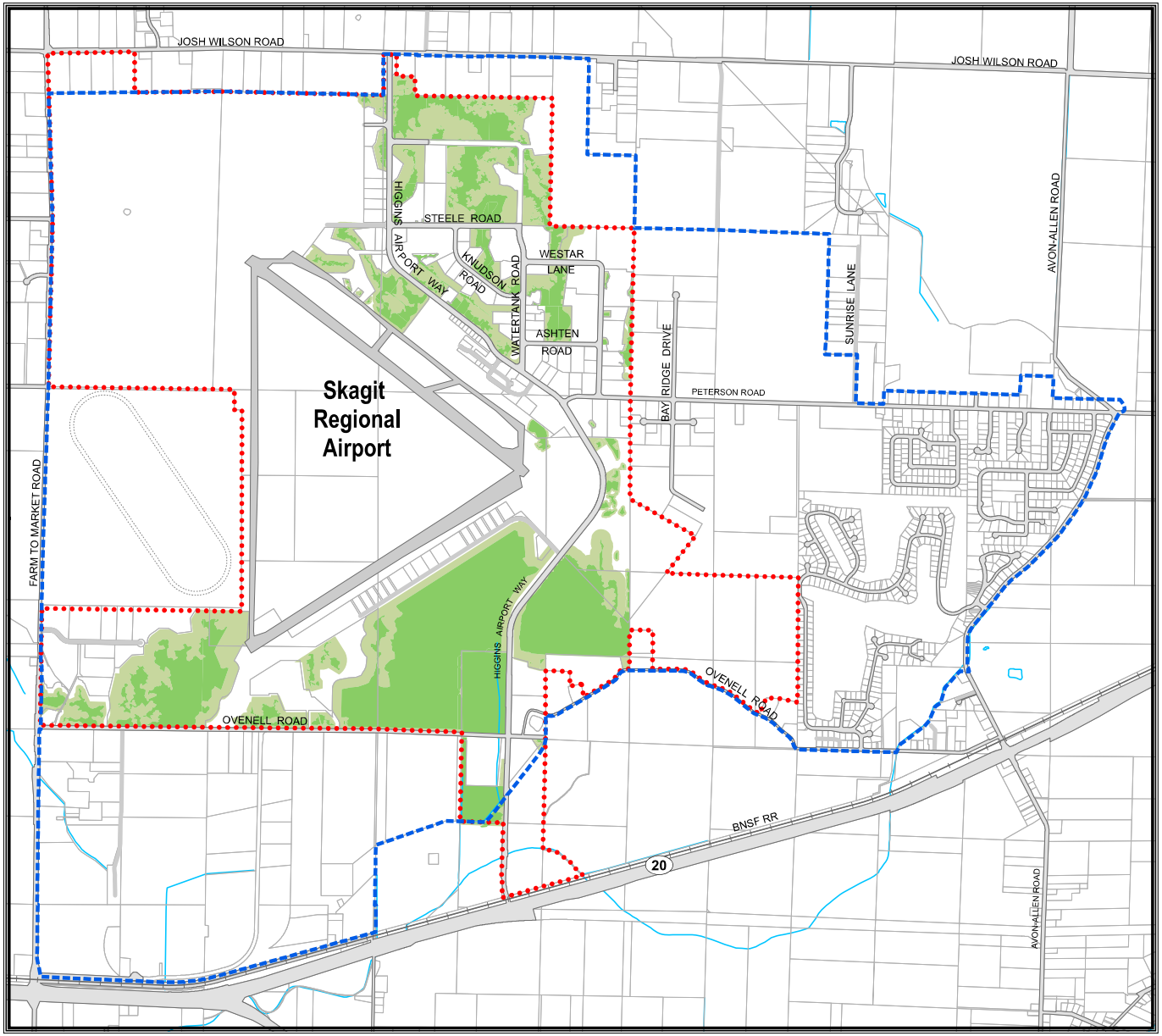
| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Amounts Per Above** | **794.94** | **(120.72)** | **15.19%** | **674.22** | **539.37** | **404.53** | **Total** | **2,426.00** | **488** |
| Adjustments | | | | | | | | | |
| Designated Wetland Per WIN Maps | | | | | | | | | |
| P21081 | (10.00) | | | (10.00) | (8.00) | (6.00) | 6.50 | (39.00) | |
| P21091 | (8.06) | | | (8.06) | (6.45) | (4.84) | 6.50 | (31.43) | |
| P15584 | (16.21) | | | (16.21) | (12.97) | (9.73) | 6.50 | (63.22) | |
| P115669 | (2.55) | | | (2.55) | (2.04) | (1.53) | 6.50 | (9.95) | |
| P115671 | (2.29) | | | (2.29) | (1.83) | (1.37) | 6.50 | (8.93) | |
| P118884 | (12.80) | | | (12.80) | (10.24) | (7.68) | 6.50 | (49.92) | |
| | -51.91 | | | -51.91 | -41.528 | -31.146 | | (202.45) | |
| Subtotal | 743.03 | (120.72) | 0.15 | 622.31 | 497.85 | 373.38 | 6.50 | 2,223.55 | **286** |
| Current Construction | | | | | | | | | |
| P21265 | (19.61) | | | (19.61) | (15.69) | (11.77) | 6.50 | (76.48) | |
| P127385 | (6.00) | | | (6.00) | (4.80) | (3.60) | 6.50 | (23.40) | |
| P127386 | (5.50) | | | (5.50) | (4.40) | (3.30) | 6.50 | (21.45) | |
| P127387 | (3.00) | | | (3.00) | (2.40) | (1.80) | 6.50 | (11.70) | |
| P129949 | (11.68) | | | (11.68) | (9.34) | (7.01) | 6.50 | (45.55) | |
| P134381 | (2.96) | | | (2.96) | (2.37) | (1.78) | 6.50 | (11.54) | |
| | (48.75) | | | (48.75) | (39.00) | (29.25) | 6.50 | (190.13) | |
| Subtotal | 694.28 | (120.72) | 0.15 | 573.56 | 458.85 | 344.13 | 13.00 | 2,033.43 | **95** |
| Increase POSC Market Factor to 37.5% | -46.88 | | | -46.88 | -37.504 | -28.128 | 6.5 | -182.832 | |
| | 647.40 | (120.72) | 0.15 | 526.68 | 421.34 | 316.01 | - | 1,850.59 | **-87** |
| Increase Critical Area From 15% to 25% | -78.01 | -78.01 | | 0 | 0 | 0 | 4/6.5 | (268.67) | |
| **Adjusted Totals** | **569.39** | **(198.73)** | **0.15** | **526.68** | **421.34** | **316.01** | **-** | **1,581.92** | **(356)** |

**As Adjusted**

| | | | | [tax reported acreage of lot] | [GIS calculated critical area and buffer on each lot (acres)] | Percent Critical Areas | Total developable (ac) | Infrastructure deduction | Market factor | Employment density | Total employment capacity | **Surplus** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Zones | | | | | | | | 20% | 25% /37.5% | | | |
| AVR | | | | 61.76 | (15.44) | 0.12 | 46.32 | 37.05 | 27.79 | 4.00 | 111.16 | |
| AVR-L | | | | 87.47 | (21.87) | 0.09 | 65.60 | 52.48 | 39.36 | 4.00 | 157.44 | |
| BR-HI | | | | 207.30 | (51.83) | 0.17 | 155.48 | 124.38 | 93.29 | 6.50 | 606.35 | |
| BR-LI | | | | 438.42 | (109.60) | 0.16 | 181.27 | 145.02 | 108.76 | 6.50 | 706.97 | |
| Sum | | | | 794.94 | (198.74) | 25.00% | 448.67 | 358.93 | 269.20 | **Total** | **1,582** | **(356)** |
| | | | | | | | | | | *Target* | *1,938* | |
| | | Average Wetland Percentage | | | **-25.00%** | | | | | **Surplus** | **(356)** | |

**EXHIBIT 2**
**BAYVIEW RIDGE EMPLOYMENT AND LAND CAPACITY ANALYSIS**
**BVR UGA PARCELS SORTED BY OWNER**

| PARCELID | LUD_ZONING | Owner | Area Per Skagit County Assessor | Delta | Area | [tax reported acreage of lot] Acreage | [GIS calculated critical area and buffer on each lot (acres)] CritArea_A | [net lot area after removing constrained area (square feet)] Developabl |
|---|---|---|---|---|---|---|---|---|
| P122632 | BR-LI | Bouslog | 1,004,058.00 | (9,487.02) | 994,570.98 | 22.83221 | 0.024841 | 993488.9 |
| P35378 | BR-LI | Bouslog | 4,908,340.80 | 139,911.32 | 5,048,252.12 | 115.8919 | 33.168526 | 3603431.12 |
| P127387 | BR-LI | Flex Engineering | 130,680.00 | (1,926.70) | 128,753.30 | 2.955769 | 0 | 128753.32 |
| P35341 | BR-LI | Fraser | 1,502,820.00 | 134,307.24 | 1,637,127.24 | 37.58327 | 3.083345 | 1502816.72 |
| P35335 | BR-LI | Fraser | 780,595.20 | (42,095.90) | 738,499.30 | 16.95361 | 0 | 738499.27 |
| P127385 | BR-LI | J N J Propert Holding | 261,360.00 | 96.40 | 261,456.40 | 6.002213 | 0 | 261456.38 |
| P21271 | BR-HI | Olympic Pipeline | 54,450.00 | (7,412.82) | 47,037.18 | 1.079825 | 0.318624 | 33157.94 |
| P21337 | BR-HI | Olympic Pipeline | 253,954.00 | 9,024.47 | 262,978.47 | 6.037155 | 1.184273 | 211391.57 |
| P21270 | BR-HI | Olympic Pipeline | 1,600,394.00 | 62,471.54 | 1,662,865.54 | 38.17414 | 6.913548 | 1361711.37 |
| P126292 | BR-HI | Paccar Inc. | 109,162.00 | (1,530.25) | 107,631.75 | 2.470885 | 0 | 107631.77 |
| P126290 | BR-HI | Paccar Inc. | 132,194.00 | 24.15 | 132,218.15 | 3.035311 | 0 | 132218.14 |
| P126298 | BR-HI | Paccar Inc. | 179,477.00 | 2,507.05 | 181,984.05 | 4.177779 | 0 | 181984.05 |
| P126293 | BR-HI | Paccar Inc. | 184,248.00 | 3,956.46 | 188,204.46 | 4.32058 | 0 | 188204.47 |
| P126297 | BR-HI | Paccar Inc. | 265,064.00 | 44.56 | 265,108.56 | 6.086055 | 0 | 265108.56 |
| P126299 | BR-HI | Paccar Inc. | 368,264.00 | (1,304.37) | 366,959.63 | 8.424234 | 0 | 366959.63 |
| P126289 | BR-HI | Paccar Inc. | 380,838.76 | (1,386.12) | 379,452.64 | 8.711034 | 0.097499 | 375205.6 |
| P115560 | BR-LI | POSC | 19,982.00 | 1.15 | 19,983.15 | 0.45875 | 0 | 19983.13 |
| P115671 | BR-LI | POSC | 99,951.00 | (77,260.51) | 22,690.49 | 0.520902 | 0 | 22690.49 |
| P21095 | BR-LI | POSC | 24,393.60 | (447.49) | 23,946.11 | 0.549727 | 0 | 23946.09 |
| P115664 | BR-LI | POSC | 57,961.00 | (9,660.02) | 48,300.98 | 1.108838 | 0.531424 | 25152.13 |
| P115626 | BR-LI | POSC | 38,711.00 | (0.06) | 38,710.94 | 0.888681 | 0 | 38710.96 |
| P119974 | AVR | POSC | 216,929.00 | (4,766.36) | 212,162.64 | 4.870584 | 3.955121 | 39877.58 |
| P115669 | BR-LI | POSC | 111,149.00 | (70,047.57) | 41,101.43 | 0.943559 | 0 | 41101.45 |
| P115684 | BR-LI | POSC | 46,989.00 | 0.22 | 46,989.22 | 1.078724 | 0.004635 | 46787.31 |
| P115668 | BR-LI | POSC | 59,503.00 | (3,357.64) | 56,145.36 | 1.28892 | 0 | 56145.36 |
| P115625 | BR-LI | POSC | 58,832.00 | (2.35) | 58,829.65 | 1.350543 | 0 | 58829.67 |
| P115667 | BR-LI | POSC | 66,003.00 | (399.33) | 65,603.67 | 1.506053 | 0 | 65603.66 |
| P118884 | BR-LI | POSC | 557,568.00 | (40,397.41) | 517,170.59 | 11.8726 | 10.260133 | 70239.22 |
| P115669 | BR-LI | POSC | - | 70,317.51 | 70,317.51 | 1.614268 | 0 | 70317.53 |
| P115671 | BR-LI | POSC | - | 77,215.28 | 77,215.28 | 1.772619 | 0 | 77215.3 |
| P118505 | BR-LI | POSC | 79,279.00 | 506.11 | 79,785.11 | 1.831614 | 0 | 79785.12 |
| P116431 | BR-LI | POSC | 80,503.00 | 0.80 | 80,503.80 | 1.848113 | 0 | 80503.79 |
| P103458 | AVR-L | POSC | 228,254.40 | (20,038.91) | 208,215.49 | 4.77997 | 2.826489 | 85093.67 |
| P115666 | BR-LI | POSC | 115,383.00 | (7,197.69) | 108,185.31 | 2.483593 | 0 | 108185.3 |
| P115561 | BR-LI | POSC | 142,073.00 | (12.04) | 142,060.96 | 3.261271 | 0 | 142060.94 |
| P115696 | BR-LI | POSC | 153,524.00 | 53.84 | 153,577.84 | 3.525662 | 0 | 153577.85 |
| P120165 | BR-LI | POSC | 156,026.00 | (10.42) | 156,015.59 | 3.581625 | 0 | 156015.59 |
| P118877 | BR-LI | POSC | 206,039.00 | 1,390.28 | 207,429.28 | 4.761921 | 1.141022 | 157726.37 |
| P115694 | BR-LI | POSC | 206,901.00 | 281.47 | 207,182.47 | 4.756255 | 0 | 207182.49 |
| P21091 | AVR | POSC | 351,094.00 | (6,434.78) | 344,659.22 | 7.912287 | 2.658952 | 228835.26 |
| P118876 | BR-LI | POSC | 258,311.00 | (2,130.33) | 256,180.67 | 5.881099 | 0 | 256180.69 |
| P118879 | BR-LI | POSC | 367,211.00 | 38,914.13 | 406,125.13 | 9.32335 | 2.379939 | 302454.99 |
| P21003 | BR-LI | POSC | 328,442.40 | (4,406.66) | 324,035.74 | 7.438837 | 0 | 324035.73 |
| P134144 | BR-LI | POSC | 382,021.20 | 27,539.72 | 409,560.92 | 9.402225 | 0.007434 | 409237.11 |
| P21036 | AVR-L | POSC | 414,255.60 | (710.07) | 413,545.53 | 9.493699 | 0 | 413545.53 |
| P131435 | BR-LI | POSC | 474,804.00 | 7,283.41 | 482,087.41 | 11.0672 | 0.461274 | 461994.29 |
| P115677 | BR-LI | POSC | 467,738.00 | 906.53 | 468,644.53 | 10.7586 | 0.098368 | 464359.63 |
| P115584 | BR-LI | POSC | 706,200.00 | (202,466.19) | 503,733.81 | 11.56414 | 0 | 503733.79 |
| P122848 | AVR | POSC | 1,579,100.00 | (803,123.73) | 775,976.27 | 17.81396 | 0.589416 | 750301.31 |
| P21034 | AVR-L | POSC | 871,200.00 | 18,664.41 | 889,864.41 | 20.42848 | 0 | 889864.4 |
| P21033 | AVR-L | POSC | 871,200.00 | 19,126.85 | 890,326.85 | 20.43909 | 0 | 890326.86 |
| P21031 | BR-LI | POSC | 871,200.00 | 29,121.86 | 900,321.86 | 20.66855 | 0 | 900321.88 |
| P21081 | AVR | POSC | 3,423,380.40 | (2,066,017.22) | 1,357,363.18 | 31.16077 | 0.444364 | 1338006.72 |
| P20979 | BR-LI | POSC | 1,390,435.20 | 52,083.12 | 1,442,518.32 | 33.11566 | 0 | 1442518.31 |
| P20983 | BR-LI | POSC | 2,370,970.80 | 49,818.79 | 2,420,789.59 | 55.57368 | 17.698195 | 1649856.23 |
| P21088 | AVR-L | POSC | 1,359,072.00 | 48,951.29 | 1,408,023.29 | 32.32377 | 4.695619 | 1203482.15 |
| P21265 | BR-HI | Sierra Pacific RE LLC | 854,212.00 | (565,248.55) | 288,963.45 | 6.633688 | 0 | 288963.45 |
| P21265 | BR-HI | Sierra Pacific RE LLC | - | 474,068.23 | 474,068.23 | 10.88311 | 0 | 474068.23 |
| P129949 | BR-HI | Sierra Pacific RE LLC | 508,644.00 | (423.73) | 508,220.27 | 11.66713 | 0 | 508220.29 |
| P21269 | BR-HI | Sierra Pacific RE LLC | 1,270,645.00 | 113,716.85 | 1,384,361.85 | 31.78058 | 0.990094 | 1341233.37 |
| P21287 | BR-HI | Silver Spirit Inc. | 1,742,400.00 | 81,134.46 | 1,823,534.46 | 41.86259 | 17.884405 | 1044489.75 |
| P134381 | BR-LI | Skagit Transit | 128,937.60 | (565.06) | 128,372.54 | 2.947028 | 0 | 128372.55 |
| P127386 | BR-LI | TGM Burlington LLC | 239,580.00 | 4,500.14 | 244,080.14 | 5.603309 | 0 | 244080.12 |
| P109669 | BR-HI | Vorobik Investments | 87,453.00 | (19,807.24) | 67,645.76 | 1.552933 | 0 | 67645.76 |
| P109668 | BR-HI | Vorobik Investments | 87,453.00 | 7.42 | 87,460.42 | 2.007815 | 0 | 87460.43 |
| P21339 | BR-LI | W Good | 30,492.00 | 50,117.13 | 80,609.13 | 1.850531 | 0.773098 | 46932.95 |
| P21239 | BR-HI | W Good | 160,300.80 | 7,462.22 | 167,763.02 | 3.851309 | 2.568033 | 55899.49 |
| P21253 | BR-HI | W Good | 250,470.00 | (459.95) | 250,010.05 | 5.739441 | 3.573389 | 94353.24 |
| P21319 | BR-HI | W Good | 348,480.00 | 35,040.71 | 383,520.71 | 8.804424 | 2.390446 | 279392.88 |
| | | | 37,037,556.76 | (2,409,967.35) | 34,627,589.41 | 794.94 | 120.72 | 29,368,917.20 |
| | | | 850.27 | (55.33) | 794.94 | | | 674.22 |
| | | Bouslog | 5,912,398.80 | 130,424.30 | 6,042,823.10 | 138.72 | 33.19 | 105.53 |
| | | Flex Engineering | 130,680.00 | (1,926.70) | 128,753.30 | 2.96 | - | 2.96 |
| | | Fraser | 2,283,415.20 | 92,211.34 | 2,375,626.54 | 54.54 | 3.08 | 51.45 |
| | | J N J Propert Holding | 261,360.00 | 96.40 | 261,456.40 | 6.00 | - | 6.00 |
| | | Olympic Pipeline | 1,908,798.00 | 64,083.19 | 1,972,881.19 | 45.29 | 8.42 | 36.87 |
| | | Paccar Inc. | 1,619,247.76 | 2,311.49 | 1,621,559.25 | 37.23 | 0.10 | 37.13 |
| | | Sierra Pacific RE LLC | 2,633,501.00 | 22,112.79 | 2,655,613.79 | 60.96 | 0.99 | 59.97 |
| | | Silver Spirit Inc. | 1,742,400.00 | 81,134.46 | 1,823,534.46 | 41.86 | 17.88 | 23.98 |
| | | Skagit Transit | 128,937.60 | (565.06) | 128,372.54 | 2.95 | - | 2.95 |
| | | TGM Burlington LLC | 239,580.00 | 4,500.14 | 244,080.14 | 5.60 | - | 5.60 |
| | | Vorobik Investments | 174,906.00 | (19,799.82) | 155,106.18 | 3.56 | - | 3.56 |
| | | W Good | 789,742.80 | 92,160.11 | 881,902.91 | 20.25 | 9.30 | 10.94 |
| | **Non POSC Total** | | **17,824,967.16** | **466,742.64** | **18,291,709.80** | **419.92** | **72.97** | **346.95** |
| | **Non POSC** | | **48.13%** | **-19.37%** | **52.82%** | **52.82%** | **60.44%** | **51.46%** |
| | **POSC** | | **19,212,589.60** | **(2,876,709.99)** | **16,335,879.61** | **375.02** | **47.75** | **327.27** |
| | **POSC** | | **51.87%** | **119.37%** | **47.18%** | **47.18%** | **39.56%** | **48.54%** |
| | **Totals** | | **37,037,556.76** | **(2,409,967.35)** | **34,627,589.41** | **794.94** | **120.72** | **674.22** |
| | | | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% | 100.00% |




## LEGEND

- Proposed Urban Growth Area Boundary
- Port of Skagit County Boundary
- Port of Skagit County WIN *
- Port of Skagit County WIN Buffer

*Wetland Data Source: Port of Skagit program of wetland Protection known as Skagit Wetlands and Industrial Negotiations (WIN)

August 27, 2014

0 0.25 0.5 Miles

N W E S

# BAYVIEW RIDGE SUBAREA PLAN

## Port of Skagit Wetlands

Figure 9-1

Prepared
November 4th,
2024

# Bayview Ridge Employement Capacity Analysis

| | | |
|---|---|---|
| Gross area of developable parcels | 794.9401 | ac |
| Area of developable parcels after removing critical areas | 674 | ac |
| Net developable Area after infrastructure deduction, market factor, and critical areas: | 405 | ac |

| | Total developable (ac) | Infrastructure deduction | Market factor | Employement density | Total employement capacity |
|---|---|---|---|---|---|
| Zones | | 20% | 25% | | |
| AVR | 54.11 | 43.29 | 32.47 | 4 | 129 |
| AVR-L | 79.94 | 63.95 | 47.97 | 4 | 191 |
| BR-HI | 171.38 | 137.10 | 102.83 | 6.5 | 668 |
| BR-LI | 368.79 | 295.03 | 221.27 | 6.5 | 1,438 |
| Sum | 674 | 539 | 405 | Total | 2,426 |
| | | | | *Target* | *1,938* |
| | | | | Surplus | 488 |

| | |
|---|---|
| Constraints | |
| Infrastructure deduction | 20% |
| Market Factor | 25% all lots |
| Assumptions | |
| Industrial jobs/ac | 4-6.5 |
| Developable parcel | Over 10,000 sf of developable land |
| Undevelopable parcel | Under 10,000 sf lot or more than 90% encumbered by critical areas |
| Developed parcel | Built out site or existing tract, easement, public use, or other development |

Calculation

1. Remove developed and undevelopable parcels
2. Existing acreage of parcel
3. Subtract Critical areas
4. Deduct Market Factors
5. Multiply remaining acres by employement density

*Assumptions and Constraints based on Mount Vernon and Sedro-Woolley Employement capacity analysis methodology using BERK and Skagit County iMap parcel data for critical area encumbrances*

| | | [tax reported acreage of lot] | [GIS calculated critical area and buffer on each lot (acres)] | [net lot area after removing constrained area (square feet)] | [percentage of lot area constrained by critical area or easements] | |
|---|---|---|---|---|---|---|
| PARCELID | LUD_ZONING | Acreage | CritArea_A | Developabl | Constrain | LCA_Status |
| P115560 | BR-LI | 0.45875 | 0 | 19983.13 | 0 | Vacant |
| P115671 | BR-LI | 0.520902 | 0 | 22690.49 | 0 | Vacant |
| P21095 | BR-LI | 0.549727 | 0 | 23946.09 | 0 | Vacant |
| P115664 | BR-LI | 1.108838 | 0.531424 | 25152.13 | 0.4793 | Vacant |
| P21271 | BR-HI | 1.079825 | 0.318624 | 33157.94 | 0.2951 | Vacant |
| P115626 | BR-LI | 0.888681 | 0 | 38710.96 | 0 | Vacant |
| P119974 | AVR | 4.870584 | 3.955121 | 39877.58 | 0.812 | Vacant |
| P115669 | BR-LI | 0.943559 | 0 | 41101.45 | 0 | Vacant |
| P115684 | BR-LI | 1.078724 | 0.004635 | 46787.31 | 0.0043 | Vacant |
| P21339 | BR-LI | 1.850531 | 0.773098 | 46932.95 | 0.4178 | Vacant |
| P21239 | BR-HI | 3.851309 | 2.568033 | 55899.49 | 0.6668 | Vacant |
| P115668 | BR-LI | 1.28892 | 0 | 56145.36 | 0 | Vacant |
| P115625 | BR-LI | 1.350543 | 0 | 58829.67 | 0 | Vacant |
| P115667 | BR-LI | 1.506053 | 0 | 65603.66 | 0 | Vacant |
| P109669 | BR-HI | 1.552933 | 0 | 67645.76 | 0 | Vacant |
| P118884 | BR-LI | 11.872603 | 10.260133 | 70239.22 | 0.8642 | Vacant |
| P115669 | BR-LI | 1.614268 | 0 | 70317.53 | 0 | Vacant |
| P115671 | BR-LI | 1.772619 | 0 | 77215.3 | 0 | Vacant |
| P118505 | BR-LI | 1.831614 | 0 | 79785.12 | 0 | Vacant |
| P116431 | BR-LI | 1.848113 | 0 | 80503.79 | 0 | Vacant |
| P103458 | AVR-L | 4.77997 | 2.826489 | 85093.67 | 0.5913 | Vacant |
| P109668 | BR-HI | 2.007815 | 0 | 87460.43 | 0 | Vacant |
| P21253 | BR-HI | 5.739441 | 3.573389 | 94353.24 | 0.6226 | Vacant |
| P126292 | BR-HI | 2.470885 | 0 | 107631.77 | 0 | Vacant |
| P115666 | BR-LI | 2.483593 | 0 | 108185.3 | 0 | Vacant |
| P134381 | BR-LI | 2.947028 | 0 | 128372.55 | 0 | Vacant |
| P127387 | BR-LI | 2.955769 | 0 | 128753.32 | 0 | Vacant |
| P126290 | BR-HI | 3.035311 | 0 | 132218.14 | 0 | Vacant |
| P115561 | BR-LI | 3.261271 | 0 | 142060.94 | 0 | Vacant |
| P115696 | BR-LI | 3.525662 | 0 | 153577.85 | 0 | Vacant |
| P120165 | BR-LI | 3.581625 | 0 | 156015.59 | 0 | Vacant |
| P118877 | BR-LI | 4.761921 | 1.141022 | 157726.37 | 0.2396 | Vacant |
| P126298 | BR-HI | 4.177779 | 0 | 181984.05 | 0 | Vacant |
| P126293 | BR-HI | 4.32058 | 0 | 188204.47 | 0 | Vacant |
| P115694 | BR-LI | 4.756255 | 0 | 207182.49 | 0 | Vacant |
| P21337 | BR-HI | 6.037155 | 1.184273 | 211391.57 | 0.1962 | Vacant |
| P21091 | AVR | 7.912287 | 2.658952 | 228835.26 | 0.3361 | Vacant |
| P127386 | BR-LI | 5.603309 | 0 | 244080.12 | 0 | Vacant |
| P118876 | BR-LI | 5.881099 | 0 | 256180.69 | 0 | Vacant |
| P127385 | BR-LI | 6.002213 | 0 | 261456.38 | 0 | Vacant |

| | | | | | | |
|---|---|---|---|---|---|---|
| P126297 | BR-HI | 6.086055 | 0 | 265108.56 | 0 | Vacant |
| P21319 | BR-HI | 8.804424 | 2.390446 | 279392.88 | 0.2715 | Vacant |
| P21265 | BR-HI | 6.633688 | 0 | 288963.45 | 0 | Vacant |
| P118879 | BR-LI | 9.32335 | 2.379939 | 302454.99 | 0.2553 | Vacant |
| P21003 | BR-LI | 7.438837 | 0 | 324035.73 | 0 | Vacant |
| P126299 | BR-HI | 8.424234 | 0 | 366959.63 | 0 | Vacant |
| P126289 | BR-HI | 8.711034 | 0.097499 | 375205.6 | 0.0112 | Vacant |
| P134144 | BR-LI | 9.402225 | 0.007434 | 409237.11 | 0.0008 | Vacant |
| P21036 | AVR-L | 9.493699 | 0 | 413545.53 | 0 | Vacant |
| P131435 | BR-LI | 11.067204 | 0.461274 | 461994.29 | 0.0417 | Vacant |
| P115677 | BR-LI | 10.758598 | 0.098368 | 464359.63 | 0.0091 | Vacant |
| P21265 | BR-HI | 10.883109 | 0 | 474068.23 | 0 | Vacant |
| P115584 | BR-LI | 11.564137 | 0 | 503733.79 | 0 | Vacant |
| P129949 | BR-HI | 11.667132 | 0 | 508220.29 | 0 | Vacant |
| P122848 | AVR | 17.813964 | 0.589416 | 750301.31 | 0.0331 | Vacant |
| P21034 | AVR-L | 20.428476 | 0 | 889864.4 | 0 | Vacant |
| P21033 | AVR-L | 20.439092 | 0 | 890326.86 | 0 | Vacant |
| P21031 | BR-LI | 20.668546 | 0 | 900321.88 | 0 | Vacant |
| P122632 | BR-LI | 22.832208 | 0.024841 | 993488.9 | 0.0011 | Vacant |
| P21081 | AVR | 31.160771 | 0.444364 | 1338006.72 | 0.0143 | Vacant |
| P21269 | BR-HI | 31.780575 | 0.990094 | 1341233.37 | 0.0312 | Vacant |
| P21270 | BR-HI | 38.17414 | 6.913548 | 1361711.37 | 0.1811 | Vacant |
| P20979 | BR-LI | 33.115664 | 0 | 1442518.31 | 0 | Vacant |
| P35341 | BR-LI | 37.58327 | 3.083345 | 1502816.72 | 0.082 | Vacant |
| P20983 | BR-LI | 55.573682 | 17.698195 | 1649856.23 | 0.3185 | Vacant |
| P35378 | BR-LI | 115.891922 | 33.168526 | 3603431.12 | 0.2862 | Vacant |
| P21287 | BR-HI | 41.862591 | 17.884405 | 1044489.75 | 0.4272 | Partially Vacant |
| P21088 | AVR-L | 32.323767 | 4.695619 | 1203482.15 | 0.1453 | Partially Vacant |
| P35335 | BR-LI | 16.953611 | 0 | 738499.27 | 0 | Partially Vacant |

## Exhibit 3. Employment Growth Allocation by UGA, 2022-2045

| UGA | 2022 Employment | 2045 Employment Targets | 2022-2045 Emp Growth | Pct Total Growth | CAGR |
|---|---|---|---|---|---|
| Anacortes UGA | 9,503 | 12,648 | 3,145 | 15% | 1.3% |
| Burlington UGA | 11,640 | 17,410 | 5,770 | 28% | 1.8% |
| Concrete UGA | 391 | 506 | 115 | 1% | 1.1% |
| Hamilton UGA | 466 | 489 | 23 | 0% | 0.2% |
| La Conner UGA | 1,020 | 1,905 | 885 | 4% | 2.8% |
| Lyman UGA | 56 | 76 | 20 | 0% | 1.3% |
| Mount Vernon UGA | 18,781 | 23,559 | 4,778 | 23% | 1.0% |
| Sedro-Woolley UGA | 4,640 | 7,040 | 2,399 | 12% | 1.8% |
| Bayview Ridge UGA | 2,962 | 4,901 | 1,938 | 9% | 2.2% |
| Swinomish UGA | 1,140 | 1,579 | 439 | 2% | 1.4% |
| Rural | 8,972 | 9,987 | 1,015 | 5% | 0.5% |
| **County Total** | **59,573** | **80,099** | **20,526** | **100%** | **1.3%** |

*Sources: Employment Security Department, 2023; Bureau of Labor Statistics, 2023; U.S. Census Bureau, 2023; SCOG GMATAC Committee, 2023; Community Attributes, 2023.*

# MEMORANDUM

**DATE:** November 04, 2024

**TO:** Skagit County Planning and Development Services

**FROM:** Joel Farias and Clay White, Kimley-Horn and Associates

**RE:** Skagit County Bayview Ridge Employment Land Capacity Analysis

## Purpose

This document serves as an amendment to the Housing Land Capacity Memo prepared by BERK Consulting.

The purpose of this document is to provide a summary of the land capacity for new commercial and industrial production in the Bayview Ridge UGA of Skagit County under current land use designations and zoning. This analysis addresses Growth Management Act (GMA) requirements for jurisdictions to demonstrate sufficient capacity to accommodate employment projections. Results of the land capacity analysis will support the development of the Comprehensive Plan periodic update due in 2025.

## Overall Approach

Skagit County's 2045 allocation of Population, Housing and Employment was adopted by the Growth Management Act Steering Committee (GMASC) composed of cities, towns, and Skagit County in December 2023. While the December 2023 population and housing targets are currently under consideration for amendment, no changes are being proposed to the employment allocations (See Appendix A for Final 2045 Employment Allocations). **Exhibit 1** indicates 2045 employment allocation of 1,939 new jobs for Bayview Ridge. Bayview Ridge was not allocated any housing or population.

**Exhibit 1. Employment Allocation in Bayview Ridge 2022-2045**

| | 2022 Employment | 2045 Employment Targets | 2022-2045 Employment Growth | Percent Total Growth |
|---|---|---|---|---|
| Bayview Ridge | 2,962 | 4,901 | 1,939 | 9% |

*Source: Skagit County Council of Government (SCOG) Resolution 2023-01*

### Commercial and Industrial Land Capacity Analysis Methodology

The analysis has been prepared using the methodology described in the Sedro-Woolley 2015 Buildable Lands Analysis which was based on the 2010 Buildable Lands & Land Capacity Analysis Report by the

City of Mount Vernon Community and Economic Development Department. The countywide Skagit County Industrial Land Study completed by ECONorthwest in December 2014, aerial imagery, and Skagit County's iMap were also used in this analysis. A Bayview Ridge UGA zoning map is included in Appendix B.

The following steps were used in this analysis:

- Evaluate the suitability of land for future development allowed by current County zoning.
  - Identify and remove areas in public uses (parks, schools, public facilities, capital infrastructure, etc.).
    - Any fully developed properties were removed from the analysis.
    - Any properties with utility use, such as pump stations, storm ponds, transformers, etc. were removed from the analysis.
  - Identify regulated environmentally critical areas, protected natural resource areas, and environmental hazards (geologic hazard areas, flood-prone areas, etc.) that could make these lands unsuitable for future development.
    - Large wetlands and utility easements make up the majority of undevelopable lands in Bayview Ridge.
    - All parcels with less than 10,000 square feet of developable area after the critical area deduction was removed from the analysis.
  - Evaluate the remaining areas for development suitability, including but not limited to the following characteristics:
    - Remaining development area after fully developed, public, and critical areas were removed (674 acres)
    - Prevailing land use patterns and current level of development.
- Determine assumed employment density and calculate capacity
  - Determine zoning of suitable land areas
    - All non-residential zones in Bayview Ridge are Industrial.
    - Industrial employment density was set to 6.5 jobs per acre for industrial zoned land (BR-HI and BR-LI).
    - The Aviation related zones were set to a lower job density of 4 jobs per acres (AVR and AVR-L).
  - Calculate estimated land capacity within suitable land areas in each zone.

# Capacity by Zone

**Exhibit 2** identifies industrial development capacity by zone within Bayview Ridge. Results show capacity for about 2426 jobs and a surplus of 487 jobs over the 2045 employment allocation.

**Exhibit 2. Industrial Development Capacity by Zone in Bayview Ridge**

| Bayview Ridge UGA Industrial Zones | Zoning | Net Acres Developable (after critical areas deduction) | Infrastructure Deduction (20%) | Market Factor (25%) | Net Buildable Acres | Job Density | Employment Capacity (jobs) |
|---|---|---|---|---|---|---|---|
| **Aviation Related** | AVR | 54.11 | 43.29 | 32.47 | 32.47 | 4 | 129 |
| **Aviation Related-Limited** | AVR-L | 79.94 | 63.95 | 47.97 | 47.97 | 4 | 191 |
| **Heavy Industrial** | BR-HI | 171.38 | 137.10 | 102.83 | 102.83 | 6.5 | 668 |
| **Light Industrial** | BR-LI | 368.79 | 295.03 | 221.27 | 221.27 | 6.5 | 1,438 |
| **Total** | | **674.22** | **539.37** | **404.53** | **404.53** | | **2,426** |

*Source: Skagit County GIS, 2024, Kimley-Horn 2024*

# Next Steps

The County has sufficient employment capacity within the Bayview Ridge UGA to meet the employment allocation allotted to Bayview Ridge through 2045.

# Appendix A

Final 2045 Employment Allocations

## ~~INITIAL~~ FINAL 2045 EMPLOYMENT ALLOCATIONS IN SKAGIT COUNTY

| Urban Growth Areas | 2022 Employment Estimates | 2045 ~~Initial~~ Final Employment Allocations | 2022-2045 Projected Employment Growth | | |
|---|---|---|---|---|---|
| | | | Amount | Percent of Total Growth | Percent Growth by Area |
| Anacortes | 9,503 | 12,648 | 3,145 | 15.3% | 33.1% |
| Burlington | 11,640 | 17,410 | 5,770 | 28.1% | 49.6% |
| Mount Vernon | 18,781 | 23,559 | 4,778 | 23.3% | 25.4% |
| Sedro-Woolley | 4,640 | 7,040 | 2,400 | 11.7% | 51.7% |
| Concrete | 391 | 506 | 115 | 0.6% | 29.4% |
| Hamilton | 466 | 489 | 23 | 0.1% | 4.9% |
| La Conner | 1,020 | 1,905 | 885 | 4.3% | 86.8% |
| Lyman | 56 | 76 | 20 | 0.1% | 35.7% |
| Bayview Ridge | 2,962 | 4,901 | 1,939 | 9.4% | 65.5% |
| Swinomish | 1,140 | 1,579 | 439 | 2.1% | 38.5% |
| **UGAs Subtotal** | **50,599** | **70,113** | **19,514** | **95.1%** | **N/A** |
| Rural (outside UGAs) | 8,972 | 9,987 | 1,015 | 4.9% | 11.3% |
| **Grand Total** | **59,571** | **80,100** | **20,529** | **100.0%** | **N/A** |

Notes:

1. Percentages may not sum due to rounding.

2. Figures may vary from Skagit County Population, Housing and Employment Growth Allocations Methodology findings due to rounding.

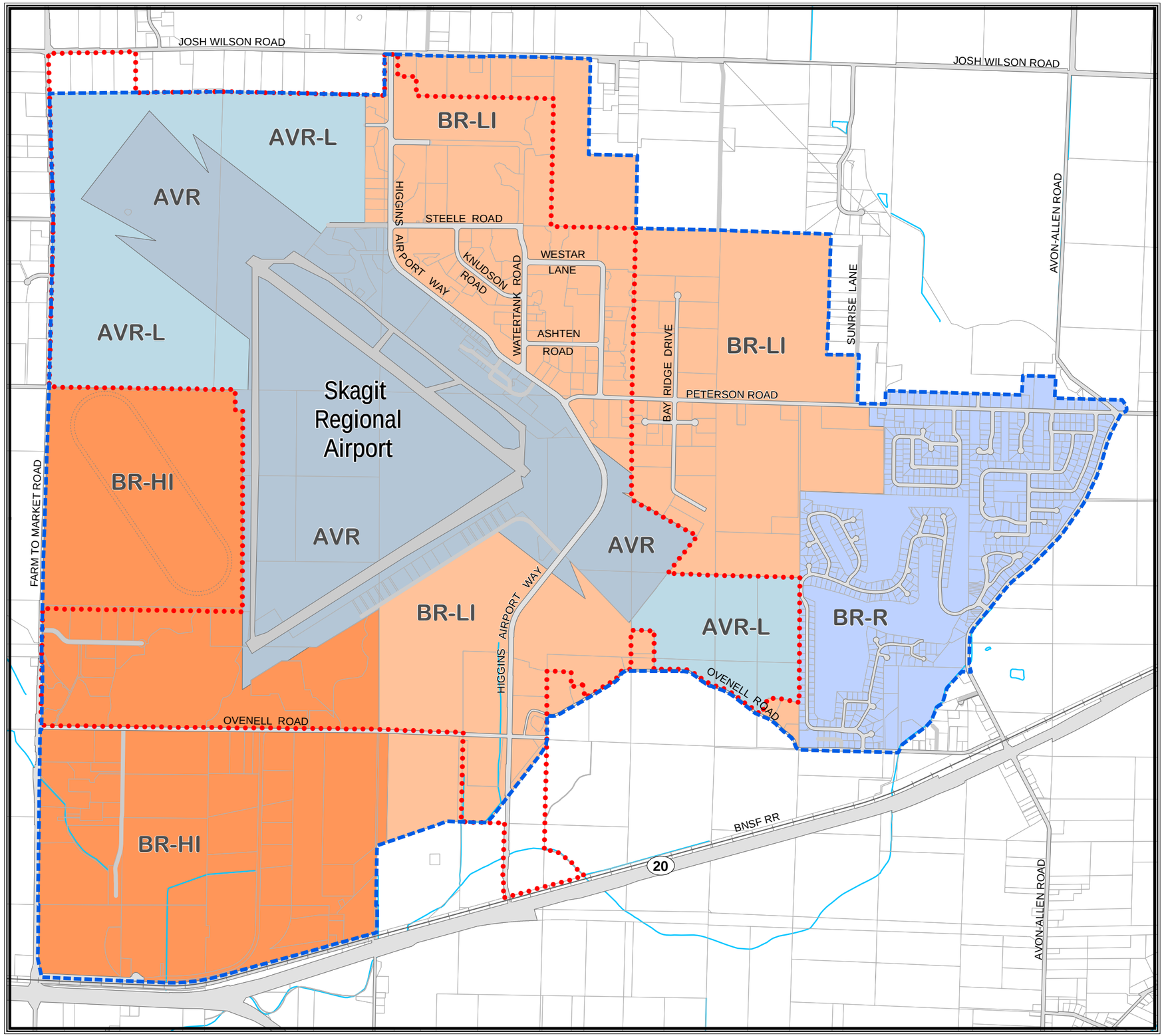
3. UGA is "Urban Growth Area".

~~4. The 2015 Planned Action Environmental Impact Statement for the SWIFT Center (formerly known as the "North Cascades Gateway Center") in Sedro-Woolley anticipates 2,855 additional jobs from 2016-2036. These additional jobs are not explicitly included with the 2045 initial final employment allocation., though the land capacity analysis Sedro-Woolley conducts, and regional reconciliation process expected to begin in late 2024, can account for additional planned employment growth.~~

4. Allocations for the Swinomish Urban Growth Area provided for informational purposes only. Skagit County did not conduct a land capacity analysis for this UGA due to jurisdictional challenges on tribal lands.

# Appendix B

Bayview Ridge Subarea Plan maps




## LEGEND

- Urban Growth Area Boundary
- Port of Skagit County Boundary
- [AVR] Aviation Related
- [AVR-L] Aviation Related - Limited
- [BR-R] Bayview Ridge Residential
- [BR-LI] Bayview Ridge Light Industrial
- [BR-HI] Bayview Ridge Heavy Industrial

August 27, 2014

0 0.25 0.5
Miles

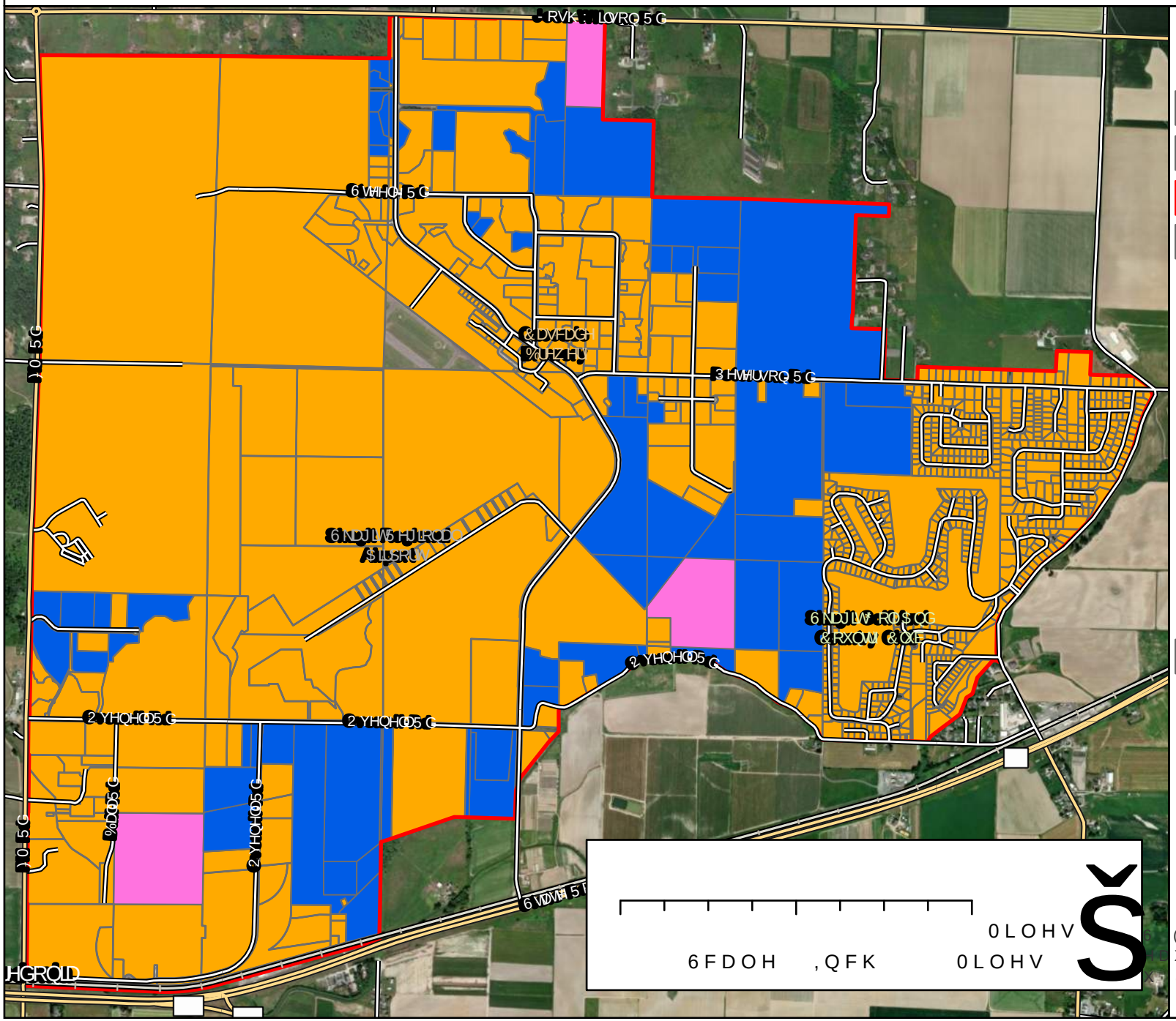
N
W E
S

# BAYVIEW RIDGE SUBAREA PLAN

## Land Use Plan

Figure 2-1

# %D\YLHZ 5LGJH 8*$ &RPPHUFLDO DQG /DQG &DSDFLW\ $QDO\VLV 0DS




/HJHQG

9DFDQW

3DUWLDOO\ 8V

8*$ %RXQGDU

7D[ 3DUFHOV

$V SDUW RI WKH 6ND /DQG &DSDFLW\ $QDO PDS KDV EHHQ SUHS SRUWUD\ WKH SDUFH %D\YLHZ 5LGJH 8*$ Z ZHUH LGHQWLILHG W HPSOR\PHQW FDSDFL

3HU WKH PHWKRGRO SDUFHOV ZHUH UHPR QRW VKRZQ DV KDYL LQ WKH DQDO\VLV

8QGHYHORSD 3DUFHOV

8QGHYHORSDEOH SD )XOO\ GHYHORSHG 6PDOO ORWV XQGH /RWV HQFXPEHUHG E\ FULWLFDO DUH XQGHYHORSDEOH OD HDVHPHQWV /RWV ]RQHG 5HVLG

(VUL 7RP7RP *DUPLQ 6DIH*UD

7KLV PDS ZDV SUHSDUHG XVLQJ SXEOLFO GDWD DQG VKRXOG EH XVHG RQO




# Bayview Ridge

## Subarea Plan 2014

airport · business park · golf · heavy industry · residential · trails

Adopted by the Skagit County Board of Commissioners
by Ordinance O20140005 on November 17, 2014

**www.skagitcounty.net/bayviewridge**

# Abbreviated Table of Contents


Chapter 1 Introduction

Chapter 2 Land Use, Community Character, and Design

Chapter 3 Business & Industrial Development

Chapter 4 Housing

Chapter 5 Transportation

Chapter 6 Capital Facilities

Chapter 7 Utilities

Chapter 8 Parks, Trails, and Open Space

Chapter 9 Natural Environment

Appendix A History of the Bayview Ridge Subarea

Appendix B Relationship to Other Plans

# Table of Contents


## Chapter 1 Introduction

*existing land use and development conditions in the Bayview Ridge Subarea and compatibility with the Skagit Regional Airport*

Overview ..... 1-1
Subarea/UGA Boundaries ..... 1-1
Vision Statement ..... 1-2
What is a Subarea Plan? ..... 1-4
What are Goals, Objectives, and Policies? ..... 1-4
Existing Conditions in the Subarea ..... 1-4
Compatibility with Skagit Regional Airport ..... 1-10

## Chapter 2 Land Use, Community Character, and Design

*general distribution, location, and appropriate intensity and density of land uses throughout the subarea, and compatibility with Skagit Regional Airport*

Existing Conditions ..... 2-1
Land Use Plan ..... 2-3
Goals, Objectives, and Policies ..... 2-6

## Chapter 3 Business & Industrial Development

*economic development opportunities within the public and private industrial areas surrounding the Skagit Regional Airport*

Existing Conditions ..... 3-1
Goals, Objectives, and Policies ..... 3-3

## Chapter 4 Housing

*policies that promote a diversity of housing opportunities at all income levels that can support future job growth within the subarea*

Existing Residential Development ..... 4-1
The Subarea Plan's Approach ..... 4-1
Goals, Objectives, and Policies ..... 4-2

## Chapter 5 Transportation

*transportation facilities and Level of Service standards and other policy commitments for motorized and non-motorized transportation networks within the subarea*

System Inventory ..... 5-1
Major Issues ..... 5-5
Level of Service (LOS), Capacity, & Needs Assessment ..... 5-6
Goals, Objectives, and Policies ..... 5-9

## Chapter 6 Capital Facilities

*planning and provision of needed public facilities and services, including capital costs, financing, levels of service methods and consequences, statutory requirements*

Facilities Included in this Plan ..... 6-1
Capital Facilities Planning Issues ..... 6-2
Inventory, Needs Analysis, Projects, and Financing ..... 6-3
Goals, Objectives, and Policies ..... 6-4

## Chapter 7 Utilities

*planning and provision of public and private utilities, including electricity, natural gas, telecommunications, cable television, and the Port of Skagit*

Existing Utilities ..... 7-1
Major Issues ..... 7-2
Regulatory Setting ..... 7-2
Public Utilities ..... 7-3
Private Utilities ..... 7-3
Goals, Objectives, and Policies ..... 7-3

## Chapter 8 Parks, Trails, and Open Space

*standards for Level of Service for parks and recreation land and critical areas and public open space for airport safety*

Existing Conditions ..... 8-1
The Subarea Plan Approach ..... 8-1
Goals, Objectives, and Policies ..... 8-2

## Chapter 9 Natural Environment

*preservation and enhancement of the natural environment, including aquifer recharge areas, flood hazard areas, geologic hazards, wetlands, and fish and wildlife habitat*

Existing Conditions ..... 9-1
Subarea Plan Measures ..... 9-4
Goals, Objectives, and Policies ..... 9-4

## Appendix A History of the Bayview Ridge Subarea

Background ..... A-1
The Evolving Subarea Plan ..... A-2
Public Participation ..... A-5

## Appendix B Relationship to Other Plans

Land Use ..... B-1
Business and Industrial Development ..... B-1
Housing ..... B-3
Transportation ..... B-4
Capital Facilities ..... B-5
Utilities ..... B-9
Parks ..... B-9

Natural Environment ..... B-10
Essential Public Facilities ..... B-10

# Index of Figures

Figure 1-1 Vicinity Map ..... 1-3
Figure 1-2 Aerial Photo ..... 1-7
Figure 1-3 Existing Development Map ..... 1-8
Figure 1-4 Private Large Lot Ownership Map ..... 1-9
Figure 2-1 Bayview Ridge Land Use Plan Map ..... 2-5
Figure 5-1 Roadway System Map ..... 5-2
Figure 8-1 Port of Skagit Trail System Map ..... 8-4
Figure 8-2 Conceptual Trail System Map ..... 8-5
Figure 9-1 Port of Skagit Wetlands Map ..... 9-3

# Index of Tables

Table 2-1 Bayview Ridge UGA Zoning ..... 2-6
Table 5-1. Level of Service Ratings for Intersections ..... 5-7
Table 5-2. Recent Traffic Counts ..... 5-8

# Chapter 1 Introduction

*existing land use and development conditions in the Bayview Ridge Subarea and compatibility with the Skagit Regional Airport*

## Overview

The Bayview Ridge Subarea is a 3,586-acre "non-municipal urban growth area" in Skagit Valley approximately one mile west of the City of Burlington and one-and-a-half miles northwest of the City of Mount Vernon. Although situated within an agricultural valley, the Bayview Ridge Subarea is distinct from the surrounding farmland both due to its location on a topographic bench above the Skagit River floodplain and its history of urban development. The Bayview Ridge Subarea community presently is characterized as a mix of industrial and business uses, airport and aviation-related uses, pastureland, and a variety of residential uses. The Subarea Plan represents the County's policy plan for development through the year 2025.

The Bayview Ridge Subarea encompasses the Port of Skagit's Bayview Business Park and Skagit Regional Airport, the Sierra Pacific lumber mill, the PACCAR Technical Center, and other industrial and commercial developments in the western and central portions of the Subarea. Residential subdivisions and the Skagit County Golf and Country Club lie along the eastern edge above the valley floor. Tracts of vacant land are located between the airport and the residential area, east of the airport. Numerous wetlands are scattered throughout the Subarea.

The remaining undeveloped properties are generally large, providing an opportunity for large-scale light industrial business-park-style development. This Subarea Plan helps plan for that development while ensuring compatibility with existing residential areas and continued development of Skagit Regional Airport.

## Subarea/UGA Boundaries

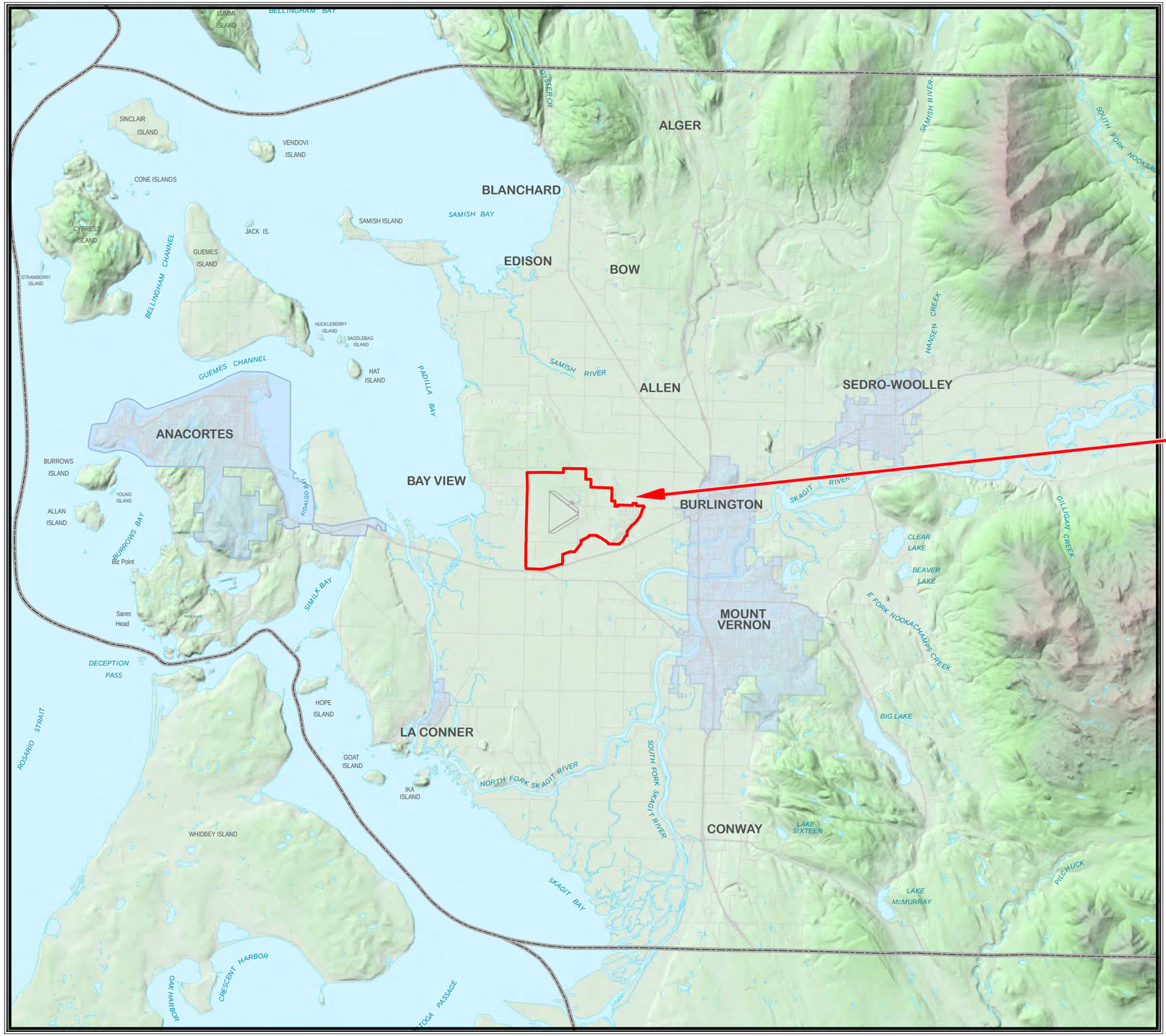
Figure 1-1 is a map of the Bayview Ridge Subarea.[1] The boundaries of the Subarea reflect major property ownerships, existing land use, and topography. A steep hillside forms the boundary on the east. State Route 20 (SR 20) and Ovenell Road bound the Subarea to the south. Farm to Market Road and Port of Skagit ownership form the west boundary; Josh Wilson Road and a steep hillside bound the subarea on the north.



[1] Previous versions of this plan established different sizes for the subarea versus the urban growth area. Starting in the 2014 version, the boundaries of the subarea and UGA are harmonized.

## Vision Statement

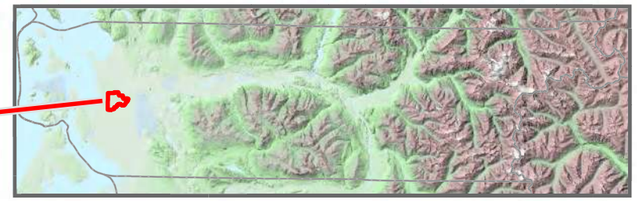
A vision statement paints a picture of how the community might look and function in the future. The vision outlined below provides a framework for developing goals, objectives, and policies to guide and shape Bayview Ridge development. The employment options that exist now and that are planned for at the industrial properties and the Port of Skagit create an opportunity for a thriving community for people of all ages and income levels who choose to work at Bayview Ridge.




# LEGEND

Proposed Urban Growth Area Boundary

## Skagit County



August 27, 2014

0 2.5 5
Miles

N
W E
S

SKAGIT COUNTY GIS

## BAYVIEW RIDGE SUBAREA PLAN

# Vicinity Map

**Figure 1-1**

The Bayview Ridge Subarea Plan provides for the planned and orderly growth of the Bayview Ridge Subarea. The Subarea Plan aims to:

- Establish a Bayview Ridge Urban Growth Area based on its suitability for development and the commitment of public and private services and resources invested in the area;
- Create a cohesive, thriving business campus-like environment with a diversity of light industrial and airport-related uses, and existing residential uses;
- Take advantage of the unique opportunity to build upon the natural assets of this area, situated on a topographical bench above the floodplain with incredibly scenic views;
- Create a safe, pedestrian-friendly internal transportation network;
- Preserve and protect aviation activity at the Skagit Regional Airport, an essential public facility, consistent with the Skagit Regional Airport Master Plan;
- Provide for industrial development in a planned and coordinated fashion; and
- Develop an open space and trails network that provides recreational opportunities, airport safety, and protects and maintains natural resources and critical areas.

## What is a Subarea Plan?

The Growth Management Act allows the County to supplement its Comprehensive Plan with specific plans for subareas, provided the subarea plans are consistent with the overall Comprehensive Plan. The Comprehensive Plan serves as an "umbrella" document and provides a foundation from which subarea plans are developed. Subarea plans then implement and enhance the Comprehensive Plan.

GMA supports subarea planning as an approach to addressing the diversity of natural features and communities in the county. Chapter 12 of the Skagit County Comprehensive Plan specifically addresses preparation of "community development" or "subarea" plans. Chapter 12 states that subarea plans coordinate and provide consistency with the Comprehensive Plan at a scale and level of detail that cannot be attained under the broad guidelines of the Comprehensive Plan because of the diverse character of various parts of the county.

## What are Goals, Objectives, and Policies?

Each chapter, or "element," of the Subarea Plan includes goals, objectives, and policies for the long-term development of the Bayview Ridge Subarea.

A **goal** is a direction-setter. It is an ideal future end, condition, or state related to the public health, safety, or general welfare toward which planning and implementation measures are directed. A goal is a general expression of community values and, therefore, is abstract in nature. Consequently, a goal is generally not quantifiable, time-dependent, or suggestive of specific actions for its achievement.

An **objective** is a specific end, condition, or state that is an intermediate step toward attaining a goal. It should be achievable and, when possible, measurable time-specific. An objective may only pertain to one particular aspect of a goal or it may be one of several successive steps toward goal achievement. Consequently, there may be more than one objective for each goal.

A **policy** is a specific statement that guides decision-making. It indicates a clear commitment of the local legislative body. A policy is based on a comprehensive plan's goals and objectives as well as the analysis of data. A policy can be implemented through zoning, land division, and environmental ordinances.

## Existing Conditions in the Subarea

### Existing Natural Environment

The Bayview Ridge Subarea is situated within the Padilla Bay watershed on a topographic bench outside and above the floodplain and prime agricultural lands. The Subarea generally slopes from the east to the south and west; the western and northwestern edges of the Subarea are formed by hillsides approximately 150 feet above the valley floor. Figure 1-2 shows an aerial view of the Subarea.

The natural landscape within the Bayview Ridge Subarea encompasses gently sloping terrain, steep hillsides, numerous wetlands, large stands of mature trees, and open fields. The Subarea does not contain any identified

aquifer recharge areas. Flooding is not a serious hazard in the Subarea as most of the land lies above the floodplains for the Samish River to the north and the Skagit River to the east and south. Potential geological hazards in the Subarea include areas of erosion, seismic, and landslide hazards.



Soils in the vicinity of the airport are mapped as Bow gravelly loam (0 to 3 percent slopes), which is subject to seasonal wetness due to a perched water table. Bellingham silt loam, a very poorly drained soil, is found in smaller depressional areas. The Subarea does not contain "prime farmland soils" as defined in the Skagit County Comprehensive Plan.

Numerous wetlands are scattered throughout the Subarea and are especially prevalent in the western and central portions of the Subarea. Some wetlands have been fragmented or isolated by existing development; others have been hydrologically modified by uncontrolled or poorly controlled stormwater runoff, or support populations of primarily invasive vegetation. The Port of Skagit identified 445 acres of wetlands and buffers within their ownership as part of the Skagit County Wetlands and Industry Negotiation (WIN) Wetland Management Plan. Outside the Port property, the size and location of additional wetlands areas will be determined by onsite assessment when development is proposed.

Higgins Slough transverses the southeastern edge of the Bayview Ridge Subarea, just north of SR 20 in the vicinity of Ovenell and Avon Allen roads. Higgins Slough is known habitat for Coho. No other streams or watercourses are known to exist in the Subarea. Further description of the natural environment is in Chapter 9.

## Existing Development & Land Ownership

Existing development within the Bayview Ridge Subarea, depicted in Figure 1-3, consists of the Skagit Regional Airport, the Port of Skagit Bayview Business Park, other substantial industrial/business developments, and residential subdivisions. The industrial/business development is concentrated in the central and western portions of the Subarea—around the airport, along Farm to Market Road, and along SR 20. Undeveloped parcels of various sizes lie within this industrial area. Residential development and the Skagit Golf and Country Club are located in the higher, eastern edge of the Subarea, above Avon Allen Road. Substantial tracts of vacant land lie between the airport and the residential area, east of the airport. Figure 1-4 depicts large tracts of land, 10 acres or greater, in contiguous private ownership within the Subarea.




### Airport

The Skagit Regional Airport is the largest airport in Skagit County, and the center of considerable industrial development. The airport was originally built in 1933 by the Public Works Administration (PWA) and Works Progress Administration (WPA). The present runway and taxiway system was constructed in 1943 by the United States Navy as an alternate airfield for Whidbey Island Naval Air Station. The airport was transferred to the Skagit County Board of Commissioners in 1958, later to the Anacortes and Skagit port districts, and in 1975, to the sole ownership of the Port of Skagit. Since 1975, the Port of Skagit has worked to improve air transportation facilities and develop adjacent industrial lands. The master plan for the airport was last updated in 2007. More information about the airport is in Chapter 6,

Transportation, and Chapter 11, Essential Public Facilities.

The primary access to the airport and business park is Higgins Airport Way via SR 20 or Josh Wilson Road. Access is also available via Farm to Market Road and Peterson Road.



## Business Park

The Port of Skagit owns 1,970 acres within the Subarea. Of the total ownership, 782 acres are associated with the airport and substantially developed with Aviation Related facilities. The Port also operates the 1,168-acre Bayview Business Park. Of this, approximately 99 acres are developed, and 445 acres are designated as wetland and buffers. The remaining acres are undeveloped and planned for industrial development over the next 20 years.

## Industry

Public and private industrial uses in the western portion of Bayview Ridge include the Skagit County Recycling and Transfer Station, the 243-acre PACCAR Technical Center, the Puget Sound Energy tank farm, the Olympic Pipe Line tank farm, Sierra Pacific Industries, and Washington Alder. Most of these uses are accessible via Farm to Market Road, on the Subarea's west boundary.

## Residential

The 2008 residential population within Bayview Ridge UGA was estimated at 1800. The existing residential areas within Bayview Ridge, including the Skagit Golf and Country Club, were developed primarily between 1950 and 1970. The Skagit Golf and Country Club includes clusters of condominiums among single-family detached homes. The balance of the residences are in single-family subdivisions and individual lots. The Skagit Golf and Country Club development is accessed by Avon Allen Road, with a secondary access from Ovenell Road.

There is currently no road access to the remainder of the Subarea from this area. Residential subdivisions north of the Skagit Golf and Country Club are accessed by Avon Allen Road and Peterson Road.




# LEGEND

Proposed Urban Growth Area Boundary

Aerial Photo 2013

August 27, 2014

0 0.25 0.5
Miles

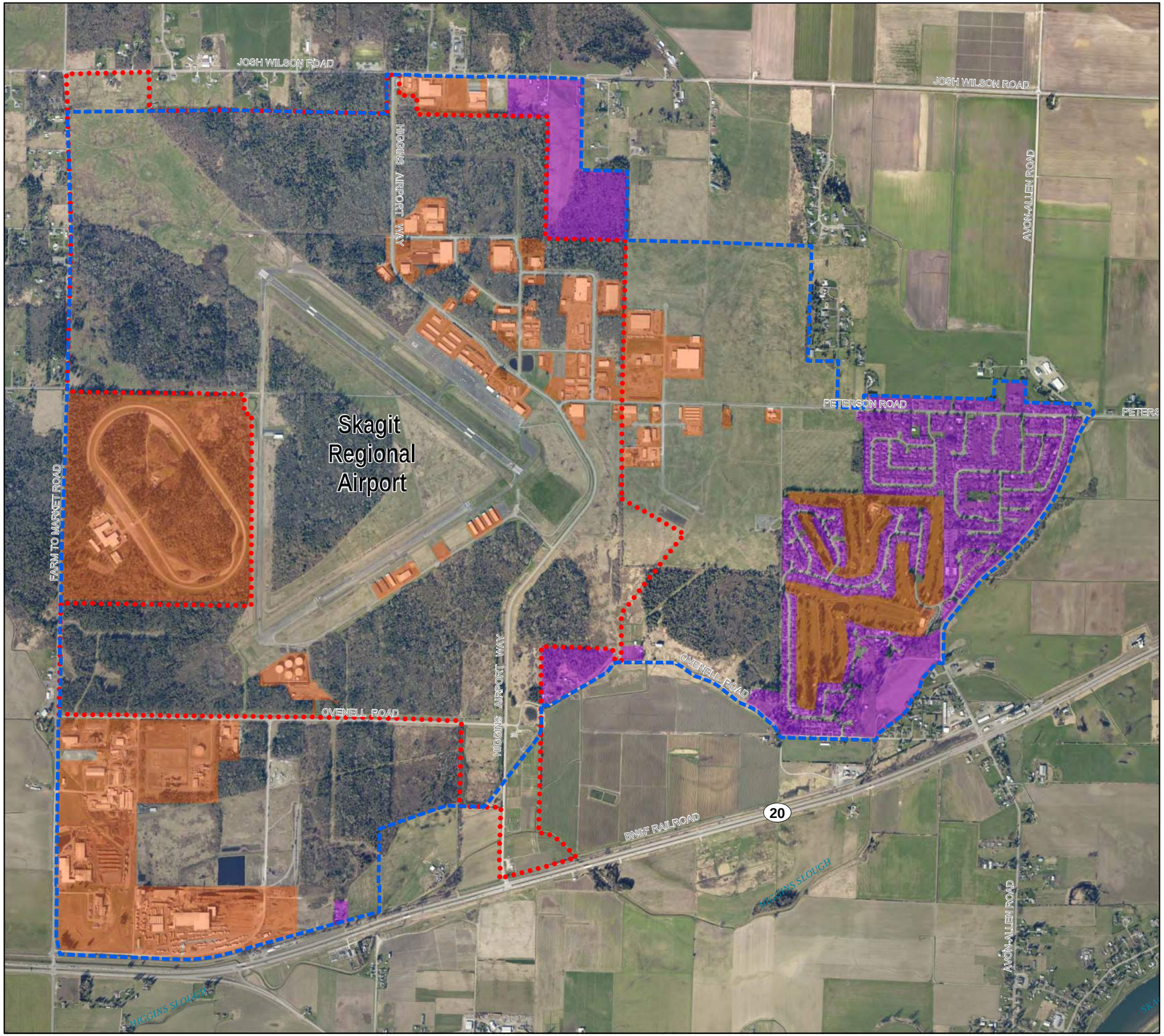
N
W E
S

SKAGIT COUNTY WASHINGTON

## BAYVIEW RIDGE SUBAREA PLAN

## Aerial Photo

**Figure 1-2**




## LEGEND

- Urban Growth Area Boundary
- Port of Skagit County Boundary
- Commercial Developed Parcels*
- Residential Developed Parcels*

* Status based on land use not zoning

Aerial Photo 2013

August 27, 2014

0 0.25 0.5
Miles

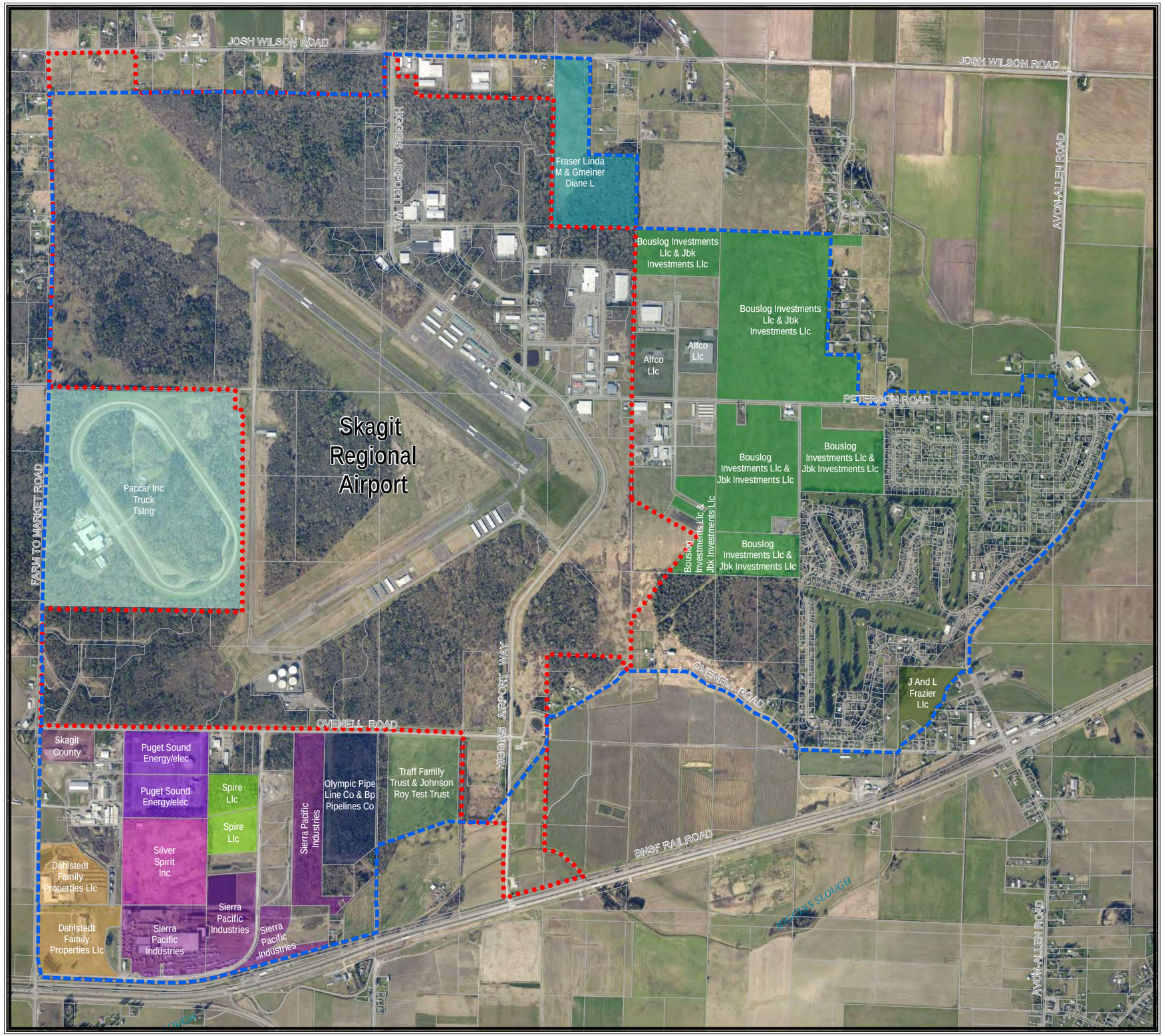
N
W E
S

SKAGIT COUNTY
Scenic Rural Living
WASHINGTON

# BAYVIEW RIDGE SUBAREA PLAN

## Existing Development

**Figure 1-3**




# LEGEND

Urban Growth Area Boundary

Port of Skagit County Boundary

Private Large Lot Ownership
10 Acres or Larger

Aerial Photo 2013

August 27, 2014

0 0.25 0.5
Miles

N
W E
S

SKAGIT COUNTY WASHINGTON

## BAYVIEW RIDGE SUBAREA PLAN

## Private Large Lot Ownership

**Figure 1-4**

## Compatibility with Skagit Regional Airport

The County commissioned a Skagit Regional Airport Land Use Compatibility Study by Reid Middleton in April 2000. The intent of the study was to offer guidance regarding compatible land use development and the preservation of the utility of the Skagit Regional Airport. The three issues of concern and the objectives were:

- **Height Hazards.** To avoid development of land use conditions, which, by posing hazards to navigation, can increase the risk of an accident
- **Noise**. To minimize the number of people exposed to frequent and/or high levels of airport noise
- **Safety.** To minimize the risks associated with potential aircraft accidents to both people and property on the ground and enhance the survival of aircraft occupants

The Skagit Regional Airport Master Plan (June 1995) addressed the height and noise compatibility issues and made recommendations for height and noise compatibility that are consistent with the guidelines provided by the Federal Aviation Administration (FAA). Skagit County subsequently adopted development ordinances related to height and noise.

There are two maps that depict height restriction contours that enable Skagit County Planning and Development Services and permit applicants to determine if their proposed project falls within the contours that require an FAA permit (7460-1) or would likely exceed Part 77 surface limitations.

The third issue of safety is more problematic. The question is what constitutes an acceptable level of risk. For areas where aircraft accident potential is greatest, certain types of land uses are considered unwise.

Three strategies are employed in minimizing the risks associated with potential aircraft accidents, including:

- Density limitations on the maximum number of dwellings, size of dwellings, or structures in areas close to the airport.
- Open space requirements to enhance safety for the occupants of an aircraft forced to make an emergency landing away from a runway.
- Avoiding certain critical types of land uses, particularly schools, hospitals, and others where the mobility of occupants is effectively limited.

The Skagit Regional Airport Land Use Compatibility Study identified and graphically illustrated five airport zones where uses should be strictly limited and a sixth zone, known as the traffic pattern zone. The County adopted an Airport Environs Overlay that reflects these six zones with limitations on uses and densities as well as open space requirements.




In 2011, the Washington State Department of Transportation updated its guidebook for land use planning near airports (*Airports and Compatible Land Uses Guidebook, January 2011)*. As a result of the new guidance, and based on the expectation that Skagit Regional Airport will eventually extend its main runway, the County revised its Airport Environs Overlay code and map concurrent with the 2014 Subarea Plan update. Several of the existing airport protection zones changed size and shape. Because of the restrictions on residential uses in airport zones 4 and 6, most of the subarea will not be able to accommodate the new residential development at urban densities as previously planned.

In 2014, Skagit County consulted with the Washington State Department of Transportation (WSDOT) Aviation Division regarding the proposed revisions to the Subarea Plan and development regulations pursuant to RCW 36.70.547 and 36.70A.510. WSDOT praised Skagit County for implementing the best management practices

set forth in the 2011 Guidebook regarding airport compatibility. Specifically, WSDOT commended:

- Downsizing the UGA by removing unused residential zoning and allowing residential development to move forward at compatible rural densities.
- Encouraging compatible light industrial development.
- Updating the airport environs overlay to reflect the anticipated runway extension and WSDOT's 2011 Guidebook.
- Promoting infill development.

# Chapter 2 Land Use, Community Character, and Design

*general distribution, location, and appropriate intensity and density of land uses throughout the subarea, and compatibility with Skagit Regional Airport*

The Land Use Element addresses future land use within the Bayview Ridge Subarea. The Land Use Element specifically considers the general distribution and location of land uses, the appropriate intensity and density of land uses given development trends, and provides policy guidance for new industrial and commercial development. Because large areas will be developed over the 20-year period, how that development affects the existing community is a key issue.

## Existing Conditions

### Historically

Some 13,000 years ago, retreating glaciers deposited gravelly material that created this unique setting: a plateau with an incredible panorama of gorgeous, fertile Skagit County farmlands, San Juan Islands, salt water, and two mountain ranges.

In 1933, what is now known as the Skagit Regional Airport was first built by the Works Progress Administration (WPA). The airfield was then taken over by the military in approximately 1938 and developed as a satellite military airfield to Whidbey Island Naval Air Station. Over time, Bayview Ridge developed sporadically; the industrial base and urban density residential elements developed concurrently but independently. The industrial area developed because of available land outside of primary agricultural lands, while the residential subdivisions and golf course communities were created to take advantage of the spectacular setting. Public and private utility and infrastructure created a climate of development, but without a common theme, strategy, or particular sense of community. In more recent years the State of Washington passed the 1990 Growth Management Act (GMA) and the Bayview Ridge area has evolved into an independent, non-municipal urban growth area (UGA) without a Subarea Plan to manage and support its development.




### Existing Land Uses

The Bayview Ridge Subarea encompasses a mix of industrial, commercial, public, residential, and wetlands/buffers land uses, as well as vacant land. The Subarea is separated from the surrounding agricultural valley by both arterial streets and topography. This separation allows the Subarea to maintain its unique identity.

Land use within the Bayview Ridge Subarea is influenced by the long-term needs of the Skagit Regional Airport, an essential public facility. Much of the Subarea lies within the Airport Environs Overlay (AEO) zone. Preserving the utility of the airport while ensuring public safety is an important land use compatibility issue.

## Infrastructure

Additionally, the Subarea has a long history of industrial and residential development and infrastructure investment, from public and private entities, outside the Skagit Regional Airport property. For example, the Subarea includes more than one mile of frontage on the Burlington Northern and Santa Fe Railroad line. Burlington Northern and Santa Fe Railroad upgraded its switching capabilities in Burlington to serve this section of track. Additionally, an extensive network of underground electrical distribution lines as well as high capacity high voltage line running along SR 20 also serves the area. The high voltage lines are sufficient to serve additional sub-stations as may be required by heavy industrial users. Similarly, two large natural gas lines run along the southern part of the Subarea and are available to serve industrial and other uses. Public water service is provided to the Bayview Ridge Subarea by Skagit Public Utility District. The sanitary sewer system is provided and maintained by the City of Burlington. Fiber optic lines were installed throughout the industrial and commercial areas to serve the communication needs of existing and future commercial and industrial uses. The combination of infrastructure and the location of the Subarea along SR 20, surrounding the Skagit Regional Airport and bound by residential development at urban densities on the East, make the Subarea unique and ideally suited for further development.

## Essential Public Facilities

Essential Public Facilities are defined by the Growth Management Act to include facilities such as airports, state education facilities, state or regional transportation facilities, state and local correctional facilities, solid waste handling facilities, and in-patient facilities. These facilities, although often difficult to site, are essential to the functioning of the community as a whole. GMA requires every comprehensive plan include a process for siting such facilities. Skagit County provides for the siting of new essential public facilities through Chapter 10 of the Skagit County Comprehensive Plan.



The Comprehensive Plan identifies three existing countywide essential public facilities, two of which are located in the Bayview Ridge Subarea—the Skagit Regional Airport and the Skagit County Recycling and Transfer Station. The subarea plan must provide for continued utility of these facilities in light of proposed development.

In the development of this Subarea Plan, the constraints on land use resulting from the Skagit Regional Airport and Skagit County Recycling and Transfer Station have been considered at length. The Skagit Regional Airport Land Use Compatibility Study (May 2000) was prepared specifically to address compatibility with respect to height, noise, and land use/safety concerns.

The Subarea Plan addresses the long-term viability of the Skagit Regional Airport. The central and northwestern portions of the subarea are zoned for Aviation Related uses (the AVR zone and AVR-L zone). The majority of Bayview Ridge lies within a special Airport Environs Overlay (AEO) zone that addresses issues such as land use, density, height, and provision of open space. Additionally, policies in Chapter 3 further address the importance of the airport to both the Subarea's and the entire County's economic development strategy.

The Transfer Station is located in the Bayview Ridge Heavy Industrial area, as far as practical from existing residential development.

## Land Use Plan

The Bayview Ridge Subarea Land Use Plan, shown in Figure 2-1, is based on a vision of how the area should grow and develop while protecting a high quality of life and equitably sharing the public and private costs and benefits of growth. The Plan supports the existing urban land use patterns, takes the unique condition of the Skagit Regional Airport into consideration along with the unique natural features of the Subarea, and establishes the framework for urban governmental services and facilities in the Bayview Ridge community. The overall intent of the Plan is to maintain a cohesive community, providing for an urban level of development with urban services.



Future land use within the Bayview Ridge Subarea will build on the existing land use pattern and will primarily be business/industrial and Aviation Related uses. Limited retail uses along Peterson Road are allowed to help serve the residential and employment population. Land use designations within the UGA include:

- Bayview Ridge Residential (BR-R)
- Bayview Ridge Light Industrial (BR-LI)
- Bayview Ridge Heavy Industrial (BR-HI)
- Aviation Related (AVR)
- Aviation Related-Limited (AVR-L).

Almost all of the Bayview Ridge Subarea lies within the Airport Environs Overlay, which promotes land uses compatible with the airport and prohibits certain uses. Prohibited uses include those within which the occupants cannot move quickly out of harm's way (e.g., hospitals, nursing homes), most aboveground storage of flammable materials or other hazardous substances, and mobile home parks. Each of the Subarea land use designations and associated zoning regulations is consistent with the AEO zone.

The Residential (BR-R) zone reflects existing residential development and some additional opportunities for residential infill of vacant parcels. BR-R is characterized mainly by single-family residences but may accommodate a variety of housing types. Minimum density in BR-R is four units per acre, except for development on individual existing lots of record consistent with the community character.

The Light Industrial (BR-LI) zone provides for light manufacturing and related uses, encompasses the majority of the Port of Skagit ownership and additional properties east and south of the airport. This zone is designed for compatibility with the Skagit Regional Airport and establishes performance standards, including restrictions on building height and particulate and smoke emissions. Where the BR-LI zone abuts residential properties, buffers are required to protect the residential development. Along Peterson Road, some retail and commercial uses are allowed.

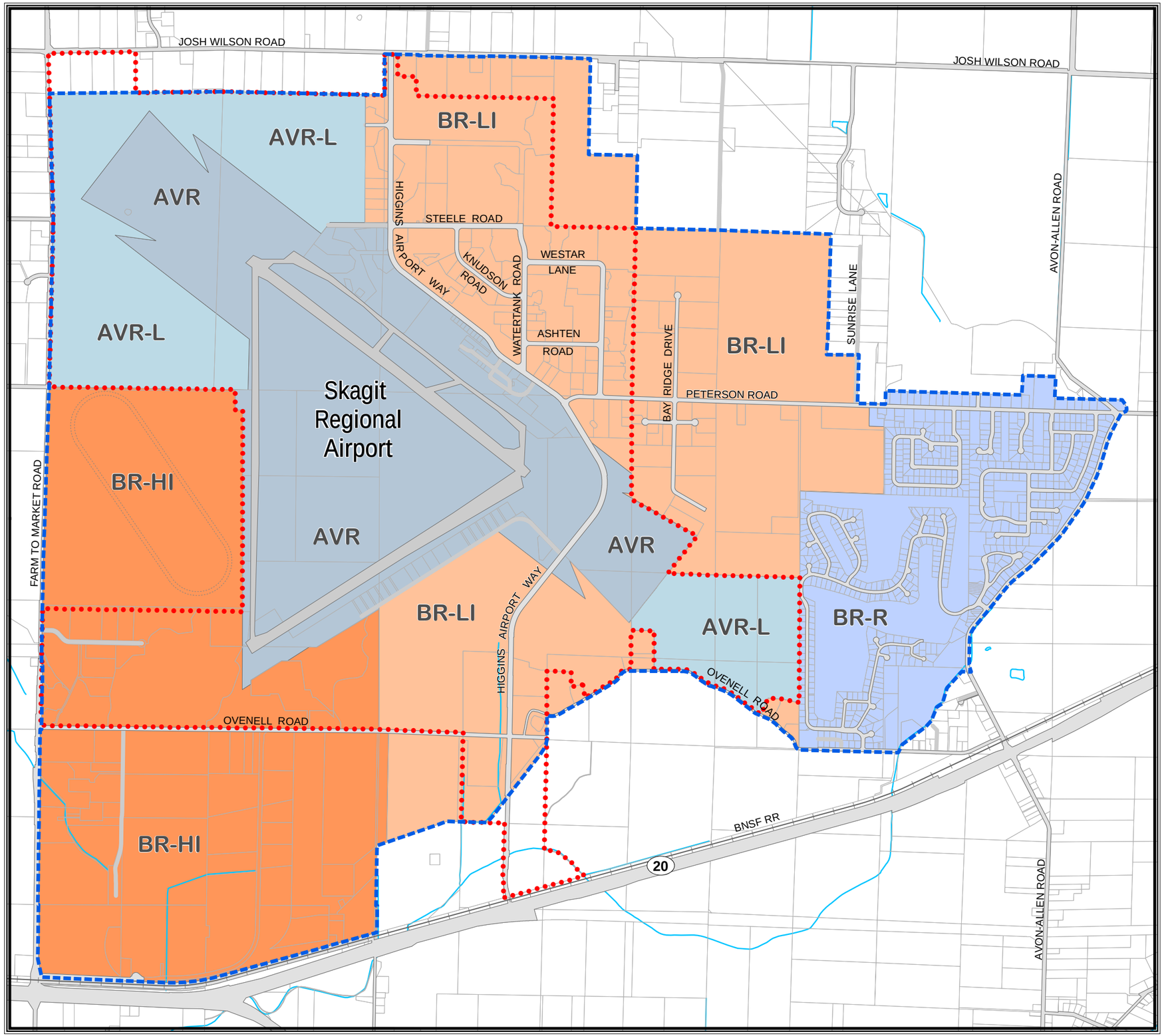
The Heavy Industrial (BR-HI) zone at the southwest corner of the Subarea includes the PACCAR Technical Center, Sierra Pacific sawmill, the Skagit County Recycling and Transfer Station and other recycling facilities.





The Aviation Related (AVR) zone provides for uses directly related to the airport and encompasses the airport runways, taxiways, the terminal, and their immediate environs. The AVR zone also provides for amenities related to the airport terminal such as a restaurant. All AVR land is owned by the Port of Skagit.

The Aviation Related-Limited (AVR-L) zone provides for limited uses essential for operation of the airport, such as aviation navigation markers, as well as a limited amount of light industrial development. Land designated AVR-L in the 2014 update of the Subarea Plan was previously designated BR-LI. A total of 20 acres within AVR-L may be developed consistent with uses allowed within the BR-LI zone, with those areas to be determined at the time of application.




## LEGEND

- Urban Growth Area Boundary
- Port of Skagit County Boundary
- [AVR] Aviation Related
- [AVR-L] Aviation Related - Limited
- [BR-R] Bayview Ridge Residential
- [BR-LI] Bayview Ridge Light Industrial
- [BR-HI] Bayview Ridge Heavy Industrial

August 27, 2014

0 0.25 0.5
Miles

N
W E
S

# BAYVIEW RIDGE SUBAREA PLAN

## Land Use Plan

Figure 2-1

Open space is required for new development consistent with the Airport Environs Overlay to ensure compatibility with Skagit Regional Airport.

The Port of Skagit's extensive trail network is a prominent feature of the Subarea. The Subarea plan envisions expansion of the trail system throughout the Subarea and inclusion of pocket parks within BR-LI both as a recreational resource for residents and workers and a functional element of the transportation system, particularly in improving worker, resident, and visitor connections between uses, services, and amenities.

Table 2-1 shows the *estimated* land available for development in each of the land use designations. The total acreage that is undevelopable cannot be determined until the application stage when critical areas and other areas that cannot be developed (drainage structures, pipelines, required parks, etc.) are accommodated on the site plans.

### Table 2-1 Bayview Ridge UGA Zoning

| Zone | Developed Acres | + | Developable Acres | + | Undevelopable Acres | = | Total Acres |
|---|---|---|---|---|---|---|---|
| Aviation Related (AVR) | 763 | | Infill | | 5 | | 768 |
| Aviation Related-Limited (AVR-L) | 0 | | 20 | | 374 | | 394 |
| Heavy Industrial (BR-HI) | 487 | | 272 | | 149 | | 908 |
| Light Industrial (BR-LI) | 169 | | 647 | | 288 | | 1,104 |
| Residential (BR-R) | 350 | | 16 | | 46 | | 412 |
| SUBAREA TOTAL | 1,769 | | 955 | | 862 | | 3,586 |

## Community Character & Design

The intent of the Subarea Plan is to accommodate new development in a manner that is compatible with Skagit Regional Airport and respects and enhances the quality of life currently enjoyed by residents in Bayview Ridge. Private and public development decisions should reinforce a clear distinction and separation between commercial/industrial and residential areas. The Subarea Plan encourages development within BR-LI consistent with the existing style of campus-like business park uses attractive to workers, potential business clients, and nearby residents.

Goals, objectives, and policies that promote community character and design are found throughout the Bayview Ridge Subarea Plan since each element of the Plan impacts the character of the Subarea.

# Goals, Objectives, and Policies

**Goal 2A** **Provide for urban development within the Bayview Ridge UGA, which integrates existing and proposed uses, creating a cohesive community.**

*Objective 2A-1* *Manage urban land use patterns in the community to optimize and balance the types and locations of uses.*

Policy 2A-1.1 Develop regulations for Bayview Ridge Heavy Industrial and Light Industrial zones that provide areas for industrial development compatible with Skagit Regional Airport and adjacent residential use, and are largely devoid of nuisance factors, hazards, or exceptional demands on public facilities.

Policy 2A-1.2 Discourage uses that conflict with the continued operation of the Skagit Regional Airport, as identified in the Skagit Regional Airport Master Plan and the WSDOT 2011 Airport and Compatible Land-Use Program Guidebook, through the Airport Environs Overlay (AEO).

*Objective 2A-2* *Provide and maintain adequate infrastructure and an adequate level of urban services to accommodate proposed development.*

Policy 2A-2.1 Encourage the joint use of public facilities, including public safety facilities.

Policy 2A-2.2 Provide for a well-connected network of streets and trails to serve new development.

*Objective 2A-3* *Protect lowland property from stormwater impacts of development on the ridge.*

Policy 2A-3.1 Require all new development to comply with Ecology's 2012 Stormwater Management Manual for Western Washington.

Policy 2A-3.2 Encourage the use of permeable surfaces and other new technologies in building construction and property development, consistent with County drainage regulations.

Policy 2A-3.3 Encourage cost-sharing arrangements that include Skagit County, drainage districts, and developer participation in the funding of required drainage improvements.

Policy 2A-3.4 Provide adequate enforcement, maintenance, and inspection services for storm drainage facilities.

Policy 2A-3.5 Provide businesses and residents of the Subarea with information regarding water quality and potential impacts to water quality from new development.

**Goal 2B** **Strengthen community identity and maintain a high quality of life through creative, high quality design.**

*Objective 2B-1* *Retain and strengthen the significant features of the natural landscape.*

Policy 2B-1.1 The land use pattern and transportation network should respect existing land forms and should use existing natural features to provide definition between various parts of the Subarea.

Policy 2B-1.2 Require new industrial development to retain and/or plant natural vegetation in landscape areas and buffers not subject to development.

*Objective 2B-2* *Adopt development standards that strengthen community character and identity.*

Policy 2B-2.1 Require that building height and scale reflect the character of the area and ensure safe airport operations.

Policy 2B-2.2 Encourage the development of open space that is both aesthetically pleasing, has functional value, and is well-integrated with adjacent development. Functional open space includes the provision of land for aircraft safety as well as recreation opportunities.

Policy 2B-2.3 Require landscaping in all new commercial and industrial development, including streetscapes. Encourage use of native plants in such landscaping.

Policy 2B-2.4 Require industrial development adjacent to residential areas to provide a sight-obscuring buffer of a size and composition adequate to reduce visual and auditory impacts and provide vegetative relief, preferably retaining vegetation where it already exists.

Policy 2B-2.5 Create and maintain physical and visual linkages throughout the Subarea.

*Objective 2B-3* *Achieve quality community character along Peterson Road through development standards and transportation planning.*

Policy 2B-3.1 Allow retail uses along Peterson Road to support both commercial/industrial uses and neighboring residential.

# Chapter 3 Business & Industrial Development

*economic development opportunities within the public and private industrial areas surrounding the Skagit Regional Airport*

## Existing Conditions

Bayview Ridge has unique economic development opportunities. The growth of industry around the airport has created over 1,000 manufacturing jobs for Skagit County. The Bayview Ridge area capitalizes on convenient access to SR 20 and easy access to I-5, midway between Seattle/Bellevue and Vancouver, B.C.; a mixture of construction-ready industrial sites, both small and large; immediate access to Skagit Regional Airport and rail service; and, the supporting infrastructure (public water, sanitary sewer, storm drainage, natural gas, electricity, and telecommunication services). The location is ideally situated for both light and heavy industry, and infrastructure is either already in place or has been planned for. The location adjacent to Skagit County's largest airport provides the opportunity for air cargo, aviation business use and commuter service.




### Skagit Regional Airport

Development within Bayview Ridge began with Skagit Regional Airport, located in the central and western portions of the Subarea. This a general aviation airport is owned by the Port of Skagit and is the largest airport in Skagit County.

The 2007 Skagit Regional Airport Master Plan extends through the year 2025. The Plan predicts an increase from 57,400 annual take-offs and landings in 2004, to 81,462 operations by 2025, a more modest prediction than the 1995 master plan, which anticipated 100,000 operations by 2013. Future general aviation operations will continue to be dominated by business oriented flight, private transportation, flight training, or other forms of non-commercial activity using jet, turboprop, rotor aircraft and single- and multi-engine piston aircraft. Air cargo operations are also forecast to remain steady at two flights per day.

The Port has completed the purchase of the small remaining portions of the Runway Protection Zone, thereby complying with the recommendations of the Skagit Regional Airport Land Use Compatibility Study.

### Bayview Business Park

In addition to the development within the Port of Skagit ownership, light industrial and heavy industrial uses have been developed on private and public properties surrounding the airport. As of 2014, some of the major businesses are the PACCAR Technical Center, Skagit Soils, Lautenbach Industries, Sierra Pacific Industries, Hughes Farms, FedEx Ground and FedEx Express, Hexcel, and Alf Christianson Seed Company.

### Development Opportunities

The Subarea Plan recognizes the existing development pattern and designates the western and central portions of Bayview Ridge for continued business and industrial development. The primary zones available for new

commercial/industrial development are Light Industrial (BR-LI) and Heavy Industrial (BR-HI).

The Aviation Related (AVR) zone, adjacent to and including the airport, provides only very limited opportunities for in-fill development, and redevelopment. The Aviation Related-Limited (AVR-L) zone provides no development opportunities except for an area of 20 acres to be located at time of application.

Countywide Planning Policy 1.1 allocates commercial and industrial acreage to the County's several urban growth areas. Both Port and privately owned properties are accounted for in CPP 1.1.



## Skagit County Comprehensive Economic Development Strategy (CEDS)

The 2003 Comprehensive Economic Development Strategy (CEDS) recommends goals, objectives, and policies for economic development in Skagit County. Goal statements are summarized as follows:

***Employment:*** Create and maintain diverse employment opportunities that meet the changing income needs of Skagit County residents.

***Business Development:*** Sustain and enhance the economic utilization of Skagit County's (value-added) natural resources and attract a more diversified base of non-resource industries consistent with local quality of life and environmental values, including high-tech industries.

***Commercial Activity:*** Provide a range of commercial retail and service businesses at appropriate locations to meet local resident needs and serve visitors to Skagit County.

***Visitor Services:*** Establish Skagit County as a visitor destination by preserving and enhancing the unique qualities of both rural areas and urban communities.

***Human Services:*** Provide a full range of human and social services necessary to encourage a strong local economy.

***Conservation & Economic Development:*** Encourage economic development that conserves natural resources and open spaces, protects environmental quality, and enhances Skagit County's overall quality of life.

***Transportation & Economic Development:*** Provide, maintain, and encourage a transportation system that is adequate to attract and accommodate economic growth.

***Business & Investment Climate:*** Foster a public-private cooperative partnership involving Skagit County, local cities, tribal governments, and state and federal agencies that is supportive of diverse business operations and investments throughout Skagit County.

The Comprehensive Economic Development Strategy and the Skagit County Comprehensive Plan recognize the importance of the Bayview Ridge commercial/industrial area. As stated in the CEDS: "The dominant player in the industrial property market in recent years has been the Port of Skagit's Bayview Business and Industrial Park."

While the Port of Skagit business park continues to provide for expanded employment opportunities in the area, there has been increased development activity, capital investments, and marketing by landowners with private holdings in close proximity to the Port's Bayview properties. The area adjacent to Skagit Regional Airport is considered a top priority area for economic development located outside of a municipality or natural resource area.



## The Subarea Plan's Approach

Creating and maintaining a stable and diverse economy is important for many reasons. A diverse employment base provides a variety of job opportunities for Skagit County residents. It also minimizes the vulnerability of the local economy to economic fluctuations. A strong and stable economy also generates considerable revenues that help stabilize the local tax base so that local government is able to provide many needed and valued services.

# Goals, Objectives, and Policies

**Goal 3A** **Create a high-quality environment to live and work in Bayview Ridge.**

*Objective 3A-1* *Create and maintain diverse employment opportunities that meet the changing income needs of Skagit County residents.*

Policy 3A-1.1 Facilitate the creation and retention of family wage jobs to meet the needs and demands of Skagit County households.

Policy 3A-1.2 Encourage diverse job options and entrepreneurial opportunities for persons interested in full-time and part-time employment or desiring to own their own business.

Policy 3A-1.3 Actively encourage business investments that provide economic and employment opportunities to meet the employment needs of all county residents.

Policy 3A-1.4 Work cooperatively with local jurisdictions, the Port of Skagit, and the Economic Development Association of Skagit County to address employment needs consistent with countywide regional policies.

Policy 3A-1.5 Market Bayview Ridge as a community and a place to conduct business and commerce.

Policy 3A-1.6 Encourage the entrepreneurial spirit in those desiring to start their own business.

Policy 3A-1.7 Monitor the availability of industrial land as part of the comprehensive planning process.

*Objective 3A-2* *Sustain the economic utilization of Skagit County's natural resources and attract a more diversified base of non-resource industries consistent with local quality of life and environmental values.*

Policy 3A-2.1 Plan for a diversity of ready-to-build sites with sufficient infrastructure and support services needed to meet demand for industrial land.

Policy 3A-2.2 Encourage clean up, re-use, and redevelopment of vacant or underutilized industrial sites.

*Objective 3A-3* *Encourage economic development that conserves natural resources and open spaces, protects environmental quality, and enhances Skagit County's overall quality of life.*

Policy 3A-3.1 Encourage development of commercially and environmentally viable recycling businesses.

Policy 3A-3.2 Keep development standards in place that are clear, reasonable, and economically feasible, and that provide for concurrent mitigation of impacts on transportation, drainage, parks, public safety, and other elements of the environment.

*Objective 3A-4* *Provide, maintain, and encourage a transportation system that is adequate to attract and accommodate projected economic growth.*

Policy 3A-4.1 Support the Port of Skagit in promoting the continued growth of general/business aviation while encouraging cargo service operations at Skagit Regional Airport consistent with the Skagit Regional Airport Master Plan.

Policy 3A-4.2 Develop and coordinate programs and implement projects to achieve combined objectives of transportation and economic development.

Policy 3A-4.3 Plan and site each new development to minimize the impact of new traffic generated on the level of service. Maintain the level of service for roads and intersections as adopted in the Skagit County Comprehensive Plan. Ensure that concurrent mitigation is feasible and that there will not be a need to curtail new development because of traffic impacts on level of service.

Policy 3A-4.4 Work with the State Department of Transportation, the Port of Skagit, and the

City of Burlington in the ongoing program to improve the intersections with SR20.

Policy 3A-4.5 Provide for a quality working environment through appropriate public and private amenities including public and private infrastructure, open space, and landscaping.

Policy 3A-4.6 Encourage intermodal connections with future passenger and freight rail, commuter transit, and park and ride lots because they are all significant for the future growth and development of the industrial base in Bayview Ridge.

Policy 3A-4.7 Provide well-defined access routes into the industrial area that do not conflict with access to the residential area.

*Objective 3A-5* *Foster a public -private cooperative partnership involving Skagit County, local cities, tribal governments, and state and federal agencies that is supportive of diverse business operations and investments throughout Skagit County.*

Policy 3A-5.1 Provide the public services and public facilities necessary to support a high quality of life and attract business investment.

Policy 3A-5.2 Develop a long-term program that effectively builds local capacity for sustained economic development.

Policy 3A-5.3 Provide planning flexibility that will be responsive to unforeseen or changing economic conditions and community expectations.

Policy 3A-5.4 Review land use and permitting procedures to ensure that regulatory processes are understandable, predictable, and can be accomplished within reasonable time periods in a manner that meets or exceeds state statutory requirements.

Policy 3A-5.5 Encourage business investment as a means to provide job opportunities for Skagit County residents.

Policy 3A-5.6 Encourage economic development that creates a net positive fiscal impact for Skagit County and local communities.

**Goal 3B** **Ensure continued use of Skagit Regional Airport, recognizing its role as a major force for economic development countywide.**

*Objective 3B-1* *Support the Port of Skagit in its efforts to provide airport facilities and services for all users in a manner that maximizes safety, efficiency, and opportunity for use.*

Policy 3B-1.1 Maintain and ensure the continued preservation and utility of the Skagit Regional Airport during its expected future growth as identified in the Skagit Regional Airport Master Plan.

Policy 3B-1.2 Work with the Port of Skagit to adopt development standards that allow development of the airport consistent with the approved Master Plan while providing for a high-quality business and industrial environment.

Policy 3B-1.3 Coordinate capital facility planning within Bayview Ridge with the Port of Skagit.

Policy 3B-1.4 Work with the Port of Skagit to enhance the opportunities for business and industrial development within Bayview Ridge.

Policy 3B-1.5 Clearly identify any required land use constraints necessary to protect the long-term viability of the airports in all Bayview Ridge development standards.

Policy 3B-1.6 Actively participate in the Airport Master Plan Update process.

# Chapter 4 Housing

*policies that promote a diversity of housing opportunities at all income levels that can support future job growth within the subarea*

## Existing Residential Development

The existing residential atmosphere and quality of life within the Subarea are highly valued by Bayview Ridge residents. The existing Bayview Ridge residential subdivisions as well as a few undeveloped properties are within the Bayview Ridge Residential (BR-R) zone. The Bayview Ridge Subarea Plan acknowledges and makes the most of the existing urban infrastructure and pre-GMA residential development at urban densities.

A mix of housing types make up the existing residential development, which is located in the higher, eastern edge of the Subarea, above Avon Allen Road. The majority of this development consists of residential subdivisions that lie between Peterson Road and Ovenell Road. As of 2008, approximately 402 acres within the Subarea were devoted to residential and golf course development.

As of 2008, there were 722 housing units, home to approximately 1,800 people, in the entire Bayview Ridge Urban Growth Area. Consistent with urban residential development, existing development is at about four units per acre: 46 percent of the existing homes in the Bayview Ridge Subarea are on lots sized quarter-acre or less and 77 percent of the lots are on lots third-acre or less. Only four percent of the existing homes are on lots greater than one acre. Figure 1-3 illustrates the density of existing development in the Bayview Ridge Subarea.

These existing urban density residential subdivisions were developed primarily between 1950 and 1970, and are served by public sanitary sewer and public water. A second wave of development began in the mid-1980s continuing throughout the late 1990s. The majority of these subdivisions are occupied by single-family homes. A few clusters of condominiums are located adjacent to the Skagit Golf and Country Club, and one area of large-lot development is located north of Peterson Road, along Sunrise Lane.



The Skagit Golf and Country Club development is accessed by Avon Allen Road, with a secondary access to Ovenell Road. Residential subdivisions to the north of Skagit Golf and Country Club are accessed via Peterson Road.

## The Subarea Plan's Approach

The Subarea Plan anticipates only infill urban residential development within existing residential areas. This residential development must be compatible with both GMA standards for urban areas and continued operation of the Skagit Regional Airport.

Densities within the urban residential area (BR-R), which is primarily within Airport Compatibility Zone 6, will maintain an average of four units per acre. This density is consistent with the 2000 *Skagit Regional Airport Land Use Compatibility Study*, the 2011 WSDOT Airport and Compatible Land-Use Program Guidebook (allowing infill), and requirements of GMA.

The Subarea Plan intends to maintain the existing quality of life in Bayview Ridge as new infill residential and new commercial/industrial development occurs. The BR-R zone accommodates a variety of housing types and options including detached single-family residences, apartments, condominiums, duplexes, townhouses, and accessory dwelling units.



## Goals, Objectives, and Policies

**Goal 4A** **Maintain the existing residential community that continues to reflect a high quality of life.**

*Objective 4A-1* *Preserve and improve existing neighborhoods.*

Policy 4A-1.1 Maintain the existing housing stock in good condition.

Policy 4A-1.2 Prohibit or minimize truck traffic on residential streets through Load Limits and designated Truck Routes.

Policy 4A-1.3 Control nuisances, including junk, old cars, and litter through active code enforcement.

Policy 4A-1.4 Provide for transitions between residential and more intense industrial uses through requirements for buffers between potentially incompatible zoning districts. Monitor effectiveness of performance standards and provide additional protection if warranted with increased buffer areas, screening requirements, height, and setback limitations or other mechanisms.

Policy 4A-1.5 Ensure provision of urban level of services and infrastructure, and encourage rehabilitation of existing infrastructure.

Policy 4A-1.6 Provide opportunities for infill development of market rate housing within existing neighborhoods in a style and manner of design consistent with the housing stock within that particular neighborhood.

*Objective 4A-2* *Ensure new development is compatible with the character and future vision of the community.*

*Objective 4A-3* *Carefully integrate access to public open space, parks, and recreation opportunities into neighborhoods.*

Policy 4A-3.1 Encourage parks and open space throughout the community.

Policy 4A-3.2 Encourage pedestrian and transit links to provide good public access to open space, parks, and recreational areas.

Policy 4A-3.3 Encourage open space, park development, and neighborhood improvements through the Parks and Recreation Comprehensive Plan and Capital Improvement Plan.

# Chapter 5 Transportation

*transportation facilities and Level of Service standards and other policy commitments for motorized and non-motorized transportation networks within the subarea*

Both existing and future development require safe and efficient transportation systems for the movement of people and goods. The purpose of the Transportation Element is to identify the types, location, and extent of existing and proposed transportation facilities and services. These include streets and highways, air, rail, transit systems, pedestrian, and bicycle uses.

## System Inventory

This section of the Transportation Element describes the existing transportation system in Bayview Ridge. This inventory was used to identify and analyze existing and future transportation deficiencies, to analyze impacts of development upon the transportation system, and to identify transportation improvement projects needed to remedy deficiencies.

### General System Description

Transportation facilities serving the Bayview Ridge Subarea include a state highway, county roads, the Skagit Regional Airport (an essential public facility), Skagit Transit, and the Burlington Northern Santa Fe Railroad. This Transportation Element focuses on facilities owned and operated by Skagit County.

The Bayview Ridge Subarea is located about two miles west of I-5, immediately north of State Route 20. I-5 is the major north and south corridor through Skagit County, connecting Mount Vernon and Burlington to Vancouver, B. C., and Seattle.

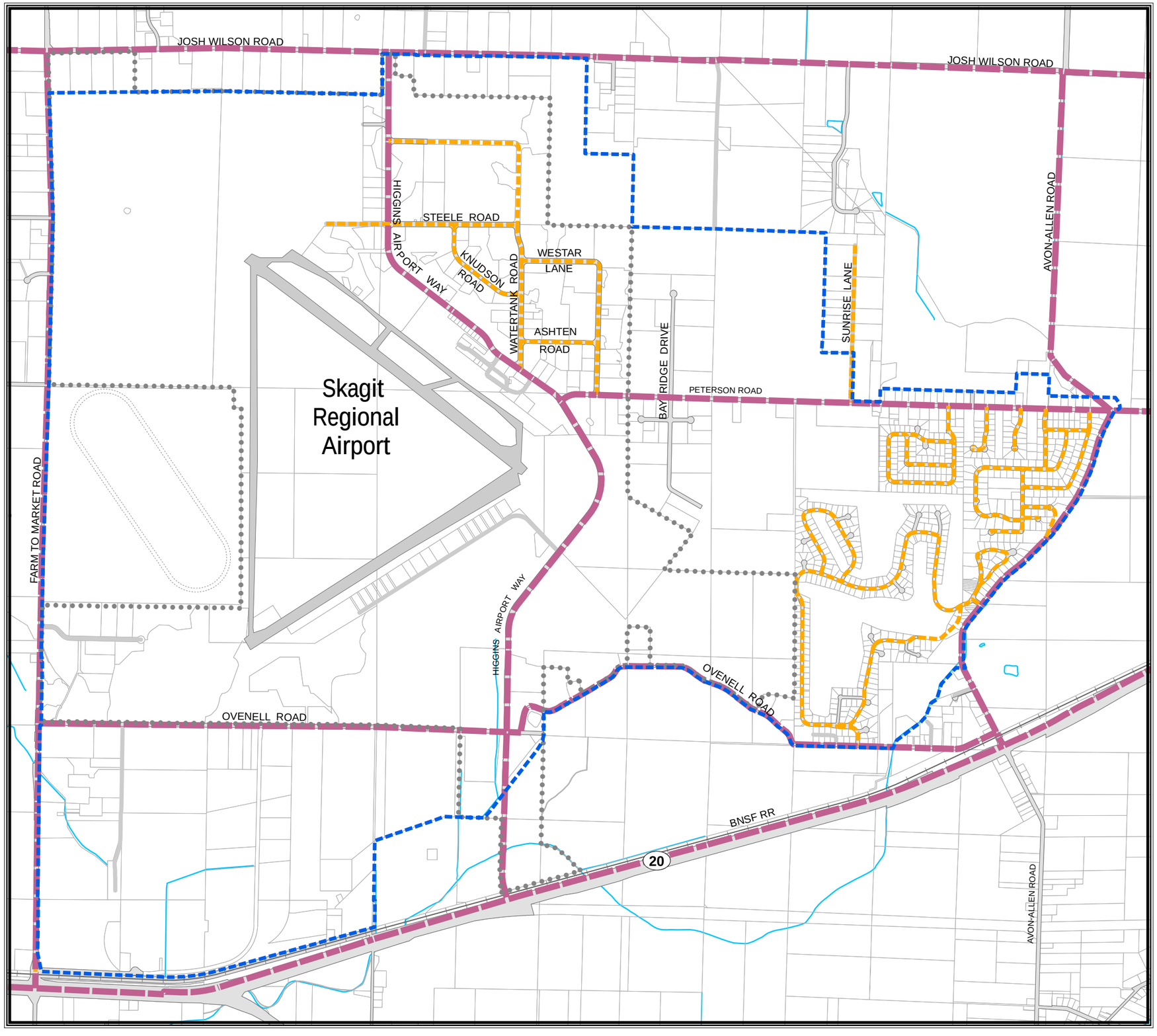
SR 20 is a partially controlled, limited-access highway that connects the eastern and western portions of Skagit County. SR 20 is a designated "transportation facility of statewide significance." From Bayview Ridge, SR 20 provides access to Anacortes, Oak Harbor, and the San Juan ferry system, to I-5, and to Chelan and then Okanogan County via the North Cascades Highway. Within the Subarea, the intersections with Farm to Market Road, Avon Allen Road, and Higgins Airport Way are signalized.



### County Roads

Bayview Ridge contains approximately 20 miles of county roadways, with an irregular pattern of arterials, collectors, and local streets. Figure 5-1 shows the Subarea Roadway System.

Josh Wilson Road, along the northern boundary of the Subarea, connects the community of Bayview Ridge west to SR 11 and east to the City of Burlington. Peterson Road, an east-west urban minor arterial in the central portion of the Subarea, connects the Bayview Ridge area to the City of Burlington's northwest precinct, a residential neighborhood. Farm to Market and Avon Allen Roads on the west and east, respectively, connect the Subarea to SR 20 and communities to the north and south.




# LEGEND

- Proposed Urban Growth Area Boundary
- Port of Skagit County Boundary
- Major Collector
- Local Access

August 27, 2014

0 0.25 0.5
Miles

N
W E
S

SKAGIT COUNTY WASHINGTON

## BAYVIEW RIDGE SUBAREA PLAN

## Roadway System

**Figure 5-1**

Ovenell Road provides an east-west connection between Farm to Market Road and Higgins Airport Way on the west side of the Subarea. It also connects Avon Allen Road to the Country Club residential area from the south. The portion of Ovenell Road between Eagle Drive and Higgins Airport Way does not meet current standards as an urban minor arterial due to geometric and subgrade deficiencies. Higgins Airport Way, in the central portion of the Subarea, provides direct access to the airport and the Port of Skagit's Bayview Business Park from both SR 20 and Josh Wilson Road. Local access roads within the Subarea serve the developed industrial and residential areas.

The State Department of Transportation (WSDOT) has designated various streets and highways within Washington as the State's Freight and Goods Transportation System (FGTS). The FGTS designations are based on estimates of annual gross tonnage hauled. Avon Allen Road, Peterson Road, Farm to Market Road, Josh Wilson Road and Ovenell Road, west of Higgins Airport Way received an FGTS classification of (T3) 300,000 to 4 million tons per year. SR 20 received an FGTS classification of (T1) more than 10 million tons per year.

## Functional Classifications

The Bayview Ridge roadway system is divided into classes according to the function of each roadway segment as defined by the Federal Functional Classification System. A classification defines the major role of a road within the complete existing and future roadway network. The Federal Functional Classification System includes the following urban road classifications: Principal Arterial, Minor Arterial, Collector, and Local Access. Skagit County Public Works will work in conjunction with WSDOT and FHWA to classify the roads within the Bayview Ridge Subarea consistent with federal classification standards.

## Non-Motorized

Skagit County adopted a *Non-Motorized Transportation Plan* (NMTP) in 2004, which currently is undergoing further revisions. The NMTP focuses on non-motorized travel alternatives for Skagit County. These alternatives generally include bicycle, pedestrian, and equestrian facilities. Existing non-motorized facilities within Bayview Ridge consist of limited sidewalks. The Port of Skagit has developed a 10.4-mile trail system available to pedestrians, bicycles, and pets through the Port area. The trail system is a result of the Port's wetland mitigation plan that requires the use of open ditches rather than traditional curb, gutter, and sidewalk construction.



## Non-County Public Transportation Systems

Other service providers within the Bayview Ridge Subarea, including WSDOT, the Port of Skagit, and Skagit Transit, also maintain and operate public transportation systems. A brief description of these providers and their facilities follows.

### Public Transportation Providers

Skagit Transit serves 12 fixed routes and demand responsive service seven days per week. Route 513 serves the southeast edge of the Bayview Ridge Subarea, along Avon Allen Road.

### Airport Facilities

There are three public airports and several private airports in Skagit County: Anacortes, Concrete Municipal, and Skagit Regional.

- The Port of Skagit operates Skagit Regional Airport, the largest and most significant of the three public airports, within the Bayview Ridge Subarea. It serves commercial passenger/cargo, and general/business aviation aircraft as identified in the *Skagit Regional Airport Master Plan*.
- The Port of Anacortes's airport, located approximately two miles west of downtown Anacortes, provides limited commercial service and primarily serves general aviation aircraft.

- The Town of Concrete Municipal Airport also serves small general aviation aircraft.

### Skagit Regional Airport

Skagit Regional, also called Bayview Airport, was built in 1933 as a joint project of the Public Works Administration and Works Progress Administration. The original facility was developed as a single-runway facility serving light aircraft. In 1943, the United States Navy constructed the present runway and taxiway as an alternate airfield for the Whidbey Island Naval Air Station. After World War II, the federal government continued to operate the airport until 1958 when the airport was transferred to Skagit County under the Surplus Property Act of 1944. In 1965, ownership of the airport was transferred to joint ownership between the Port Districts of Anacortes and Skagit. In 1975, ownership was transferred solely to the Port of Skagit.

Skagit Regional Airport is a General Aviation Facility with two runways:

- Runway 11-29: 5,477 feet long by 100 feet wide, with three instrument approaches, Medium Intensity Runway Lights, and Precision Approach Path Indicator (PAPI) navigational aids for both approaches, and long-term plan for precision approach at both ends;
- Runway 04-22 (crosswind): 3,000 feet long by 60 feet wide, with visual approaches, Low Intensity Runway Lights, Precision Approach Path Indicator (PAPI), and planned to host general aviation development.

Airside facilities also include parallel taxiways, aircraft aprons, tie-downs, hangars, and two fuel tank farm pads that will each hold four 12,000-gallon tanks, one located on 11-29 side and one located on 04-22 side.

Landside facilities include the 7,000-square foot terminal and Port office building, maintenance and fire equipment buildings, an air cargo facility, and several fixed base operator (FBO) buildings. The WSDOT 2012 Aviation Economic Impact Study indicates Skagit Regional Airport provides more than 346 Aviation Related jobs.

The Skagit Regional Airport Master Plan Update (September 2007) includes a determination of the anticipated growth to be experienced at Skagit Regional Airport and an evaluation of the ability of the existing facilities to accommodate this demand. The master plan uses a 20-year planning period that extends through 2025 and provides a recommended development plan showing the future needs of the airport.

The forecasts of future aviation activity show that the types of activity at the airport are not expected to change dramatically in the 20-year planning period. The airport will continue to function as the key aviation facility serving Skagit County. Aircraft operations are forecast to increase by about 2% per year. Approximately 158 aircraft are based at the airport at the present time. The composition of the aircraft fleet is expected to increase in jet, turboprop, and rotor aircraft usage. Future general aviation operations will continue to be dominated by business oriented flight, private transportation, flight training, or other forms of noncommercial activity using jet, turboprop, rotor aircraft and single- and multi-engine piston aircraft. The Skagit Regional Airport Master Plan includes plans for the extension of utilities, stormwater detention facilities, taxiway, and apron to accommodate future growth.

Future plans for the airport include increasing development for general aviation and commercial uses along Runway 04-22. In addition, the Port plans to assist existing tenants along Runway 11-29 in expanding existing operations. Few changes are expected to the runways themselves other than routine maintenance activities; in 2012, the Port shifted Runway 04-22 by 680 feet to the southwest to alleviate safety concerns due to the close proximity of the two runways.

### Railway Facilities

Rail service within Skagit County is provided by Burlington Northern Santa Fe Railroad (BNSF). The BNSF main line generally parallels I-5. BNSF provides a secondary line from Sedro-Woolley to Sumas in Whatcom County and two branch lines originating in the City of Burlington—one traveling west to Anacortes and one traveling east to Sedro-Woolley. The Burlington Anacortes branch line travels through Bayview Ridge. Rail service passing through Bayview Ridge is limited to freight hauling operations. There are approximately 12 freight trains per day operating on the east-west Burlington branch lines.

# Major Issues

## Safety

All citizens place considerable importance on the safety of the transportation system. Traffic collisions are not only traumatic on a personal level but are also costly for society. Aircraft accidents may inadvertently threaten the preservation of the Skagit Regional Airport, and it is important to establish low intensity uses and adequate airport safety zones to minimize the impact of aircraft accidents. Maintaining and improving the Bayview Ridge transportation system should aid in reducing or preventing collisions.

## Economic Development

Efficient movement of people, freight, and goods is important, because it enhances the economic vitality of the region. A study undertaken by CH2M HILL, in conjunction with transportation planning for SR 20, projects the increase in employment to 2015 and 2025 by UGA, *SR 20: Sharpes Corner to SR 536 NEPA Pilot Project Dwelling Unit and Employment Forecasts for Transportation Analysis Zones*, CH2M HILL, December 2001. Much of the new commercial/industrial development at Bayview Ridge is expected to generate freight, such as manufacturing, communication, retail, and wholesale trade. Many businesses seeking to locate in Bayview Ridge are attracted by the efficient transportation system and the area's proximity to resources and markets. The existing transportation infrastructure represents a significant investment of capital and labor. To protect this investment, the capacity and condition of the system need to be maintained.

## Alternative Modes

For most of this century, transportation improvements have emphasized the movement of motorized vehicles, especially automobiles and trucks. Alternative modes, such as bicycling and walking, have not been stressed. It is expected that the automobile will continue to account for the majority of transportation trips in the foreseeable future, both in the number of trips and in the distance traveled. With new residents and new employees expected, both parking and road congestion will become increasingly important issues. Transit will play a role in alleviating congestion and is recognized in the traffic model discussed later in this chapter.

The Parks, Recreation, and Open Space Program envisioned in this Plan recognizes the importance of development of paths and trails in Bayview Ridge. Encouraging non-motorized modes of transportation can lessen congestion, reduce maintenance of the built infrastructure, and reduce air pollution while providing health benefits to the users.



## Residential Needs

The transportation system provides significant benefits to both the general public and local neighborhoods. Neighborhood transportation projects can be designed to improve pedestrian facilities, traffic flow, and/or neighborhood safety. When transportation improvements are constructed, it is important to address the needs of the public, individuals, properties, and neighborhoods affected by the project. Much of the area's residential development today is centered around the country club and golf course in the southeast quadrant of Bayview Ridge. Access to the area is limited to Ovenell, Avon Allen, and Peterson Roads. Depending on future development within the UGA, a new north-south road from Peterson to Josh Wilson roads may be warranted.

Truck traffic serving the industrial district of the Bayview Ridge Subarea currently access SR 20 via Farm to Market Road, Higgins Airport Way, Avon Allen Road, or Peterson Road. When used by trucks, the alternative route to SR 20 via Peterson Road adversely impacts the residential areas of both Bayview Ridge and the northwest quadrant of the City of Burlington.

Peterson Road serves both the Port and residential areas. Trucks can minimize impacts on the residential neighborhoods by accessing the Port and other industrial areas through other routes. This should be

encouraged by working with the Port and companies, and if necessary by the use of restriction.

The Peterson Road access to the UGA should be developed as a primary residential gateway into the community. Traffic calming design should be used, such as a boulevard or other measures. Through truck traffic should be discouraged, and diverted to SR 20 or Josh Wilson Rd to access Interstate 5.

### Transportation Demand Management

Most solutions to meeting transportation system demands involve increasing the system capacity. This method is appropriate in many circumstances. In some cases, however, the capacity of the system can be increased by reducing the demand on the system. With effective transportation planning, demand placed on the system by the adjacent land uses can be directed to corridors that have excess capacity or have future improvements planned.

### Funding

Growth is expected to continue in Bayview Ridge; and increased traffic volumes to, from, and within the UGA is an issue facing the future build-out of the area. As financial resources constrain the number of potential transportation projects, each new development must be carefully evaluated to determine its impact on the transportation system. The County made specific funding and project timing assumptions with the adoption of the first *Bayview Ridge Urban Growth Area Comprehensive Transportation Plan*. As a result, a decision was made to not charge transportation impact fees for new development at that time.

The County's Capital Facilities Plan and the six-year Transportation Improvement Plan are updated annually. It will be necessary to monitor this financing plan together with development activity and level of service to determine whether impact fees may be warranted in the future.

It is also important to use the funds available to Skagit County and Bayview Ridge in as efficient a manner as possible. In order to maximize transportation improvements, it is important to pursue all available funding opportunities, exercise fiscal prudence, and capitalize on innovative funding methods. Prioritization of projects permits the most important projects to be constructed first to better utilize limited available funds.

Using a combination of these methods will increase the number of transportation projects Skagit County can provide for its citizens.



### Concurrency

One of the goals of the GMA is to have transportation systems in place concurrent with development. This concept is known as concurrency. In Skagit County, concurrency means:

- Transportation systems to serve development shall be in place before the use is occupied or a financial commitment is made to provide the facilities within a six-year period of development; and
- Such transportation systems have sufficient capacity to serve development without decreasing levels of service below minimum standards adopted in this Transportation Element.

The GMA requires concurrency for transportation facilities. This transportation plan is designed to meet the adopted level of service standard discussed later in this chapter.

## Level of Service (LOS), Capacity, & Needs Assessment

### Existing County Levels of Service & Capacity

The County's Transportation Systems Plan (June 28, 2001) addresses LOS and capacity issues within Skagit County through the year 2015. The Plan includes traffic forecasts through 2015 based on a countywide modeling effort.

As stated in the Plan, traffic volumes on County roads are low, and maintenance of the existing road system takes precedence over road construction. Because of this, road improvements rely more on the Priority Array than on LOS deficiencies. The Priority Array refers to a calculation that provides information on the safety and physical characteristics/deficiencies in individual roadway segments. The calculation combines and weighs factors, such as pavement condition, road geometrics, traffic levels, and collision rates.

In addition to the Priority Array, Skagit County also uses a LOS methodology based on the latest edition of the Transportation Research Board's Highway Capacity Manual.

LOS ratings are a measure of the quality of service and efficiency provided by an area's roadways. Traditionally, LOS ratings for roadways are based on an A through F, quantitative measures of roadway capacity, as defined in the Highway Capacity Manual. These alphabetical ratings describe the quality of service provided at peak hours and average daily conditions. In general, LOS A indicates free flow with no delays, while LOS F signifies very severe congestion with slow travel speeds. In the middle is LOS C, which represents a condition of stable flow with slightly reduced speeds and reduced maneuverability.

### Level of Service: Roads

Based on the Highway Capacity Manual methodology, the Level of Service for Skagit County roads is LOS C, but LOS D is acceptable for road segments that:

- have Annualized Average Daily Traffic (AADT) greater than 7,000 vehicles; and
- are not federally functionally classified as an 09, or 19-Local Access Roads; and
- are designated as a County Freight and Goods Transportation Systems Route (FGTS).

The Skagit County Department of Public Works monitors the LOS on county roads. When traffic volumes exceed the threshold of 7,000 Average Annualized Daily Traffic (AADT) on a road segment, the Department initiates further study of the roadway. This threshold is an indicator that a road segment may be approaching the LOS D limitations and should be studied in depth for potential improvements.

### Level of Service: Intersections

LOS ratings have also been developed for intersections. These alphabetical ratings describe the quality of service provided at peak hours and average daily conditions. The standard is based on seconds of delay for signalized intersections or reserve capacity for unsignalized intersections as shown in the table below.

Based on the Highway Capacity Manual methodology, the LOS standard for Skagit County intersections is LOS D. LOS analyses for intersections within the Bayview Ridge Subarea were conducted in 2000; all intersections were at LOS A or B.

## State Highways

LOS standards for most state highways are set through Regional Transportation Planning Organizations (RTPOs). The Skagit-Island RTPO has established LOS C as the standard for all rural highways and LOS D as the standard for all urban highways. All designations are based on the Highway Capacity Manual methodology.

### Table 5-1. Level of Service Ratings for Intersections

| LOS | Signalized Control Delay per Vehicle (Sec/Veh) | Unsignalized Average Control Delay (Sec/Veh) |
|---|---|---|
| A | < 10 | < 10 |
| B | > 10 – 20 | > 10 – 15 |
| C | > 20 – 35 | > 15 – 25 |
| D | > 35 – 55 | > 25 – 35 |
| E | > 55 – 80 | > 35 – 50 |
| F | > 80 | > 50 |

Source: *Highway Capacity Manual*, 2010 Edition

The LOS for state highways of statewide significance (i.e., SR 20) is established by the Washington State Department of Transportation (WSDOT). The standard set for SR 20 is LOS C for rural areas and LOS D for urban areas. The 2003 traffic report prepared in conjunction with the WSDOT SR 20 – Fredonia to I-5 Interchange project-includes year 2001 LOS analyses for both individual highway segments and the SR 20/Higgins Airport Way and SR 20/Avon Allen Road intersections. The SR 536 to Higgins Airport Way and Higgins Airport Way to Avon Allen segments are at LOS B. The intersection at Avon Allen Road is at LOS B.

High traffic volumes on state routes can cause delays on intersecting county roads. Skagit County and WSDOT

coordinate regarding SR 20, although they are not in total agreement regarding the SR 20 intersection needs. The county believes further corridor studies are necessary to properly plan for short-and long-term intersection improvements.

## Transit

Skagit Transit does not have level of service standards, but rather focuses on providing basic service and expanding the areas receiving basic service.

## Subarea Capacity & Levels of Service

The LOS standards adopted in this Plan will be maintained through upkeep of the existing circulation system and expansion of transportation services where needed.

Average weekday traffic (AWDT) and PM peak hour counts are regularly collected for the Skagit County arterial network, including Bayview Ridge. Count-based volumes (V) are divided by functional classification capacities (C) obtained from the Highway Capacity Manual to determine existing levels of service.

Table 5-2 illustrates the traffic counts for some of the most highly traveled segments of county roads within the Bayview Ridge Subarea. The present roadway system within the Subarea operates reasonably well. Congestion and delay measured at primary roadway and intersections indicate levels of service are acceptable throughout the regional system.

### Table 5-2. Recent Traffic Counts

| Roadway | Year | AWDT | PM Peak |
|---|---|---|---|
| Avon Allen Road N of SR20 | 2012 | 1600 | 177 |
| Avon Allen Road N of Ovenell | 2010 | 2013 | 217 |
| Avon Allen Road S of Peterson | 2012 | 3434 | 387 |
| Farm to Market Road N of SR20 | 2012 | 2576 | 355 |
| Farm to Market Road S of Josh Wilson | 2012 | 1689 | 194 |
| Farm to Market Road N of Josh Wilson | 2011 | 1882 | 221 |
| Higgins Airport Way N of SR20 | 2012 | 1503 | 185 |
| Higgins Airport Way N of Ovenell | 2012 | 1328 | 155 |
| Higgins Airport Way N of Peterson | 2012 | 4223 | 463 |
| Josh Wilson Road W of Avon Allen | 2012 | 2677 | 324 |
| Josh Wilson Road E of Farm to Market | 2012 | 927 | 103 |
| Josh Wilson Road W of Farm to Market | 2012 | 274 | 36 |
| Ovenell Road E of Higgins Airport Way | 2012 | 962 | 128 |
| Ovenell Road W of Higgins Airport Way | 2012 | 3775 | 380 |
| Peterson Road E of Avon Allen | 2012 | 3411 | 337 |
| Peterson Road W of Avon Allen | 2012 | 1767 | 207 |
| Peterson Road E of Higgins Airport Way | 2012 | 1600 | 177 |

## Forecast of Traffic

Changes in traffic volume are dependent primarily on changes in population and employment, which in turn are dependent on growth in the housing market and regional industries.

In order to systematically estimate future travel demands on the Bayview Ridge road network, a computerized travel forecast model was developed for the Subarea by the Skagit Council of Governments in 2000. This model was based on employment forecasts available at that time, but these forecasts greatly overstate 2015 employment (the model used a forecast of 7,347 total employees by 2015, versus. the 3,301 now estimated). Given significant change in the basic employment assumptions, the modeling is no longer considered applicable. The 2000 study did determine, however, that even with the higher employment estimates, traffic circulation within the Subarea will meet or exceed adopted LOS standards, assuming the new north-south collector is constructed.

## Transportation System Analysis

Bayview Ridge employment is predicted to increase steadily. There will be an increase in travel to, from, and within the Subarea. There will also be an increase in travel on SR 20 by vehicles traveling from I-5 to eastern Skagit County. Projected levels of service within the Subarea itself are not anticipated to fall below adopted LOS standards through 2036.

Because traffic volumes will increase over existing levels, the additional traffic will be noticeable to local residents. Within the Subarea, new local access streets will also be constructed to accommodate new development. It is important that these new streets accommodate the new traffic while providing a streetscape consistent with the character of the subarea.

As individual development projects within Bayview Ridge are proposed, a determination will be made on a case-by-case basis as to whether a detailed traffic study will be required as part of the SEPA project-level review.

The Bayview Ridge Subarea Plan proposes a new north-south road system connecting Peterson Road and Josh Wilson Road. The new north-south road will help meet urban fire and emergency response times and improve access to existing residential areas.



## Financing Plan

Skagit County is required under the GMA to prepare a financing plan for the transportation improvements included in this Transportation Element. The Transportation Improvement Program (TIP) identifies transportation revenue sources that are available for undertaking the maintenance, administration, operation, and improvement of the County's transportation system. The TIP includes a listing of transportation improvement projects, a schedule of program expenditures, and a summary of revenue sources (local, state, and federal) available to fund the identified costs.

No additional improvements are needed in order to continue providing the adopted level of service. Even so, the County remains committed to providing its citizens with the best transportation system possible within funding capabilities. In 2013, the County added a right turn lane on Farm to Market Road at Josh Wilson Road and extended the left turn pocket on Josh Wilson Road at Higgins Airport Way.

# Goals, Objectives, and Policies

**Goal 5A** **Ensure that the transportation system functions at a reasonable level of service internally throughout the Subarea and coordinate the links to the regional transportation network.**

*Objective 5A-1* *To provide a level of service on the transportation system that accommodates the needs of both motorized and non-motorized travel and provides a network of streets and trails for ease and variety of travel.*

Policy 5A-1.1 The planned level of service is not to exceed level of service standards for streets and intersections as adopted in the Skagit County Comprehensive Plan. The concurrency requirements do not apply to transportation facilities and services of statewide significance, e.g. SR 20.

Policy 5A-1.2 Proposed projects that decrease the level of service below the planned level, because of their traffic contribution, shall be denied unless concurrent improvements are made to prevent a decrease in level of service below the planned level for that location.

Policy 5A-1.3 The County shall take advantage of existing public lands and right-of-way in the development of the non-motorized transportation system.

Policy 5A-1.4 The County shall work toward linking public transportation to the non-motorized system.

*Objective 5A-2* *To provide for the continued maintenance and improvement of the transportation system.*

Policy 5A-2.1 Complete the construction and upgrading of the arterial street network to maximize circulation and level of service within the community.

*Objective 5A-3* *To ensure that transportation planning and other comprehensive planning efforts for the County and the Bayview Ridge Subarea are coordinated.*

Policy 5A-3.1 Coordinate the Skagit County Six-Year Transportation Improvement Plan and the County's Capital Facilities Plan with the Land Use, Utilities, and other relevant plan elements to ensure a balanced program that is adequately funded and responsive to community interests.

Policy 5A-3.2 Coordinate the Capital Facilities Plan with regional non-motorized travel plans, including bicycle and pedestrian.

Policy 5A-3.3 Continue to coordinate with WSDOT regarding improvements to SR 20.

Policy 5A-3.4 Continue to coordinate with Skagit Transit to identify needed route changes and transit-related street improvements.

*Objective 5A-4* *To reduce demand on the transportation system during peak travel times.*

Policy 5A-4.1 Implement programs to encourage the use of flextime, carpooling, and transit as traffic levels increase.

Policy 5A-4.2 Promote the use of flexible work schedules that can be coordinated with public transit schedules.

Policy 5A-4.3 Employ Transportation Demand Management (TDM) and Transportation System Management (TSM) measures as an additional mitigation measure.

*Objective 5A-5* *Develop design standards for street and trails that reflect the needs and character of the Bayview Ridge Subarea.*

Policy 5A-5.1 Peterson Road should be designed as the major residential entryway to the UGA from the east and incorporate traffic-calming design such as a boulevard.

Policy 5A-5.2 Encourage pedestrian activity along Peterson Road by providing sidewalks and streetscape amenities as well as pedestrian linkages to nearby residential and employment areas.

Policy 5A-5.3 Design standards should encourage the use of street trees and landscaping. along Peterson.

Policy 5A-5.4 Street and trail projects should minimize impacts to sensitive natural areas and preserve significant trees and vegetation.

Policy 5A-5.5 Any existing streets constructed to less than the full urban standard, provision shall be made for future improvement to the urban standard.

Policy 5A-5.6 Provide a network of bicycle and pedestrian paths between and through Bayview Ridge. Connections should also be planned or provided to regional bicycle and pedestrian paths such as the Port trails, Padilla Bay Shore Trail, Padilla Bay Interpretive Center, and the City of Burlington.

Policy 5A-5.7 Provide transit stops or stations at strategic locations within the Subarea.

# Chapter 6 Capital Facilities

*planning and provision of needed public facilities and services, including capital costs, financing, levels of service methods and consequences, statutory requirements*

Capital facilities include roads, sewers, parks and open spaces, schools, drinking water, stormwater, and all the government buildings that house public services. Capital facilities help define the quality of life for residents of Bayview Ridge. Law enforcement services protect lives and property. Sewer, water, and solid waste services meet a basic living need. Parks and dedicated open space provide for leisure and recreational needs.

Bayview Ridge is a non-municipal Urban Growth Area (UGA). As a UGA, Bayview Ridge provides its population with a number of urban services and facilities. Although Skagit County is the governmental body responsible for capital facility planning within Bayview Ridge, many services are provided by special districts or neighboring municipalities. Likewise, the residents and industrial users of the UGA depend on county-provided facilities not located within the UGA boundaries, such as the fairgrounds, courthouse and ferry services. This capital facilities plan focuses on the provision of those public facilities within the Bayview Ridge UGA. It is a supporting document to the Capital Facilities element of the Skagit County Comprehensive Plan and the reader is referred to this plan for a detailed description of all county provided facilities.

Transportation facilities are addressed in detail in the Transportation Element. Private utilities such as electricity, telephone, and telecommunications are addressed in the Utilities Element.

## Facilities Included in this Plan

The Bayview Ridge Subarea Plan includes two categories of public facilities: those provided by county government and those by other public jurisdictions, as follows:

### Skagit County

- Parks
- Solid waste management and recycling services
- Stormwater management
- Law enforcement services

### Other public jurisdictions

- Fire protection services
- Airport
- Water Service
- Wastewater
- Schools
- Drainage Control District

While the intent of this element is to focus only on those capital facilities directly serving Bayview Ridge, it is often necessary to provide a general overview of the service providers. Similarly, while capital projects in this element were intended to be only those occurring in Bayview Ridge, in some cases projects listed in this document benefit a larger area.



### Levels of Service

Levels of service are usually quantifiable measures of the amount of public facilities that are provided to the community. These LOS measures are often expressed as ratios of facility capacity to demand (i.e., gallons of water per customer per day or number of students per classroom). In order to use the level of service (LOS) method to determine facility needs, the county has selected how it will measure each facility (e.g., acres, gallons, etc.), and it identified the amount, or standard, it will adopt for each measure of the current and proposed LOS. Skagit County adopted these standards as part of the Capital Facilities Element of the county Comprehensive Plan.

Current, adopted levels of service standards for Bayview Ridge are found in the Capital Facilities Plan. These standards determine the need for capital improvement projects, and they are the benchmark for testing the adequacy of public facilities for each proposed development where the concurrency requirement is established.

If necessary, county adopted LOS standards can be amended once each year as part of the Comprehensive Plan's amendment. This may be desirable if a deficiency of revenue compared to cost means that not enough money is available to construct facilities. Any LOS standard that is not financially feasible and is also subject to concurrency requirements must be adjusted using the following options:

- Increase revenues to pay for the proposed standard of service (higher rates for existing revenues and/or new sources of revenue); or
- Reduce the average cost of the public facility (i.e., alternative technology or alternative ownership or financing), thus reducing the total cost and possibly the quality; or
- Reduce the demand by restricting population (i.e., revise the Land Use Element), which may cause growth to occur in other jurisdictions; or
- Reduce the demand by reducing consumption (i.e., transportation demand management techniques, recycling solid waste, water conservation, etc.), which may cost more money initially, but may save money later; or Any combination of options 1-4.

## Capital Facilities Planning Issues

### Boundaries

The boundaries of the Bayview Ridge Subarea are based on topography, separation from the Skagit Valley floodplain and its associated agricultural lands, the existing pattern of development, and existing service area boundaries for public sewer and water systems. The Bayview Ridge UGA creates a new planning boundary. Historically, there has been no separation of the Bayview Ridge Subarea from the remainder of unincorporated Skagit County. Similarly, special districts such as drainage, fire, and schools have addressed Bayview Ridge only as a component of their larger district. Utility providers typically follow demand and they address this area only in the context of development activity. Subarea population and industrial development forecasts are only now becoming available. It will take time and promotion on the part of the county, working with the special districts and utility providers, to establish Bayview Ridge as a distinct planning area for capital facility improvements.



### Population & Employment Growth

In 2000, the actual population of Bayview Ridge was 1,687. In the 2008 plan, based on the distribution provided in the Countywide Planning Policies, the Bayview Ridge UGA expected a population of 5,600 in 2025. The 2010 Census revealed the population of Bayview Ridge had only reached 1,798.

In 2014, the County's GMA Steering Committee determined that the 3,800 residential population growth formerly allocated to Bayview Ridge will be distributed among the municipal UGAs in the 2016 GMA Update. This is possible in part due to the fact that the new 20-year population projections for Skagit County through 2036 are only slightly greater than the previously-

adopted County population target through 2025, meaning additional urban residential population capacity is not needed.

Also, several of the cities report having more capacity within their existing UGAs than they previously realized, meaning the cities and towns believe they can readily accommodate both the slight increase in countywide population through 2036, and the previous allocation for the Bayview Ridge UGA, within their existing urban growth boundaries. Bayview Ridge is therefore expected to accommodate infill development of 72 people for a total of 1,883 people in 2036, the end of the next planning period. Because this edition of the Subarea Plan anticipates close to zero additional residential growth, the need to plan for residential services and facilities is significantly reduced.

As of 2008, employment within the Bayview Ridge industrial area was projected to increase from 1,456 in 1998, to 4,305 in 2025 (SR-20: Sharpe's Corner to SR 536 NEPA Pilot Project Dwelling Unit and Employment Forecasts for Transportation Analysis Zones, CH2M HILL, December 2001). In the current Countywide Planning Policies, Bayview Ridge (and all other urban growth areas) are allocated a certain amount of commercial and industrial acreage. Bayview Ridge's current CPP 1.1 allocation through 2025 is 750 (new) acres, which limited how much expansion of light industrial zoning could occur in the 2014 update of this subarea plan.

In the 2016 Comprehensive Plan update, each jurisdiction will convert its employment (jobs) targets to acreage depending on the particular types of jobs being planned for, their associated land needs, and other unique local circumstances. The proposed employment allocation for the Bayview UGA is 3,455 jobs by 2036. That number is based on a more aggressive job growth projection than Skagit County has planned for in the past—but one that is consistent with observed job growth rates in Skagit County at various points of time.



## Inventory, Needs Analysis, Projects, and Financing

GMA requires the Capital Facilities element of the Comprehensive Plan to include:

> (a) an ***inventory*** of existing capital facilities owned by public entities, showing the locations and capacities of the capital facilities;
>
> (b) a forecast of the ***future needs*** for such capital facilities; [including] (c) the proposed locations and capacities of expanded or new capital facilities;
>
> (d) at least a ***six-year plan*** that will finance such capital facilities within projected funding capacities and clearly identifies sources of public money for such purposes; and
>
> (e) a ***requirement to reassess the land use element*** if probable funding falls short of meeting existing needs and to ensure that the land use element, capital facilities plan element, and financing plan within the capital facilities plan element are coordinated and consistent. Park and recreation facilities shall be included in the capital facilities plan element.

Skagit County updates much of this information every year (or at least every two years) as part of its Capital Facilities Plan update. To minimize the number of documents that need updating each year, capital facilities information relevant to Bayview Ridge is contained in the CFP, not the Subarea Plan.

## Goals, Objectives, and Policies

**Goal 6A** **Ensure that the infrastructure, facilities, and services necessary to support development are adequate to serve new projects at the time the buildings are available for occupancy and use without decreasing service levels below locally established minimum standards.**

*Objective 6A-1* *Provide adequate public facilities to the Bayview Ridge Urban Growth Area.*

Policy 6A-1.1 Development of capital facilities within the Bayview Ridge Urban Growth area shall conform to urban development standards.

Policy 6A-1.2 Providers of public facilities are responsible for paying for their facilities. Providers may use sources of revenue that require users of facilities to pay for a portion of the cost of the facilities. As provided by law, some providers may require new development to pay impact fees and/or mitigation payments for a portion of the cost of public facilities.

Policy 6A-1.3 Each Comprehensive and Capital Facilities Plan for a specific facility type shall include an inventory of existing capital facilities owned by public entities, showing the locations and capacities of the capital facilities.

*Objective 6A-2* *The Skagit County Capital Facilities Plan, which is the umbrella document linking all the individual facility plans together, shall be updated annually so that financial planning remains sufficiently ahead of the present for concurrency to be evaluated.*

Policy 6A-2.1 The forecast of the future needs shall be included based on the levels of service or planning assumptions selected and consistent with the growth, densities and distribution of growth anticipated in the land use element.

Policy 6A-2.2 The schedule and priority for each Capital Facility shall be based on the demand for service, identified problem areas for each type of facility, opportunities for incorporating long range facility improvements with proposed development projects, and required sequence of improvements for the facility in question, as applicable.

Policy 6A-2.3 Encourage the involvement of citizens in the capital facilities planning process.

*Objective 6A-3* *Require new development to pay its fair share of the costs associated with new development.*

Policy 6A-3.1 Skagit County should consider adopting ordinances to impose impact fees or facilitate latecomer agreements for the Bayview Ridge Subarea.

*Objective 6A-4* *Coordinate water and sanitary sewer extensions with PUD No.1 and the City of Burlington.*

Policy 6A-4.1 Public water supply for new development shall conform to or exceed the Coordinated Water System Plan (June 2000) minimum design guidelines and standards for public water systems.

Policy 6A-4.2 Sanitary sewer system extensions and connections shall be consistent with the City of Burlington Comprehensive Wastewater Plan.

Policy 6A-4.3 Existing and new interlocal agreements regarding provision of sanitary sewer service outside the Burlington City Limits shall be updated or renewed upon expiration in a manner that is consistent with the following: the adopted Countywide Planning Policies, the City of Burlington Comprehensive Plan, and the Skagit County Comprehensive Plan as adopted in compliance with the Growth Management Act, along with relevant interlocal agreements and regulations.

*Objective 6A-5* *To influence the development and use of the water resources in Skagit County in a manner that is consistent with the Countywide Planning Policies and the Comprehensive Plan.*

Policy 6A-5.1 The Bay View Watershed Stormwater Management Plan Phase 1: The Bayview Ridge Urban Growth Area, February 2007, the adopted stormwater management plan for the Bayview Ridge Subarea, shall be updated as needed.

*Objective 6A-6* *To practice integrated and efficient management of solid waste in accordance with Washington State waste management priorities to protect and enhance the present and future environmental quality and public health in Skagit County through education, regulations, and economic incentives.*

Policy 6A-6.1 Solid waste management should be provided with adequate resources to manage solid wastes safely, efficiently, and equitably, and should be consistent

with State priorities while recognizing local conditions.

Policy 6A-6.2 Reducing per capita waste consumption should be supported through educational and legislative efforts that are directed towards changing consumer and industrial practices.

Policy 6A-6.3 Recycling efforts and opportunities in the Bayview Ridge Subarea should be maintained at a high level to increase the recycling rate annually.

Policy 6A-6.4 Environmental and economic impacts shall be considered and balanced when determining disposal practices.

Policy 6A-6.5 Individuals should be encouraged to take personal and financial responsibility for the proper management of the wastes he/she generates.




## Impact Fees

Impact fees are authorized by statute for road, school, and park improvements according to specific criteria (see RCW Chapter 82.02). If the County ever elects to add this optional revenue source, additional documentation and calculation will be needed to comply with the impact fee law, and an ordinance will need to be enacted, following appropriate public process.

# Chapter 7 Utilities

*planning and provision of public and private utilities, including electricity, natural gas, telecommunications, cable television, and the Port of Skagit*

Bayview Ridge residents and businesses rely on a number of basic utility services that help define their quality of life and maintain their health and well-being. Power, natural gas, telecommunications, and cable are considered utilities under the Growth Management Act. These services are usually taken for granted. Yet without coordination and conscientious planning for future growth, services may be interrupted, inadequate, or prohibitively expensive. The purpose of this section is to facilitate coordination between the utility providers and Skagit County. Such coordination ensures that new facilities provided are compatible with planned growth and utility planning is done in conjunction with land use. While planning for utilities is the primary responsibility of the utility providers, this section identifies issues and policies related to the provision of utilities that are of importance to Skagit County.

## Existing Utilities

### Public Utilities

#### Electricity

Electricity within the Bayview Ridge Subarea is provided by Puget Sound Energy (PSE). PSE maintains both 230 KV and 115 KV transmission lines to both the City of Anacortes and the refineries that traverse the south and east borders of Bayview Ridge. These facilities are available to provide power to Bayview Ridge. PSE also maintains a gas generation station at the intersection of Farm to Market and SR 20 that is used to boost system wide power during peak demand times. PSE reports no current capacity issues.

#### Telecommunications

Mount Vernon, Burlington, the Port of Skagit, and Skagit County were partners in a project to bring fiber optic cable to the industrial and airport portions of the subarea. Skagit County was awarded an economic development grant of $300,000 for the project, which had an estimated total cost of just over $600,000.

### Private Utilities

#### Natural Gas

Cascade Natural Gas (CNG) provides natural gas service within Bayview Ridge. CNG maintains both 8-inch and 16-inch distribution mains that traverse the southern boundary of the urban growth area (UGA). These major supply lines serve both the City of Anacortes and the refineries and have adequate capacity to meet the Bayview Ridge needs through the 2025 planning period.



#### Telecommunications

Telecommunications is the transmission of data or information by wire, radio, cable, electromagnetic waves, satellite, or other similar means. In Skagit County, telecommunication utilities include telephone, cellular telephone, cable, and satellite data and voice features. In 1996, the federal government passed the Telecommunications Act, which, among other things, deregulated the provision of data and information. The Telecommunications Act was intended to promote

competition in this vastly changing and expanding industry.

Considerable expansion of the telecommunications industry has occurred as a result of expanded licensing by the FCC and technological innovation, leading to the blurring of lines between traditional delivery systems and media.

Plain Old Telephone Service at Bayview Ridge is provided by Frontier. Telephone service is initiated by customer demand and req uests, and service providers are required to provide adequate telecommunications service on demand (RCW 80.36.090). Accordingly, telephone service providers will provide facilities to accommodate whatever growth patterns occur.

Several internet service providers (ISPs) are available via DSL, cable, wireless, and dial-up access in the Bayview Ridge Subarea. ISP ownership frequently undergoes change in the current environment of deregulation, and new service providers continuously enter the market. Current and future needs of the Bayview Ridge Subarea appear to be met adequately.

Bayview Ridge is served by several cellular telephone companies. These companies are licensed to operate in the county and throughout the region within guidelines set by the Federal Communications Commission (FCC). Siting and design of towers is regulated by the Federal Aviation Administration (FAA) and the local zoning authority.

Cable television service in Bayview Ridge is provided by Comcast and Wave Broadband. Several firms offer satellite television access.



### Pipelines

Two petroleum pipelines traverse the Subarea. The Kinder Morgan pipeline runs through the southern and eastern portion of the Subarea, through both industrial and residential areas. The Olympic Pipeline runs through the eastern portion of the Subarea in a north-south direction, through the Skagit Golf and Country Club and the residential area north of Peterson Road.

## Major Issues

### Coordination & Concurrency

As development occurs, system and facility improvements must keep pace with the higher demand. The improvements must take place within predetermined timeframes to maintain appropriate levels of service. To ensure concurrency, Skagit County needs to coordinate with private utility companies and other regional jurisdictions so that utilities may provide high-quality and reliable services to their customers and plan for future development and expansion of utility facilities.

### Compatibility & Design Standards

The siting of utility facilities requires coordination with Skagit County's land use plan and this comprehensive plan so that they will be sited in a manner reasonably compatible with adjacent land uses, including the airport. When new roads are constructed, electrical and telecommunications lines are required to be placed underground.

## Regulatory Setting

### Washington Utilities & Transportation Commission

The Washington Utilities and Transportation Commission (WUTC) is responsible for regulating privately owned utility and transportation businesses in the state. The WUTC is a three-member board appointed by the governor and confirmed by the state senate. It is the WUTC's responsibility to see that companies provide safe and reliable service to their customers at reasonable rates. The WUTC regulates only private utilities, including electric, gas, telecommunication, and water companies.

Publicly owned utilities (such as municipal utilities and public utility districts) are regulated by their respective legislative bodies.

WUTC mandates that utility facilities and service must be provided on a uniform or nondiscriminatory basis to

all customers and that cost of service must be equitable. State law regulates the rates and charges, services, facilities, and practices of utilities. Any change in customer charges or service provision policy requires WUTC approval.

In accordance with state law, private utilities have an obligation to provide service upon demand. In other words, the utility companies must provide service to customers within their service territory as it is requested. This is known as a utility's duty to serve. Consistent with this duty, the utility providers follow growth and will provide service to development in accordance with service territories.

There are other federal and state agencies that impose requirements on utilities. The Washington State Department of Health (WDOH) has jurisdiction over water purveyors; the Federal Energy Regulatory Commission and Department of Energy have jurisdiction over electric power service; and the Federal Communications Commission (FCC) has jurisdiction over the telecommunications industry.

### Federal Energy Regulatory Commission

The Federal Energy Regulatory Commission (FERC) is an independent, five-member commission with the U.S. Department of Energy. FERC establishes rates and charges for the interstate transport and sale of natural gas, for the transmission and sale of electrical power, and for the licensing of hydroelectric power projects. In addition, the commission establishes rates and charges for the interstate transport of oil via pipeline.

## Public Utilities

### Electricity

Puget Sound Energy plans to continue to improve and extend its facilities as necessary to serve the growing demand in its service area. System planners design and build their systems to follow population and employment growth projections based on county and city plans. The electricity load is determined from these plans and projections. An electric system plan is then developed to serve those loads at prescribed reliability levels, taking into account environmental, economic, financial, and operational factors. Utility construction is coordinated with the appropriate jurisdictions and agencies and is typically phased in as actual growth occurs.

## Private Utilities

### Natural Gas

Cascade Natural Gas does not plan in advance for individual connections. Rather, connections are initiated by customer requests for new construction or conversion from electricity to gas. CNG expects to continue developing distribution systems and services in accordance with the Integrated Resource Plan Guidelines set forth by the state. CNG will identify necessary reinforcement and continue to meet growth at the lowest possible cost by maximizing the capacity of the existing distribution system.

### Telecommunications

Other than the public fiber optic project mentioned above, expansion of telecommunications services is driven by market demand, technology, and return on investment.

## Goals, Objectives, and Policies

**Goal 7A** **The provision of utilities is critical to urban development at urban densities. Land use and transportation planning and development must be supported with adequate utility infrastructure.**

*Objective 7A-1* *Maintain consistency, compatibility and concurrency between utility providers, local, state, and federal plans.*

Policy 7A-1.1 Require that the utilities and services needed to support development be available concurrent with the impacts of development.

Policy 7A-1.2 Utility services that are provided by a private purveyor should have a plan that is consistent with, and coordinated with, the Subarea Plan.

Policy 7A-1.3 Each utility must have a response plan for emergency management that is coordinated with the Skagit County Emergency Response Plan.

Policy 7A-1.4 Require the joint use of utility corridors when feasible.

*Objective 7A-2* *Encourage underground utility distribution to reduce visual and safety impacts of overhead lines where economically feasible.*

Policy 7A-2.1 Large new developments and subdivisions in the Bayview Ridge Subarea must have underground distribution lines.

*Objective 7A-3* *Regulate the construction of communication facilities consistent with needs of the Subarea.*

Policy 7A-3.1 Telecommunication towers are allowed only in conformance with the Federal Aviation Agency's Part 77 Surfaces and the Airport Environs Overlay.

Policy 7A-3.2 Encourage the co-location of communication utilities to reduce the potential for more monopoles.

Policy 7A-3.3 Require removal of unused telecommunication equipment.

Policy 7A-3.4 Require mitigation of visual impact.

*Objective 7A-4* *Coordinate the placement of overhead power lines.*

Policy 7A-4.1 Include Puget Sound Energy, Frontier, and all other overhead line users in development and implementation of streetscape planning.

Policy 7A-4.2 If power lines are to be moved, establish an early notification system for any proposed public or private project so that opportunities to retain existing trees are adequately planned for.

# Chapter 8 Parks, Trails, and Open Space

*standards for Level of Service for parks and recreation land and critical areas and public open space for airport safety*

## Existing Conditions

Parks, recreation, and open space are vital elements in an urban community. Parks, recreation facilities, and open space contribute to a community's quality of life significantly. Open space can also protect environmentally sensitive areas and provide buffers between incompatible land uses.

Existing park and recreation facilities within Bayview Ridge are limited. No public parks or recreation facilities currently lie within the Subarea, although the large Bayview State Park and Padilla Bay trail and estuarine research complex lie just west of Bayview Ridge. The Skagit Golf and Country Club is located in the southeastern portion of the Subarea, but this privately owned 18-hole golf course is open only to members and their guests.

The Port of Skagit has developed a 10.4-mile non-motorized trail system linking its north and south leaseholds within the Subarea (see Figure 8-1). The trails are surfaced with gravel and are approximately eight feet in width. It is anticipated that these trails will ultimately provide connections to Josh Wilson and Farm to Market Roads, as well as SR 20.

Existing open space within Bayview Ridge consists of the numerous wetlands and their buffers, tracts of vacant land (encompassing both pasture grass and evergreen and/or deciduous trees) and the hillside along the eastern and northeastern edges of the Subarea. Environmentally sensitive areas (e.g., wetlands, steep slopes) are protected under the Skagit County Critical Area Regulations.

The 2012 Skagit County Comprehensive Park and Recreation Plan addresses park, recreation, and open space needs throughout the County and within individual communities such as Bayview Ridge.



## The Subarea Plan Approach

The integration of parks and open space within Bayview Ridge are critical for the following reasons:

- To provide compatibility with Skagit Regional Airport;
- To meet the recreational needs of Bayview Ridge residents and employees;
- To protect sensitive natural areas;
- To contribute to the physical and visual context of Bayview Ridge.

Properties in the Airport Compatibility Zones are subject to specific open space standards set forth in SCC 14.16.210 to minimize safety conflicts. Visual open space is provided by protected land adjacent to the airport runway. The 400+ acres of protected wetlands and buffers in the Port of Skagit WIN program are a key element of the UGA's open space system.

The Skagit County Comprehensive Parks and Recreation Plan identifies open space needs based on Level of Service (LOS) Standards, public input, use patterns, and other factors. At Bayview Ridge, because no significant

new residential development is expected, the need for parks is focused on pocket parks. Pocket parks should be created within the business districts to accommodate employees, as a respite, a place to enjoy lunch, or otherwise allow a place to escape in a park or green space setting. Pocket parks often have amenities such as picnic tables, benches, plants, lawn, art, trails, and other aesthetic and functional park elements.

As a mechanism to encourage the development of public open space within the business corridor, the Subarea Plan calls for dedicated open space lands within a development. This allows the flexibility to cluster business uses around the open spaces to enhance the aesthetics of the development.

The Subarea Plan also proposes park design criteria, to ensure that parks are well-integrated into the design of the businesses and industrial complexes:

- Off-street trails are envisioned to be a defining feature of new development and function as the backbone of the network of open spaces in the area consistent with the Port's existing trail system.
- Natural areas, pocket parks, and connectivity will be located and designed to be convenient, usable, accessible, and safe, and accommodate uses/activities that appropriately serve the anticipated residents and users of the development.

School playfields are also a major community open space resource. Although no new school is expected within the Subarea, the Subarea Plan calls for safe and convenient pedestrian connections to the existing school and its playfields.

## Goals, Objectives, and Policies

**Goal 8A** **To provide (and facilitate the provision of) pocket parks, trails, and open space areas to meet the needs and interests of the Bayview Ridge community.**

*Objective 8A-1* *Provide pocket parks, recreational open space, trails, and other recreation facilities that will meet the County's interests and needs in a cost-effective manner.*

Policy 8A-1.1 Acquire and develop lands and facilities that will be particularly attractive and cost efficient to maintain.

Policy 8A-1.2 Provide public open space opportunities scattered throughout Bayview Ridge, preferably with recreational trails.

Policy 8A-1.3 Preserve and protect significant environmentally sensitive areas and incorporate these areas into an open space system.

Policy 8A-1.4 Commercial/industrial zones should contain "pocket parks" for the benefit of employees, customers, and other local users and for the aesthetics of the business-park-style development.

Policy 8A-1.5 Pocket parks should have length and width of at least 20 feet and that include some combination of picnic tables, benches, plants, lawn, art, trails, or other aesthetic and functional park elements.

Policy 8A-1.6 Commercial/industrial development should provide a pocket park if one does not exist within a half mile.

Policy 8A-1.7 Provide trail connectivity between the residential area and the Port of Skagit trail system.

Policy 8A-1.8 Commercial/industrial development should provide trails within the development that connect to the Port of Skagit trail system shown in Figure 8-1 and are consistent with the conceptual trail plan in Figure 8-2.

*Objective 8A-2* *Use a variety of innovative land use techniques to maintain the character and quality of parks and open space, including but not limited to conservation and open space easements, public trust, public lands, transfer and purchase of development rights and other means.*

Policy 8A-2.1 Encourage shared use of public and quasi-public facilities.

Policy 8A-2.2 Work with non-profit entities to ensure long-term preservation of pocket parks, trails, and open space.

Policy 8A-2.3 Create a comprehensive system of multipurpose trails for recreational hikers and walkers, joggers, bicyclists, and Bayview Ridge employees.

Policy 8A-2.4 Develop a trail system that links the residential, airport, and commercial/industrial portions of the Subarea.

Policy 8A-2.5 Require trails throughout the commercial/industrial areas that are substantially consistent with Figure 8-2 Conceptual Trail System Map.

# Port of Skagit Nature Trails

**Trail Use Restrictions and General Information:**

1) Trails are open from dawn to dusk. Respect the neighboring businesses. No loitering. Walk with a partner.
2) Trails are open for walking, running, and bicycling. Horses and motorized vehicles are strictly prohibited.
3) Dogs shall be on a leash. Cleanup after your pets.
4) The Port of Skagit reserves the right to restrict any use of the trail for airport operations or security.
5) Users are to stay on the designated trails.
6) Pack out all trash.
7) No hunting, trapping, discharge of firearms, camping, cookfires, fireworks, barbecues or consumption of alchohol.
8) Call 911 to report any emergency.
9) Call the Port of Skagit at (360) 757-0011 to report any trail concerns.

Port of Skagit

Skagit Regional Airport

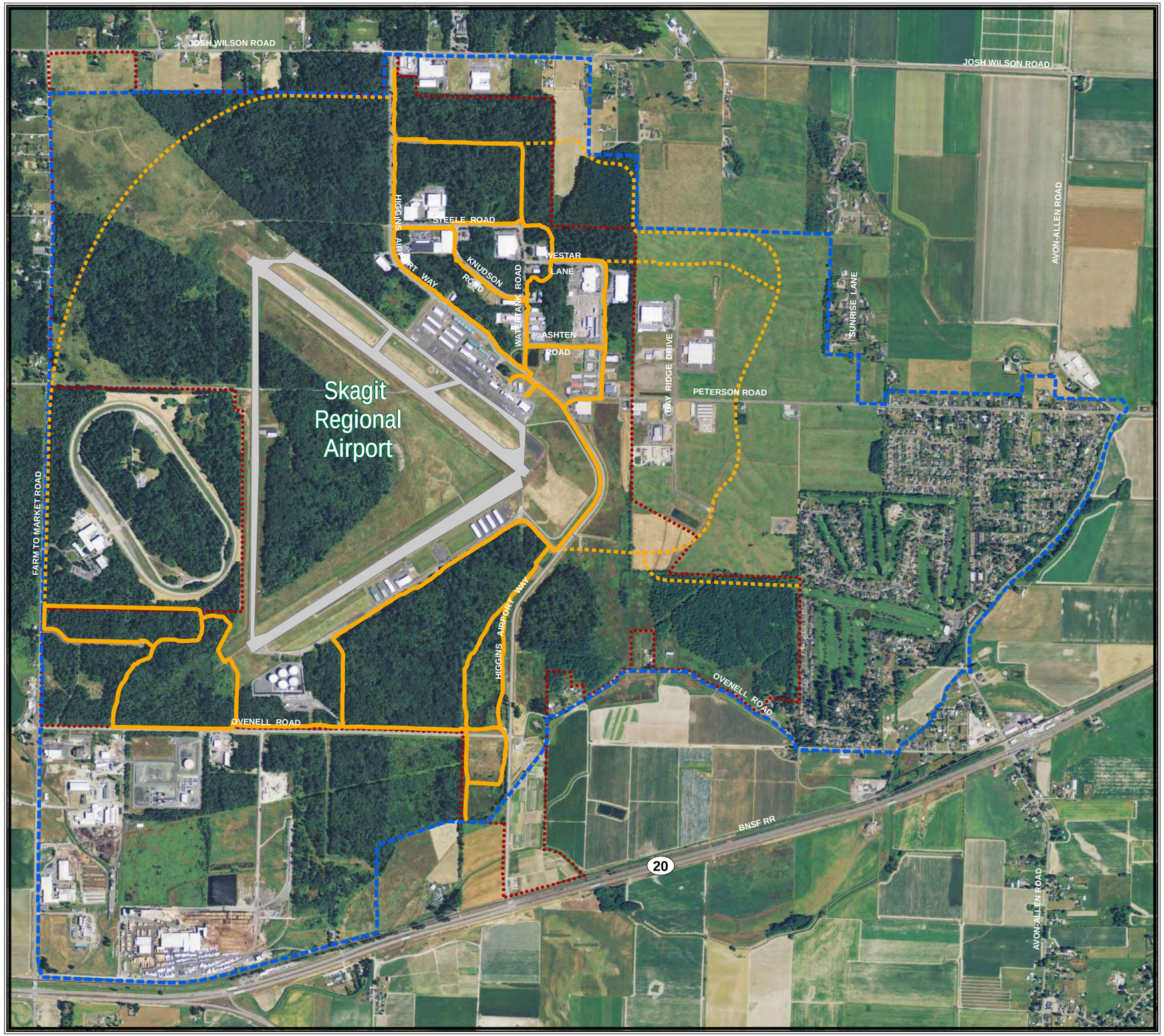
JOSH WILSON ROAD
EMILY LANE
VIEW RIDGE DRIVE
FARM TO MARKET ROAD
HIGGINS AIRPORT WAY
11035 Higgins Airport Way
ROLFSON PLACE
STEELE ROAD
KNUDSON ROAD
WATERTANK ROAD
WESTAR LANE
ASHTEN ROAD
FLIGHTLINE ROAD
PETERSON ROAD
Port Administrative Offices
15400 Airport Drive
CROSSWIND DRIVE
SARGENT PLACE
OVENELL ROAD
BALL ROAD
15337 Ovenell Road
20

N

0 0.25 0.5 Miles

0 0.25 0.5 1 Kilometers

0.61 mi (0.98 km)
0.27 mi (0.44 km)
0.23 mi (0.37 km)
0.18 mi (0.30 km)
0.17 mi (0.27 km)
0.41 mi (0.66 km)
0.35 mi (0.56 km)
0.19 mi (0.31 km)
0.60 mi (0.97 km)
0.15 mi (0.24 km)
0.06 mi (0.10 km)
0.24 mi (0.38 km)
0.07 mi (0.12 km)
0.06 mi (0.10 km)
0.28 mi (0.46 km)
0.15 mi (0.24 km)
0.52 mi (0.83 km)
0.22 mi (0.35 km)
1.05 mi (1.69 km)
0.42 mi (0.68 km)
.90 mi (1.45 km)
0.21 mi (0.34 km)
0.28 mi (0.46 km)
0.43 mi (0.69 km)
0.38 mi (0.61 km)
0.32 mi (0.51 km)
.38 mi (0.61 km)
0.38 mi (0.62 km)
0.10 mi (0.16 km)
(0.55 km)
0.41 mi
0.11 mi (0.17 km)




## LEGEND

- Proposed Urban Growth Area Boundary
- Port of Skagit County Boundary
- Existing Off-street Trails
- Conceptual Future Trail Network

Aerial Photo 2013

August 27, 2014

0 0.25 0.5
Miles

N
W E
S

# BAYVIEW RIDGE SUBAREA PLAN

## Conceptual Trail System

**Figure 8-2**

# Chapter 9 Natural Environment

*preservation and enhancement of the natural environment, including aquifer recharge areas, flood hazard areas, geologic hazards, wetlands, and fish and wildlife habitat*

## Existing Conditions

The Natural Environment Element addresses the protection, conservation, preservation, and restoration of natural resources in the Bayview Ridge Subarea, including wetlands, fish and wildlife habitat, geologically hazardous areas, and other critical areas.

The Bayview Ridge Subarea is situated on a topographic bench above the Skagit Valley floodplain, with the marine waters of Padilla Bay to the west. The natural landscape within the Bayview Ridge Subarea encompasses gently sloping terrain, steep hillsides, numerous wetlands, large stands of mature trees, and open fields. In past years, the Bayview Ridge Subarea has experienced a high level of growth associated with industrial and residential development in and around the Skagit Regional Airport. With that growth there has been a slow degradation of the natural environment. Generally, there has been a decrease in quantity of wetlands and native vegetation.



### Critical Areas

Skagit County identifies wetlands, aquifer recharge areas, frequently flooded areas, geologically hazardous areas, and fish and wildlife habitat conservation areas as critical areas of the natural environment requiring conservation and protection. While critical areas are present throughout the county, their identification and exact location are not always mapped or mapped accurately. The County will use critical area site assessments at the time of permit or development application to confirm the presence, exact location, and classification of critical areas.

#### Aquifer Recharge Areas

The Bayview Ridge Subarea does not contain identified Category I aquifer recharge areas.

#### Frequently Flooded Areas

Flooding is not a serious hazard in the Bayview Ridge Subarea. Most of the Subarea lies above the floodplain of the Samish River to the north and the Skagit River to the east and south. The Subarea has small areas identified as flood hazard areas. Higgins Slough flows through the southeastern tip of the Subarea, just north of SR 20 in the vicinity of Ovenell and Avon Allen roads. No-Name Slough and Joe Leary Slough lie outside of the subarea to the west and north, respectively. These sloughs are in flood hazard areas of the Samish and Skagit Rivers.

#### Geologically Hazardous Areas

Potential geologic hazards in the Bayview Ridge Subarea generally include landslide hazards, erosion hazards and seismic hazards. Landslide hazard areas are generally limited to the eastern portions of the subarea. Those areas throughout the subarea with slopes in excess of

40% and a vertical relief greater than 10 feet may be at risk.

Although the subarea is primarily flat, erosion hazards may be present on slopes in excess of 30%, primarily in the eastern portion of the subarea. There are three soil types present within the subarea which are at moderate to high soil erosion risk on slopes less than 30%. These include the Fidalgo-Lithic Xerochrepts-Rock outcrop complex with slopes of 3 to 30%, Swinomish gravelly loam with slopes of 15 to 30% and Xerothents with slopes to 5%. According to the Soil Survey of Skagit County, the Fidalgo-Lithic Xerochrepts-Rock outcrop complex is isolated in a small area in the southwest portion of the Bayview Ridge Subarea. Swinomish gravelly loam is more prevalent in the area and is located in the eastern portion of the subarea. Xerothents soils are located throughout the central and eastern portion of the subarea.

As with all of Skagit County, the Bayview Ridge Subarea is at risk for seismic hazards. Seismic hazards for this area include development damage as a result of ground movement, slope failure, settlement, and liquefaction. According to the Washington Department of Natural Resources Liquefaction Susceptibility Map, the Bayview Ridge Subarea is within an area of moderate to high liquefaction potential.

Although there is no known surficial expression of faults within the subarea, extrapolation of fault locations on geologic maps indicate that some pre-Holocene faulting may be present at depth. Regardless of the presence of faults within the boundaries of the Bayview Ridge Subarea, it is within a seismically active region and will be subject to seismic hazards. Geotechnical analysis, building/foundation design, and proper construction are essential to minimize damage resulting from seismic events.

### Wetlands

Wetlands are areas identified by the presence of water during the growing season, hydric soils, and the presence of a plant community that is able to tolerate prolonged soil saturation. These areas provide many important environmental functions, including flood storage and attenuation, wildlife habitat, aquifer recharge, water filtration and sediment deposition to improve water quality for fish, other aquatic species and wildlife, and a visual buffer in the built landscape. Wetlands are legally protected under the Federal Clean Water Act, the State Growth Management Act, State Water Pollution Control Act, and Skagit County Code.

Numerous wetlands are scattered throughout Bayview Ridge Subarea (Figure 9-1), and are especially prevalent in the western and central portions of the subarea. Some wetlands in the subarea are fragmented or isolated by existing development; others have been hydrologically modified by uncontrolled or poorly controlled stormwater runoff; others support populations of primarily invasive vegetation.

The Port of Skagit identified 445 acres of wetlands and buffers within their 1,800-plus-acre ownership as part of the Skagit Wetlands and Industry Negotiation wetland management plan. An additional 938 acres is identified as open space. The open space is located between and adjacent to the two runways.

The 2006 Bayview Ridge Subarea Plan relied on the National Wetland Inventory (NWI) and interpretations of aerial photography to estimate the amount of wetlands in the portion of the Subarea not on Port property, and therefore outside the WIN program. The twenty-year old NWI data is not a reliable source for estimating the specific size and location of wetlands. Wetlands will be delineated by project proponents as specific development projects are proposed.

### Fish and Wildlife Habitat Conservation Areas

Fish and wildlife habitat conservation areas include areas with which endangered, threatened and sensitive species have a primary association, habitats and species of local importance, commercial and recreational shellfish areas, kelp and eelgrass beds, herring and smelt spawning areas, naturally occurring ponds under twenty acres and their submerged aquatic beds that provide fish or wildlife habitat, waters of the state, lakes, ponds, streams and rivers planted with game fish by a governmental or tribal entity and state natural area preserves and natural resource conservation areas. Higgins Slough flows along the southeastern tip of the Subarea, just north of SR 20 in the vicinity of the Ovenell and Avon Allen Roads. Higgins Slough is known habitat for Coho. The Washington State Department of Fish and Wildlife (WDFW) determined all ditches that exist on Port of Skagit ownership north of Ovenell Road (other than Higgins Slough) are “artificial watercourses.” No other streams or watercourses are known to exist within the subarea. Vegetation within Bayview Ridge consists of

large stands of evergreen and deciduous trees, pasture grass, wetland vegetation and residential landscaping.

While the amount and location of productive fish and wildlife habitat in the Bayview Ridge Subarea has been altered through the conversion of open lands to agricultural and urban uses, there remain areas retaining high habitat value. The Washington State Department of Fish and Wildlife Priority Habitats and Species data (available at wdfw.wa.gov/mapping) shows that there are two active eagle nests within the Bayview Ridge Subarea Plan Boundary. Bald eagles are listed as a sensitive species under the Washington State Eagle Protection Act. There are both fish-bearing and non-fish-bearing streams within the Bayview Ridge Subarea.

### Figure 9-1 Port of Skagit Wetlands Map

[Port of Skagit Wetlands map]

## Subarea Plan Measures

The Bayview Ridge Subarea Plan provides for protection of the environment and enhancement of the area's quality of life while still permitting urban growth. Compliance with Skagit County's existing critical area regulations will allow urban growth with protection of the natural environment.

Additional measures can be taken, however, to provide opportunities for creating corridors that will benefit fish and wildlife habitat and the community. As wetlands are identified and delineated, wetland open space corridors consisting of wetlands and their vegetated buffers can be linked as open space and wildlife habitat corridors. These critical areas should be set aside as permanent open space, providing for a higher quality of life for the community while protecting the resource for future generations. Development on steep slopes or other geologically hazardous areas is restricted by existing regulations, providing another opportunity to permanently protect open space corridors for the benefit of both the community and fish and wildlife. The slopes in the north and eastern sections of the Subarea are possible locations for these corridors. Landscape buffering of industrial properties in the western half of the subarea can provide additional fish and wildlife habitat, and may allow corridors to link with No Name Slough, and ultimately, Padilla Bay to the west. Within the residential areas, natural and native vegetation should be encouraged for open space areas to provide visual buffers, increase water quality and stormwater runoff control, and to maintain wildlife habitat.

## Goals, Objectives, and Policies

**Goal 9A** **The critical areas and natural environment of the Bayview Ridge Subarea, which provide the opportunity to live, work and play in a healthy environment, should be maintained, protected and enhanced for the enjoyment and use of present and future generations.**

*Objective 9A-1* *Protect and conserve all elements of the natural environment of the Bayview Ridge Subarea, including but not limited to wetlands, fish and wildlife habitat, native vegetation, and steep slopes by carefully managing growth and limiting development in sensitive ecosystems.*

Policy 9A-1.1 All new development and substantial improvements to existing development shall comply with the Skagit County Critical Areas Ordinance and Comprehensive Plan with respect to the environment.

Policy 9A-1.2 Low impact development tools should be considered for implementation in sensitive environments. Tools include reducing the amount of impervious surface on each development site, minimizing soil disturbance and erosion, and discouraging vegetation removal during site development and construction

Policy 9A-1.3 The use of native species in a natural setting should be required for all commercial and industrial landscape buffers.

Policy 9A-1.4 Naturally vegetated open space tracts should be required for future residential developments.

Policy 9A-1.5 Discourage the use of fertilizers and pesticides on lawns through awareness and education programs offering environmentally friendly, non-chemical alternatives.

Policy 9A-1.6 Require public and private golf courses to maintain their facilities in an environmentally sensitive manner. Chemicals, such as pesticides, herbicides, and fertilizers, should be applied in such a manner that they do not adversely impact the biological functions of adjacent wetlands or downstream water bodies.

*Objective 9A-2* *Preserve, protect, and enhance wetlands contained within the Bayview Ridge Subarea and increase public education efforts regarding the function, value and importance of protecting wetlands.*

Policy 9A-2.1 Encourage enhancement of wetland buffer areas through appropriate plantings of native vegetation.

Policy 9A-2.2 Require a detailed assessment of wetlands on all properties proposed for development, including delineation and classification of wetlands by a wetlands professional.

Policy 9A-2.3 Encourage restoration of wetlands that have been degraded as a result of previous developments within the Subarea.

Policy 9A-2.4 If it appears a development project will contribute runoff to a wetland, require the evaluation and mitigation of the

potential impacts of stormwater runoff on wetlands,

Policy 9A-2.5 The County shall provide adequate enforcement and inspection services to protect wetlands during, and after, the development process, to ensure compliance with County critical areas regulations.

*Objective 9A-3 Preserve the existing fish and wildlife species contained within the plan area and the natural habitats that support these species in a manner that is compatible with the Skagit Regional Airport.*

Policy 9A-3.1 Cooperate with the Washington State Department of Fish and Wildlife to identify sites that contain snags, nesting and roosting sites for state or federally listed threatened or endangered bird populations.

Policy 9A-3.2 Establish buffer zones around identified critical habitats that are sized per Skagit County Critical Area Regulations and/or federal Endangered Species Act requirements.

Policy 9A-3.3 Promote backyard wildlife sanctuary programs and encourage the use of native vegetation and other habitat features in residential landscaping.

Policy 9A-3.4 Cooperate with the Washington State Department of Fish and Wildlife to survey fish species, range and habitat within Higgins Slough and other watercourses adjacent to the Bayview Ridge Subarea.

Policy 9A-3.5 Minimize open water areas that could attract waterfowl and present a safety hazard to air traffic.

*Objective 9A-4 Protect and preserve existing habitat corridors within the Bayview Ridge Subarea.*

Policy 9A-4.1 Enhance wildlife movement through native vegetation corridors by minimizing fencing.

Policy 9A-4.2 Require all designated critical area buffers be reserved as open space through protected critical areas and link these areas when feasible through property acquisition.

Policy 9A-4.3 Require (or increase) penalties for native growth disturbance or removal within protected critical areas.

Policy 9A-4.4 Coordinate with the Port of Skagit to ensure the continued maintenance, monitoring, and management of their extensive wetlands, buffers, habitat, and open space in the public interest, while encouraging non-motorized public access to view the area through the accessible pedestrian pathway system.

Policy 9A-4.5 Coordinate with the Washington State Department of Fish and Wildlife to identify and protect any wildlife migration corridors.

# Appendices

## Appendix A History of the Bayview Ridge Subarea

### Background

The Growth Management Act (GMA) establishes 13 planning goals. Of particular significance for the Subarea Plan are those goals that are designed to encourage development in urban areas where adequate public facilities exist or can be provided in an efficient manner. These goals are designed to support economic development, and ensure that those public facilities and services necessary to support development are adequate to serve the development (at the time of occupancy and use) without decreasing current service levels below locally established minimum standards. Transportation, housing, environmental protection, open space, and recreation are also important planning goals for the Subarea.

#### Why a Non-Municipal UGA?

Skagit County, in cooperation with its cities and towns, first began looking at the County population projections with the intent of directing new growth into urban areas in 1991 when developing the County's Coordinated Water System Plan (CWSP). These discussions helped form a basis for the Countywide Planning Policies update in 1996, in which 2015 population projections were allocated to the Urban Growth Areas (UGAs) based on the goal contained in Countywide Planning Policy 1.2 which provides that the cities, towns, and urban growth areas should accommodate 80 percent of the twenty-year projected growth.

Projected population growth was initially distributed to communities in an equitable manner, without regard for their ability to adequately provide for such growth. "In reviewing the initial allocations, several cities determined they would be unable to provide for their equal share of projected population due to financing of infrastructure improvements, adjacent location of natural resource lands or other constraints."[1] At the time, cities cited the following issues:

- **Anacortes**: The City of Anacortes is located on Fidalgo Island. As such, it has physical constraints, bordering water bodies, which restrict its growth and expansion. Additionally, Fidalgo Island has a number of unique geological constraints and environmental conditions affecting its suitability for dense urban development. Finally, the City of Anacortes determined that its existing infrastructure, particularly the sewer system, would reach maximum capacity with a population of 18,300 [CPP 1.1 (1996)]. Consequently, the City of Anacortes has significant fiscal and environmental constraints that prohibit the city from accommodating a 2015 population in excess of 18,300.
- **Burlington**: The City of Burlington is currently located almost entirely in the floodplain. Additionally, the city is land-locked on the south by the City of Mount Vernon. The Skagit River to the south and east also limits outward growth. The city is surrounded by Agriculture Natural Resource Lands and floodplain on the north, east and west. Burlington's location within the floodplain, surrounded by Natural Resource Lands, and its proximity to the Skagit River significantly restricts the city's ability to grow and expand its municipal boundaries.

[1] 1997 Comprehensive Plan, pages 3-6 – 3-7.

Population growth within the City will largely be attributed to infill development. Given this situation, Burlington determined that it could accommodate a 2015 population of 7,065 [CPP 1.1 (1996)].

- **La Conner**: The Town of La Conner's UGA does not extend beyond its municipal borders because of the natural constraints of its location, similar to Anacortes and Burlington. La Conner is precluded from expanding west as it borders the Swinomish Channel. Agriculture Natural Resource Lands, as well as the floodplain, surround the town on the north, east, and south. Population growth within La Conner will be solely attributed to infill development within it current municipal boundaries. Consequently, La Conner determined its existing land supply will accommodate a 2015 population of 890 [CPP 1.1 (1996)].
- **Sedro-Woolley**: The City of Sedro-Woolley, while bordered on the south by the Skagit River, does have adequate land supply, non-Natural Resource Lands, on the north and northeast sides of the city for future growth. However, Sedro-Woolley determined that its existing sewer and water systems could not serve a 2015 population in excess of 11,030 [CPP 1.1 (1996)].
- **Mount Vernon**: The City of Mount Vernon reported no problems in accommodating its fair share of the 2015 project population. Rather, the city agreed to take additional population within its UGA, above its fair share.

In looking to alleviate the burden of accommodating the anticipated 2015 population, the County, in coordination with the cities and towns, identified in its 1997 Comprehensive Plan three non-municipal UGAs to receive urban growth: Bayview Ridge, Big Lake, and Swinomish. While the City of Burlington was constrained in expanding its municipal boundaries, it had been providing sewer service since 1975 to the Skagit Regional Airport and a number of residential housing developments in the Bayview Ridge area. Public Utility District No. 1 (PUD) provided water service to the area. Bayview Ridge was a suitable location for future urban residential development due to its location out of the floodplain, existing infrastructure and history of residential development at urban densities. Both the Big Lake and Swinomish areas were designated as non-municipal UGAs because these areas were served by existing sewer services and had urban levels of residential development.

In 1998, after the county adopted its first Comprehensive Plan under GMA, the Western Washington Growth Management Hearings Boards found the Big Lake UGA noncompliant with GMA and also invalidated the Bayview Ridge UGA outside the Port of Skagit's property.[1] In response, Skagit County eliminated the Big Lake UGA, redesignating it a Rural Village, and began a process to plan for the Bayview Ridge Subarea, including a residential component to the Bayview Ridge UGA. In 2000, Skagit County, in cooperation with the cities and towns, reallocated the 2015 population of 2,400 allocated to the Big Lake UGA through the Countywide Planning Policies (CPP) update process. The 2000 CPPs reported that "the urban residential population allocated to Big Lake (2,400) from the previous CPP 1.1 [had] been placed in a reserve category, from which 1,491 has been allocated to the Urban Growth Areas associated with Sedro-Woolley, Concrete, and La Conner." The remaining balance of urban residential population (909) had been placed in a reserve category in 2000; this population was allocated to various UGAs as part of the 2007 update to the Countywide Planning Policies.

## The Evolving Subarea Plan

In the fall of 1999, property owners, the Port of Skagit, the City of Burlington, and Skagit County came together and applied for a grant to fund the preparation of a Bayview Ridge Subarea Plan from the Washington State Department of Community Trade and Economic Development—the first plan to be developed using the Skagit County Comprehensive Plan Community Development Plans Element. Skagit County adopted the first version of the Bayview Ridge Subarea Plan in December 2006.

### GMA Compliance

A subsequent appeal to the Western Washington Growth Management Hearings Board (Hearings Board) resulted in a decision that the UGA's residential component can be compliant with the Growth Management Act (Case

[1] Abenroth, et al., v. Skagit County; WWGMHB Final Decision and Order; Case #97-2-0060c. (June 22, 1998).

No. 07-2-0002 Final Decision and Order (FDO)). However, the decision noted many non-compliant items. The 2008 update to the subarea plan addressed those issues of non-compliance. The Hearings Board also declared one provision of the concurrency regulations to be invalid (SCC 14.28.105(4)). This provision allowed temporary sewer holding tanks in some circumstances. An interim ordinance was adopted that prohibits holding tanks and the development regulations accompanying the 2008 plan made that prohibition permanent. The FDO also gave the County the option of updating the plan to reflect the 2025 forecast in the then soon-to-be adopted Comprehensive Plan update. The County pursued that option by using the adopted 2025 population forecast of 5,600 for the Bayview Ridge UGA.

## Envision Skagit

The Envision Skagit project was an effort to envision the future of Skagit County in the year 2060. The multi-year project, a partnership among Skagit County and numerous local and regional organizations, including conservation groups, tribes, local farmers and foresters, cities, economic development interests and universities, recommended changes to the County's and other jurisdictions' comprehensive plans and policies addressing land use planning, community and economic development, environmental protection, and natural resource conservation.

Deciding how much industrial land is needed and where to put it is an emerging countywide and regional issue. Envision Skagit 2060 suggested a different allocation of land uses. In its report, the Citizen Committee recommends "identify[ing] 1,600 acres in the Bayview Ridge Urban Growth Area for light industrial use and redirect projected residential growth from Bayview Ridge into existing cities with established municipal services and tax structures."[1] Furthermore, the Citizen Committee report states:

> The Port of Skagit County estimates that 3,429 acres of industrial land will be needed in the county by 2060 to meet employment goals, while only 1,772 acres exist today, leaving a deficit of 1,657 acres. This is an important land use to plan for far in advance, to ensure that desirable industrial lands are not occupied by other land uses whose siting needs are much more flexible.
>
> Much of the land surrounding the Skagit Regional Airport at Bayview Ridge meets key criteria for industrial designation: it is relatively undeveloped currently, falls within the airport environs and is therefore less desirable for residential use, is adjacent to existing industrial uses, is served by appropriate infrastructure, is within reasonable trucking distance of I-5 or SR 20, and lies outside of the floodplain and NRL land. Locating new industrial land at the airport also helps protect the airport from encroaching residential development and promotes public safety by keeping residential development outside of areas with concentrated aircraft overflight…"[2]

The Envision Skagit 2060 Citizen Committee "…recommends downplaying Bayview Ridge Urban Growth Area as a location for significant new residential development. Instead, that area is ideally suited for future industrial uses…"[3] The Citizen Committee's vision is to "direct future residential development population growth into existing cities and towns with established municipal services and tax structures. Avoid locating residents near incompatible land uses or in proximity to specific site hazards."[4] Furthermore, the Citizen Committee report states:

> …At full build out, the Bayview Ridge UGA would have 5,000 to 5,500 people living in an area currently without established municipal services, in proximity to industrial lands, astride two existing petroleum pipelines, and within a half mile of a runway end at Skagit Regional Airport.
>
> The public would be better served by directing that future population to the cities and towns. The committee recommends that most or all of the proposed additional residential development within the Bayview Ridge UGA be redirected to existing cities and towns, and **rezoning 1,600 acres at Bayview Ridge to Light Industrial**… [emphasis added]. So doing would also protect the airport from conflicting residential encroachment and make available needed contiguous industrial acreage close

[1] Envision Skagit 2060 Citizen Committee Final Recommendations (October 2011).

[2] Ibid, recommendation #1 narrative, at 11-12.
[3] Ibid at 28.
[4] Ibid at 30.

> to utility and transportation infrastructure and adjacent existing light industrial uses…[1]

The Port of Skagit County, Skagit County, and the Skagit Council of Governments have completed a Skagit County industrial lands inventory. Various Skagit County governmental and economic development organizations will use the inventory to assess the future need for ready-to-build industrial land in the county, and to serve as the basis of a property search/marketing tool for economic development interests in the County.

The industrial and buildable lands inventory identifies a limited supply of large-lot industrial land to meet the needs for larger development projects in Skagit County. Given its location out of the floodplain and its proximity to transportation and other urban services, Bayview Ridge is uniquely well suited to meet that need. New employment forecasts approved by the Growth Management Act Steering Committee for County and city planning through their 2016 comprehensive plan updates place a greater emphasis on job growth than has been the case with previous adopted forecasts. One important piece of meeting those job growth projections through 2036 is having an adequate supply of commercial and industrial land, particularly in the large-lot category.

## The 2013 Amendments: Adding Industrial

In late 2011, the County established the Bayview Ridge Partnership Committee tasked with adopting regulations to implement the Subarea Plan. The committee hired MAKERS Architecture and Urban Design in November 2011 to help craft the regulations. The committee held eight meetings through late 2011 and 2012 to draft and refine regulations for the Subarea. The draft code was presented to the Board of County Commissioners on April 16, and the Planning Commission on May 17, 2013. Components of the proposed regulations necessitated refinements to the Subarea Plan.

The 2013 amendments to the Subarea Plan (part of the 2012 Comprehensive Plan Amendment docket) made the following adjustments:

- Expanded the BR-LI zone by approximately 110 acres. This is predominately flat land suitable for the expansion of the district to the east and north of the existing BR-LI zone. The additional Industrial is consistent with CPP 1.1's allocation of Commercial/Industrial acreage to the County.
- Downsized the BR-CC zone. The 2008 Subarea Plan called for the area to include a 25-acre community park within the BR-CC zone, whereas the new proposal envisions the most of the parkland to be located within the BR-R zone. Proposed zoning provisions allow through the PUD process some flexibility in the size of the BR-CC zone, giving a range between 5-15 acres.
- Reduced the size of the BR-R zone including a shift of acreage to the BR-LI zone and to the relocated BR-CC zone.
- Identified a "flex" area within the BR-R zone that could be shifted to BR-LI in the future based on market factors, County employment goals and evolving growth objectives. Such a rezone is conditioned on the replacement of the zoned residential capacity necessary in meeting CPP allocations. The area is predominately flat and contiguous with the BR-LI zone.

In order to meet the 2025 population forecast of 5,600, this amended 2013 Subarea Plan assumes build-out of the BR-R zone and phased development of the BR-URv zone.



[1] Ibid.

### The 2014 Amendments: Re-Focus on Commercial and Industrial Development

The 2014 amendments to the Subarea Plan (part of the 2013 Comprehensive Plan Amendment docket) made the following adjustments:

- Removed maps related to the Airport Environs Overlay, so that they can be updated through development regulations without a comprehensive plan amendment. Simultaneous with the subarea plan update, the County updated the Airport Environs Overlay.
- Redesignated existing unused BR-LI acreage that was development-constrained (e.g., by wetlands) to a new Aviation Related-Limited (AVR-L) zone that allows essential aviation uses like navigation markers, but frees up the commercial-industrial allocation of Countywide Planning Policy 1.1 so that more BR-LI acreage could be designated.
- Redesignated flat residential property, suitable for industrial development, to BR-LI.
- Redesignated the Community Center zone to BR-LI, but added policies to allow retail uses to serve the business and residential community along Peterson Road.
- Reduced the size of the UGA to exclude large undeveloped residential properties that were largely unsuitable.
- Removed text and policies related to new urban residential development.
- Consolidated historical information in this appendix, and consolidated information about each element's "relationships to other plans" in a separate appendix.
- Consolidated the Essential Public Facilities chapter into the Land Use chapter and the Business & Industrial Development chapter.
- Moved information from the Capital Facilities chapter that requires regular updates into the County's Capital Facilities Plan, a separate document.
- Reduced the Subarea boundary to unify it with the UGA boundary.

## Public Participation

The Bayview Ridge Subarea Plan was developed consistent with GMA Goal 11:

> "Citizen Participation and Coordination. Encourage the involvement of citizens in the planning process and ensure coordination between communities and jurisdictions to reconcile conflict."

In November 2000, the Skagit County Board of Commissioners, in accordance with Skagit County's Growth Management Act Public Participation Program (SCC 14.08.070), appointed a nine-member Citizens Advisory Committee to work with staff in creating the Bayview Ridge Subarea Plan. Additionally, representatives from the City of Burlington and the Port of Skagit were invited to participate in the planning process.

Citizen participation techniques were employed throughout the Subarea planning process. It is the goal of this plan to maintain an active program for citizen participation to review proposed development projects; changes to plans, policies, codes, and regulations; and to provide an opportunity for discussion and problem solving as appropriate.

Community information meetings were held at the Port of Skagit to discuss the Bayview Ridge Subarea planning process in March and September of 2000. As mentioned above, the Skagit County Board of Commissioners appointed a Community Advisory Committee in November 2000. In January 2001, the County held a Community Meeting to inform the public about the Bayview Ridge Subarea planning process and to present the results of the Skagit Regional Airport Land Use Compatibility Study and to answer questions from the public.

During the process that led to the 2013 amendments, the County hosted community meetings at Bay View Elementary (April 2010 and July 2013), mailed detailed explanatory postcards to subarea residents in advance of each meeting, and conducted an online community design survey (August 2010). The County also hosted several topic-specific community roundtable sessions at the Port of Skagit offices on community design and transportation (September 18 and 25, 2013).

Consistent with RCW 36.70.547, the County held a formal consultation meeting with the Washington State Department of Transportation Aviation Division and airport users and operators on September 18, 2013.

During the 2014 amendment process, the County again mailed explanatory postcards, hosted an airport consultation meeting (June 18), and hosted a community meeting at Bay View Elementary (June 26).

# Appendix B Relationship to Other Plans

The Growth Management Act requires the County's comprehensive plan to be internally consistent and consistent with all of its components (e.g. subarea plans, countywide planning policies). This appendix describes how each of the chapters in this subarea plan is consistent with and supportive of other components of the Skagit County Comprehensive Plan.

## Land Use

### Countywide Planning Policies

Countywide Planning Policy 1.1 (GMA Goal 1) encourages development in urban areas where adequate public facilities exist or can be provided in an efficient manner. Pertinent specific policies include:

*CPP 1.1* *Urban growth shall be allowed only within cities and towns, their designated UGAs, and within any non-municipal urban growth areas already characterized by urban growth, identified in the County Comprehensive Plan with a Capital Facilities Plan meeting urban standards. Population and commercial/industrial land allocations for each UGA shall be consistent with those allocations shown in the following table:*

**Allocations of UGA Population & Commercial/ Industrial Land (2007 CPPs) [partial table]**

| Urban Growth Areas | Residential Population (2025) | Commercial/ Industrial Land Allocations (New) |
|---|---|---|
| Bayview Ridge | 5,600 | 750 |

*CPP 1.2* *Cities and towns and their urban growth areas, and non-municipal urban growth areas designated pursuant to CPP 1.1 shall include areas and densities sufficient to accommodate, as a target, 80 percent of the county's 20 -year population projection.*

*CPP 1.3* *Urban growth areas shall provide for urban densities of mixed uses and shall direct development of neighborhoods which provide adequate and accessible urban governmental services concurrent with development. The GMA defines urban governmental services as those governmental services historically and typically delivered by cities, and includes storm and sanitary sewer systems, domestic water systems, street cleaning services, fire and police protection services, public transit services, and other public utilities associated with urban areas and normally not associated with non-urban areas.*

*CPP 1.4* *Urban growth areas shall include greenbelt, open space, and encourage the preservation of wildlife habitat areas.*

## Business and Industrial Development

### Countywide Planning Policies

Countywide Planning Policy 1.1 (GMA Goal 1) encourages development in urban areas where adequate public facilities exist or can be provided in an efficient manner. Pertinent specific policies include:

*CPP 1.1* *Urban growth shall be allowed only within cities and towns, their designated UGAs, and within any non-municipal urban growth areas already characterized by urban growth, identified in the County Comprehensive Plan with a Capital Facilities Plan meeting urban standards. Population and commercial/industrial land allocations for each UGA shall be consistent with those allocations shown in the following table: [omitted]*

*CPP 1.3* *Urban growth areas shall provide for urban densities of mixed uses and shall direct*

*development of neighborhoods which provide adequate and accessible urban governmental services concurrent with development. The GMA defines urban governmental services as those governmental services historically and typically delivered by cities, and includes storm and sanitary sewer systems, domestic water systems, street cleaning services, fire and police protection services, public transit services, and other public utilities associated with urban areas and normally not associated with non-urban areas.*

*CPP 1.4* *Urban growth areas shall include greenbelt, open space, and encourage the preservation of wildlife habitat areas.*

*CPP 1.7* *Development within established urban growth boundaries shall, as a minimum, conform to those urban development standards in effect within the respective municipality as of April 1, 1999. Bayview Ridge UGA urban standards for roads, sewer, and stormwater shall meet or exceed those in effect in the City of Burlington on April 1, 1999. UGAs with populations of over 1,500 or a Commercial/Industrial land allocation (new) over 100 acres shall have, as a minimum, the following levels of urban law enforcement and fire service levels:*

## Law Enforcement

*One commissioned law enforcement officer per 1,000 population served or per 100 acres of developed commercial or industrial property, whichever is the higher number.*



## Fire

*Urban fire level of service standard for Urban Growth Areas are as follows:*

*1. For Cities and their adjacent Urban Growth Areas, an ISO grading of five or better shall be maintained; otherwise*

*2. Within five minutes of being dispatched, the Fire Department shall arrive and be able to deliver up to 200 gallons per minute fire flow in an offensive (interior) attack, with a minimum of four firefighters, for responses to: structural fires, vehicle fires, other outside fires, motor vehicle accidents, activated fire alarm systems, or other hazardous conditions. The Fire Department shall also be capable of delivering a minimum of Basic Life Support including defibrillation, with a minimum of one First Responder or Emergency Medical Technician for medical responses.*

*Within 10 minutes of being dispatched, the Fire Department shall be able to support the interior structural fire attack with teams which may include: a ventilation team, a search & rescue team, a team for a backup line, and standby firefighters, totaling between 8 and 12 firefighters on-scene. The Fire Department shall also be capable of providing Heavy Rescue capability, including heavy hydraulics, at Motor Vehicle Accidents.*

*Within 20 minutes of being dispatched, the Fire Department shall be capable of delivering 1,500 gallons per minute fire flow in a sustained defensive attack mode for structural fire responses. For buildings larger than 10,000 square feet, the Fire Department shall be capable of delivering 2,000 gallons per minute, and shall have an elevated master stream capability. These requirements shall be met for 90 percent of all incidents.*

*Mutual aid requested under the Mutual Aid Contract may be used to provide relief to the initial operating crews, but shall not be used to provide initial attack capability, support functions, or sustained attack capability. This does not preclude automatic aid agreements under separate contract, which does provide these capabilities or functions from other agencies.*

*Times are considered to be "Response Time," which shall be measured by the sum of turnout time (the time from dispatch until the first arriving unit is en route to the incident), plus travel time. Dispatch time shall be allocated a maximum of one additional minute, which is measured*

*from the time the 9-1-1 call is received until the fire department is dispatched.*

*All operations shall be conducted in compliance with state and federal regulations, including training requirements for firefighters and maintenance requirements for equipment and apparatus.*

*All commercial and industrial facilities shall be inspected for compliance with the Uniform Fire Code at least annually. Water systems shall be installed in accordance with the Skagit County Coordinated Water System Supply Plan, with a fire flow meeting the requirements of the Uniform Fire Code.*



Countywide Planning Policy 2 (GMA Goal 2) addresses reducing the inappropriate conversion of undeveloped land into sprawling, low-density development.

Pertinent specific policies include:

*CPP 2.1 Contiguous and orderly development and provision of urban services to such development within urban growth boundaries shall be required.*

Countywide Planning Policy 5 (GMA Goal 5) encourages economic development that is consistent with the adopted Comprehensive Plan, promotes economic opportunity, and encourages growth in areas experiencing insufficient economic growth, within the capabilities of natural resources, public services, and public facilities.

Pertinent specific policies include:

*CPP 5.1 The development of environmentally sensitive industries shall be encouraged.*

*CPP 5.2 Home occupations that do not significantly change or impact neighborhood character shall be permitted.*

*CPP 5.5 A diversified economic base shall be encouraged to minimize the vulnerability of the local economy to economic fluctuations.*

*CPP 5.6 Commercial, industrial, and residential acreage shall be designated to meet future needs without adversely affecting natural resource lands, critical areas, and rural character and life styles.*

*CPP 5.13 Skagit County shall increase the availability of renewable resources and encourage the maximum attainable recycling of non-renewable resources.*

*CPP 5.15 The Comprehensive Plan shall support and encourage economic development and employment to provide opportunities for prosperity.*

## Housing

### Countywide Planning Policies

Countywide Planning Policy 1.1 (GMA Goal 1) encourages development in urban areas where adequate public facilities exist or can be provided in an efficient manner. Pertinent specific policies include:

*CPP 1.1 Urban growth shall be allowed only within cities and towns, their designated UGAs, and within any non-municipal urban growth areas already characterized by urban growth, identified in the County Comprehensive Plan with a Capital Facilities Plan meeting urban standards. Population and commercial/industrial land allocations for each UGA shall be consistent with those allocations shown in the following table: [omitted]*

*CPP 1.3 Urban growth areas shall provide for urban densities of mixed uses and shall direct development of neighborhoods which provide adequate and accessible urban governmental services concurrent with development. The GMA defines urban governmental services as*

*those governmental services historically and typically delivered by cities, and includes storm and sanitary sewer systems, domestic water systems, street cleaning services, fire and police protection services, public transit services, and other public utilities associated with urban areas and normally not associated with non-urban areas.*

Countywide Planning Policy 4 (GMA Goal 4) encourages the availability of affordable housing to all economic segments of the population, promotes a variety of residential densities and housing types, and encourages preservation of the existing housing stock.

*CPP 4.1 Local governments shall allow for an adequate supply of land use options to provide housing for a wide range of incomes, housing types, and densities.*

*CPP 4.3 The Comprehensive Plan should support innovative land use management techniques, including, but not limited to, density bonuses, cluster housing, planned unit developments, and the transfer of development rights.*

*CPP 4.4 The existing affordable housing stock should be maintained, and efforts to rehabilitate older and substandard housing, which are otherwise consistent with comprehensive plan policies, should be encouraged.*

*CPP 4.5 The construction of housing that promotes innovative, energy -efficient, and less expensive building technologies shall be encouraged.*

*CPP 4.6 Comprehensive Plan provisions for the location of residential development shall be made in a manner consistent with protecting natural resource lands, aquatic resources, and critical areas.CPP 4.7 Manufactured home parks shall be allowed only within urban or urban growth boundary areas.*

*CPP 4.7 Manufactured home parks shall be allowed only within urban or urban growth boundary areas.*

# Transportation

## Growth Management Act Requirements

This Transportation Element has been developed in accordance with Section 36.70A.070 of the GMA to address transportation needs in Bayview Ridge. It represents the County's policy plan through 2025 and considers the location and condition of the existing traffic circulation system specifically, the projected transportation needs, and plans for addressing future transportation needs while maintaining established level of service standards. GMA requires this element include:

- Land use assumptions used in estimating travel.
- An overview of facilities and service needs.
- An analysis of funding capability and a multi-year financing plan to fund the needed improvements.
- Intergovernmental coordination efforts.
- Demand-management strategies.

Goal 3. Transportation – Encourage efficient multimodal transportation systems that are based on regional priorities and coordinated with County and city comprehensive plans.

## Countywide Planning Policies

Countywide Planning Policy 3 addresses transportation. The policy states:

*CPP 3.1 Multi-purpose transportation routes and facilities shall be designed to accommodate present and future traffic volumes.*

*CPP 3.2 Primary arterial access points shall be designed to ensure maximum safety while minimizing traffic flow disruptions.*

*CPP 3.3 The development of new transportation routes and improvements to existing routes shall minimize adverse social, economic, and environmental impacts and costs.*

*CPP 3.4 The Transportation Element of the Comprehensive Plan shall be designed to: facilitate the flow of people, goods, and services so as to strengthen the local and regional economy; conform with the Land Use Element of the Comprehensive Plan; be based upon an*

*inventory of the existing Skagit County transportation network and needs; and encourage the conservation of energy.*

*CPP 3.5* *Comprehensive Plan provisions for the location and improvement of existing and future transportation networks and public transportation shall be made in a manner consistent with the goals, policies, and land use map of the Comprehensive Plan.*

*CPP 3.6* *The development of a recreational transportation network shall be encouraged and coordinated between state and local governments and private enterprises.*

*CPP 3.7* *The Senior Citizen and Handicapped transportation system shall be provided with an adequate budget to provide for those who, through age and/or disability, are unable to transport themselves.*

*CPP 3.8* *Level of service (LOS) standards and safety standards shall be established that coordinate and link with the urban growth and urban area to optimize land use and traffic compatibility over the long term. New development shall mitigate transportation impacts concurrently with the development and occupancy of the project.*

*CPP 3.9* *An all-weather arterial road system shall be coordinated with industrial and commercial areas.*

*CPP 3.10* *Cost effectiveness shall be a consideration in transportation expenditure decisions and balanced for both safety and service improvements.*

*CPP 3.11* *An integrated regional transportation system shall be designed to minimize air pollution by promoting the use of alternative transportation modes, reducing vehicular traffic, maintaining acceptable traffic flow, and siting of facilities.*

*CPP 3.12* *All new and expanded transportation facilities shall be sited, constructed, and maintained to minimize noise levels.*

### Other Transportation Related Plans

A number of regional, county, and local documents have been prepared that are relevant to the Bayview Ridge transportation system. This Subarea Plan incorporates relevant information contained in the following plans:

- Skagit County Comprehensive Plan 2007
- Skagit County Capital Facilities Plan
- Skagit County Transportation Improvement Program
- Skagit County Transportation Systems Plan 2003
- Skagit Regional Airport Master Plan Update 2007
- Skagit Non-Motorized Transportation Plan (2004)
- Skagit County Comprehensive Transit Plan
- SR 20: Sharpes Corner to SR 536 NEPA Pilot Project Dwelling Unit and Employment Forecasts for Transportation Analysis Zones, CH2M HILL (2001)

For transportation planning purposes, the Bayview Ridge Subarea and the abutting perimeter streets lie within the designated Skagit County "urban area" as adopted by the Federal Highway Administration.

## Capital Facilities

### Growth Management Act Requirements

The Capital Facilities Plan (CFP) Element is required under the Growth Management Act and is an important part of the Bayview Ridge Subarea Plan. According to Growth Management Procedural Criteria (WAC 365-195-210), the CFP element should contain at least the following features:

- An inventory of existing capital facilities.
- A forecast of the future needs for capital facilities.
- Proposed locations and sizes of expanded or new capital facilities.
- A six-year plan that will finance capital facilities.
- A requirement to reassess the land use element if funding falls short of meeting capital facilities

needs, as well as ensure consistency between the land use element and the capital facilities element with its associated financing plan.

The CFP must be financially feasible; probable funding must be in place to pay for capital facility needs or else "reassess the land use element." If the costs of the CFP exceed the available revenue to pay for them, Bayview Ridge must reduce its level of service (LOS), reduce costs, or modify the land use element to bring development into balance with available or affordable facilities. The GMA does not preclude the County from taking other steps before reassessing land use, including reduction of LOS standards, reducing the quality of facilities that meet the quantitative standards, or reducing demand by reducing consumption.

Other requirements of the GMA mandate forecasts of future needs for capital facilities and LOS standards of facility capacity as the basis for public facilities contained in the CFP. As a result, public facilities in the CFP must be based on quantifiable, objective measures of capacity, such as traffic volume capacity per mile of road and acres of park per capita.

One of the goals of the GMA is to have capital facilities in place concurrent with development. This concept is known as "concurrency." In Skagit County, concurrency means:

- Facilities to serve the development shall be in place at the time of development (or for some types of facilities, that a financial commitment is made to provide the facilities within a specified period of time).
- Such facilities have sufficient capacity to serve development without decreasing levels of service below minimum standards adopted in the CFP.

The GMA requires concurrency for transportation facilities. GMA also requires all other public facilities to be "adequate." Concurrency management procedures will be developed to ensure sufficient facility capacity is available for each proposed development.

## Countywide Planning Policies

The element is also developed to be consistent with the Countywide Planning Policies. Portions of Countywide Planning Policy No.1 Urban Growth and No.12 Public Facilities and Services address capital facilities. These policies are summarized as follows:

### Countywide Planning Policy 1.7 – Urban Growth

*Development within established urban growth boundaries shall, as a minimum, conform to those urban development standards in effect within the respective municipality as of April 1, 1999. Bayview Ridge UGA urban standards for roads, sewer, and stormwater shall meet or exceed those in effect in the City of Burlington on April 1, 1999. UGAs with populations of over 1,500 or a Commercial/Industrial land allocation (new) over 100 acres shall have, as a minimum, the following levels of urban law enforcement and fire service levels:*

### Law Enforcement

*One commissioned law enforcement officer per 1,000 population served or per 100 acres of developed commercial or industrial property, whichever is the higher number.*

### Fire

Urban fire level of service standards for Urban Growth Areas are as follows:

*1. For Cities and their adjacent Urban Growth Areas, an ISO grading of five or better shall be maintained; otherwise*

*2. Within five minutes of being dispatched, the Fire Department shall arrive and be able to deliver up to 200 gallons per minute fire flow in an offensive (interior) attack, with a minimum of four firefighters, for responses to: structural fires, vehicle fires, other outside fires, motor vehicle accidents, activated fire alarm systems, or other hazardous conditions. The Fire Department shall also be capable of delivering a minimum of Basic Life Support including defibrillation, with a minimum of one First Responder or Emergency Medical Technician for medical responses.*

*Within 10 minutes of being dispatched, the Fire Department shall be able to support the interior structural fire attack with teams which may include: a ventilation team, a search & rescue team, a team for a backup line, and standby firefighters, totaling between 8 and 12 firefighters on-scene. The Fire Department shall also be capable of providing Heavy Rescue capability, including heavy hydraulics, at Motor Vehicle Accidents.*

*Within 20 minutes of being dispatched, the Fire Department shall be capable of delivering 1,500 per minute fire flow in a sustained defensive attack mode for structural fire responses. For buildings larger than 10,000 square feet, the Fire Department shall be capable of delivering 2,000 gallons per minute, and shall have an elevated master stream capability. These requirements shall be met for 90 percent of all incidents.*

*Mutual aid requested under the Mutual Aid Contract may be used to provide relief to the initial operating crews, but shall not be used to provide initial attack capability, support functions, or sustained attack capability. This does not preclude automatic aid agreements under separate contract, which does provide these capabilities or functions from other agencies.*

*Times are considered to be "Response Time," which shall be measured by the sum of turnout time (the time from dispatch until the first arriving unit is enroute to the incident), plus travel time. Dispatch time shall be allocated a maximum of one additional minute, which is measured from the time the 9-1-1 call is received until the fire department is dispatched.*

*All operations shall be conducted in compliance with state and federal regulations, including training requirements for firefighters and maintenance requirements for equipment and apparatus.*

*All commercial and industrial facilities shall be inspected for compliance with the Uniform Fire Code at least annually. Water systems shall be installed in accordance with the Skagit County Coordinated Water System Supply Plan, with a fire flow meeting the requirements of the Uniform Fire Code.*

### Countywide Planning Policy 12 – Public Facilities

CPP 12 is intended to ensure that those public facilities and services necessary to support development are available and adequate to serve development at the time of occupancy. Goal No. 12 specifically states:

*CPP 12.1 Public facilities and services shall be integrated and consistent with locally adopted comprehensive plans and implementing regulations.*

*CPP 12.2 All communities within a region shall fairly share the burden of regional public facilities. (The GMA defines regional public facilities as streets, roads, highways, sidewalks, street and road lighting systems, traffic signals, domestic water systems, storm and sanitary sewer systems, parks, recreational facilities, and schools.)*

*CPP 12.3 A process shall be developed for identifying and siting essential public facilities. The Comprehensive Plan may not preclude the siting of essential public facilities. (The GMA defines essential public facilities as those facilities that are typically difficult to site, such as airports, state education facilities and state or regional transportation facilities, state and local corrections facilities, solid waste handling facilities, and in-patient facilities including substance abuse facilities, mental health facilities, and group homes.)*

*CPP 12.4 Lands shall be identified for public purposes, such as: utility corridors, transportation corridors, landfill, sewage treatment facilities, recreation, schools, and other public uses. The County shall work with the state, cities, communities, and utility providers to identify areas of shared need for public facilities.*

*CPP 12.5 Lands designated for urban growth by this Comprehensive Plan shall have an urban level of regional public facilities prior to or concurrent with development.*

*CPP 12.6 Development shall be allowed only when and where all public facilities are adequate and only when and where such development can be adequately served by regional public services without reducing levels of service elsewhere.*

*CPP 12.7 Public facilities and services needed to support development shall be available concurrent with the impacts of development.*

*CPP 12.8 The financing for system improvements to public facilities to serve new development must provide for a balance between impact fees and other sources of public funds and cannot rely solely on impact fees.*

*CPP 12.9 New development shall pay for or provide for its share of new infrastructure through impact*

*fees or as conditions of development through the environmental review process.*

*CPP 12.10 Public water supply for new development shall conform to or exceed the Coordinated Water System Plan for public water systems.*

*CPP 12.11 Future development of land adjacent to existing and proposed schools and other public facilities shall be compatible with such uses.*

*CPP 12.12 Library service within the county should be developed and coordinated to assure the delivery of comprehensive services throughout the County, with the county, cities and towns fairly sharing the burden.*

*CPP 12.13 A countywide recycling program shall be developed.*

*CPP 12.14 Public drainage facilities shall be designed to control both stormwater quantity and quality impacts.*

*CPP 12.15 Skagit County shall provide results of the required six year capital facilities plan, including a financing plan, and these shall be consistent with land use designations.*

*CPP 12.16 Citizens shall have the opportunity to participate in and comment on proposed capital facilities financing.*

*CPP 12.17 The Washington State Boundary Review Board for Skagit County should be disbanded pursuant to RCW 36.93.230, provided that the following tasks are accomplished: (a) that ALL cities and the County have adopted comprehensive plans and development regulations consistent with the requirements of these Countywide Planning Policies and RCW 36.70A, including appropriate urban levels of service for all public facilities and services; (b) that ALL cities and the County have adopted a concurrency ordinance that requires the adopted urban levels of service addressed in (a) above be accomplished in time frames that are consistent with RCW 36.70A.; (c) that special purpose districts that serve UGAs have adopted urban levels of service standards appropriate for their service areas; (d) that ALL cities and the County have an adopted capital facility plan for urban levels of service that indicates sources of revenue and a timeline for meeting such service; and (e) that ALL cities and special purpose districts have in place adopted "interlocal agreements" that discuss arrangements for transfer of assets and obligations that may be affected by transformance of governance or annexation of the service area consistent with the requirements of applicable RCWs.*

## Other Related Plans

This capital facilities element is based on the individual capital facility plans, master plans and studies prepared by facility and service providers operating within the UGA. The recommendations of the following planning documents were used:

- Skagit County Capital Facilities Plan for 2008-2013
- Skagit County Transportation Improvement Program 2008-2013
- Bayview Ridge Urban Growth Area Capital Facilities Plan 2008-2013
- Skagit Regional Airport Master Plan Update, 2007
- 2005 City of Burlington Comprehensive Wastewater Plan and the 2007 Supplement (Resolution 15-2007)
- Six-Year Capital Facilities Plan, Burlington-Edison School District No. 100, adopted July 23, 2007
- Bay View Watershed Stormwater Management Plan Phase 1: The Bayview Ridge Urban Growth Area, February 2007
- Skagit County Coordinated Water Supply Plan, July 2000
- Water System Plan for Public Utility No. 1 of Skagit County, Final Draft 2007
- Skagit County Comprehensive Parks and Recreation Plan, 2012

# Utilities

## Growth Management Act Requirements

GMA requires that local comprehensive plans include a utilities element that must include "the general location, proposed location, and capacity of all existing and proposed utilities, including, but not limited to: electrical lines, telecommunication lines, and natural gas lines. In addition, the State guidelines for implementing the GMA (WAC Chapter 365-195) state that policies should be adopted that call for:

1. Joint use of transportation rights-of-way and utility corridors, where possible.

2. Timely and effective notification of interested utilities of road construction and of maintenance and upgrades of existing roads to facilitate coordination of public and private utility trenching activities.

3. Consideration of utility permits simultaneously with the proposals requesting service and, when possible, approval of utility permits when the project to be served is approved.

## Countywide Planning Policies

Countywide Planning Policy 12 addresses the need for public facilities and services. The policy states that public facilities and services necessary to support development shall be adequate to serve the development at the time of occupancy without decreasing current service levels. The countywide planning policy calls for an integrated system of facilities. It further requires that lands be identified for public purposes, such as utility and transportation corridors, landfill, sewage treatment facilities, recreation, schools, and other public uses. Such planning will lead to a more efficient delivery of services.

# Parks

## Countywide Planning Policies

Countywide Planning Policy 9 (GMA Goal 9) encourages the retention of open space, development of recreational opportunities, conservation of fish and wildlife habitat, increased access to natural resource lands and water, and development of parks. Pertinent specific policies include:

*CPP 9.1* *Open space corridors within and between urban growth areas shall be identified. These areas shall include lands useful for recreation, fish and wildlife habitat, trails, and connection of critical areas.*

*CPP 9.2* *To preserve open space and create recreational opportunities, innovative regulatory techniques and incentives such as but not limited to, purchase of development rights, transfer of development rights, conservation easements, land trusts and community acquisition of lands for public ownership shall be encouraged.*

*CPP 9.3* *The use of Open Space Taxation Laws shall be encouraged as a useful method of land use control and resource preservation.*

*CPP 9.4* *Expansion and enhancement of parks, recreation and scenic areas and viewing points shall be identified, planned for and improved in shorelands, and urban and rural designated areas.*

*CPP 9.5* *Property owners shall be encouraged to site and design new construction to minimize disruption of visual amenities and solar resources of adjacent property owners, public road ways, parks, lakes, waterways and beaches.*

*CPP 9.6* *Development of new park and recreational facilities shall adhere to the policies set out in this Comprehensive Plan document.*

*CPP 9.8* *Incompatible adjacent uses including industrial and commercial areas shall be adequately buffered by means of landscaping, or by maintaining recreation and open space corridors.*

*CPP 9.9* *A park and recreation system shall be promoted which is integrated with existing and planned land use patterns.*

*CPP 9.10* *Indoor and outdoor recreation facilities shall be designed to provide a wide range of opportunities allowing for individual needs of those using these facilities.*

*CPP 9.12 In planning new park and recreation facilities, Skagit County shall take into consideration natural features, topography, floodplains, relationship to population characteristics, types of facilities, various user group needs and standards of access including travel time.*

### Comprehensive Parks & Recreation Plan

The 2012 Skagit County Comprehensive Parks and Recreation Plan recommends the following park facilities in the Bayview Ridge UGA:

> Proposed Bayview Community Park
> Development Level 2
>
> The Bayview Ridge area is unincorporated but designated by Skagit County as an area of urban growth. It is located on the hill west of I-5 and is being developed at a much higher density than neighboring unincorporated lands. To provide park services in this area, a community park site is proposed. The timeline for the development of this park should parallel the timeline for other Bayview sub area infrastructure. The park should therefore be completed as the subarea reaches capacity. Trail corridors should be acquired as made available. Connections to the Port of Skagit trails are highly recommended. (Chapter 11, page 9)

## Natural Environment

### Countywide Planning Policies

Countywide Planning Policy 10 (GMA Goal 10) protects the environment and enhances the high quality of life, including air and water quality and the availability of water. Pertinent specific policies include:

*CPP 10.1 Natural resource lands, including aquatic resource areas and critical areas shall be classified and designated, and regulations adopted to assure their long-term conservation. Land uses and developments that are incompatible with critical areas shall be prohibited except when impacts from such uses and developments can be mitigated.*

*CPP 10.2 Land use decisions shall take into account the immediate and long range cumulative effects of proposed uses on the environment, both on and off-site.*

*CPP 10.3 The County shall reduce the loss of critical aquatic and terrestrial habitat by minimizing habitat fragmentation.*

*CPP 10.4 Wetlands, woodlands, watersheds and aquifers are essential components of the hydrologic system and shall be managed to protect surface and groundwater quality.*

*CPP 10.7 Development shall be directed away from designated natural resource lands, aquatic resource areas and critical area.*

*CPP 10.9 Septic systems, disposal of dredge spoils and land excavation, filling and clearing activities shall not have an adverse significant effect on Skagit County waters with respect to public health, fisheries, aquifers, water quality, wetlands, wildlife habitat, natural marine ecology and aquatic based resources.*

*CPP 10.11 When evaluating and conditioning commercial, industrial or residential development, Skagit County shall consider threatened or endangered wildlife.*

*CPP 10.12 Skagit County shall enter into interagency agreements with appropriate state and local agencies and Native American Tribes for compliance with watershed protection, including but not limited to, the cumulative effects of construction, logging and non-point pollution in watersheds.*

## Essential Public Facilities

### Countywide Planning Policies

Countywide Planning Policy 12 (GMA Goal 12) addresses the availability of public facilities and services.

*CPP 12.2 All communities within a region shall fairly share the burden of regional public facilities.*

*CPP 12.3 A process shall be developed for identifying and siting essential public facilities. The Comprehensive Plan may not preclude the siting of essential public facilities.*

**Tara Satushek** Comment # 35

**From:** Kate Smith <katherine.selting@gmail.com>
**Sent:** Wednesday, March 12, 2025 12:58 PM
**To:** PDS comments
**Subject:** Possible Spam: Skagit County's 2025 Comprehensive Plan

Dear Commissioners,

I applaud these efforts to update the comprehensive plan and especially the efforts to incorporate the new Climate Element.

The plan is strong AND yet, the details of how the plan gets implemented are important to ensure action and positive impact for our community. A few comments for the plan to improve implementation:

- The implementation of the plan needs to be continually informed by scientific data, for example, incorporating the Skagit Climate Consortium's new model (when released) for assessing and planning for flooding, sea level rise and decreased snowpack impact to water availability.
- To strengthen the enforceability of the plan, I recommend the change to clearer language from phrases like "to the extent possible" to "the county shall".
- Additionally, I request the creation of an environmental advisory board.
- Add Farm and Food distribution/Storage facilities as assets when assessing climate risk (in addition to farms)
- Continue the county's efforts in farmland succession planning to ensure continued agricultural land stewardship.
- Engage with community organizations including Burlington Bicycle Coalition for implementation of Goal 8.
- Coordinate with cities to improve the connections between the existing bike routes, specific example; support the construction of a pedestrian bridge from downtown Mount Vernon to Edgewater park to improve safety of bikers utilizing Route 14.

With great appreciation,

--
Kate Selting Smith
17622 Greenacres Rd.
Mount Vernon, WA 98273

Comment # 36

Skagit Drainage and Irrigation Districts Consortium LLC
2017 Continental Place Suite 4
Mount Vernon, WA 98273
360.708.0344

March 12, 2025

Skagit County Planning & Development Services
1800 Continental Place
Mount Vernon, WA 98273

RE: Comments 2025 Draft Comprehensive Plan

Dear Planning Department,

The Skagit Drainage and Irrigation Districts Consortium LLC (Consortium) submits the following comments on the Draft 2025 Comprehensive.

## Policy 4A-1.1 (e ) and 4A-3.1

> ~~(d)~~ (e) Site-specific proposals to de-designate natural resource lands must be deferred until a comprehensive countywide analysis is conducted

| | |
|---|---|
| policy 4A-3.1 | ~~**Long-Term Designation of Agricultural Lands:** Designation of Agricultural Lands is intended to be long-term.~~ Designate agricultural lands of long-term commercial significance. De-designation is discouraged, but may be considered only when compelled by changes in public policy, errors in designation, new information on resource lands or critical areas, circumstances beyond the control of the landowner, or an overriding benefit to the agricultural industry. Evaluate de-designation requests with the same criteria under policy 4A-1.1 used for designation of Agricultural-Natural Resource Lands. |

Comments:

Please revise Policy 4A-1.1 (e.) to include “countywide analysis is conducted **by Skagit County**”

Please revise Policy 4A-3.1 to remove de-designation language. At a minimum revised this section to only include the same text as 4A-1.1 (e )– de-designation must be deferred until a comprehensive countywide analysis is conducted by Skagit County.

## Policy 4A-4.6

| | |
|---|---|
| policy 4A-4.6 | ~~Habitat Restoration Projects: H~~Permit habitat restoration projects ~~are a permitted use~~ on agricultural lands so long as it is shown through project review that the proposed restoration project does not have an adverse impact on hydrologic functions, drainage infrastructure or the ongoing agricultural use of adjacent properties. |

Comment: Proposed Text:

Prohibit habitat restoration projects on agricultural lands except through a special use permit process to ensure restoration projects do not have an adverse impact on hydrology functions, drainage infrastructure or the ongoing agricultural use of adjacent properties.

## Policy 4A-5.5

| | |
|---|---|
| policy 4A-5.5 | ~~Skagit Drainage and Fish Initiative:~~ Within the Drainage Districts, identified in the Skagit Drainage and Fish Initiative, apply the agreements for maintenance, fish protection, and habitat restoration outlined in the Memorandum of Understanding (MOU), which will predominate over local regulations. The MOU, developed by the Western Washington Agricultural Association (WWAA) and Washington Department of Fish and Wildlife (WDFW) is designed to reduce conflicts between different users in the Skagit and Samish River Deltas. ~~The Skagit River Systems Cooperative (SRSC) participated in meetings and this Initiative represents movement toward overall reduced conflicts. This policy supports this movement.~~ |

Comment: Proposed Text:

Within the Drainage Districts apply the Skagit Drainage Fish Initiative Drainage Maintenance Agreements between WDFW and individual Districts for fish protection and habitat restoration. The DFI Maintenance Agreements will predominate over local regulations. These Drainage Maintenance agreements are designed to reduce conflicts between different users in the Skagit and Samish River Deltas.

## Policy 9A-8.9

| | |
|---|---|
| policy 9A-8.9 | The Coordinated Water Systems Plan should be reviewed to ensure consistency with the adopted Comprehensive Plan. |

Comment: Proposed Text

The Coordinated Water Systems Plan should be reviewed **and updated to address irrigation water needs and** ensure consistency with the adopted Comprehensive Plan.

## Policy 9B-1.6

| | |
|---|---|
| policy 9B-1.6 | **Structural Flood Protection:** Dikes, levees, and other structural flood protection facilities should be designed to allow fish passage, protect flows in riparian zones, and complement or enhance the surrounding landscape. |

Comment: Proposed Text

**NEW** Structural Flood Protection: Dikes, levees, and other structural flood protection facilities should be designed to allow fish passage, protect flows in riparian zones, and complement or enhance the surrounding landscape were feasible. Any design modifications such as improvements to existing structural flood protection facilities or setbacks of existing structural flood protection facilities should be consistent with flood protection and drainage functions as defined by the diking and drainage districts.

## Policy 9B-1.7

| | |
|---|---|
| policy 9B-1.7 | **Habitat:** Flood protection measures should not result in a long-term net loss of-, or damage to, fish and wildlife resources, and wherever possible, should result in increased diversity of habitat. |

Comment: Delete this policy.

Explanation. This is an opinion of some entities, but is not a public policy. Existing flood protection measures were constructed legally. Maintenance and improvements are permitted by federal, state, and local agencies; this permitting process defines the requirements for the protection and enhancement of habitat. This language does not belong in the Comprehensive Plan.

**Tara Satushek** Comment # 37

**From:** Todd & Elizabeth Jann <jannclan@fidalgo.net>
**Sent:** Wednesday, March 12, 2025 3:18 PM
**To:** PDS comments
**Subject:** Possible Spam: Skagit County's 2025 comprehensive plan draft policies

Esteemed Members of Skagit County Planning Department,

Hello, again. I have been a resident of Skagit County since 1981. My children attended Skagit County schools. I am currently retired after working as an RN in the valley since 1990. I feel myself and family have a vested interest in the future plans for our community.

I would like to reiterate my request for the creation of an environmental advisory board to provide expert information for educated choices and decisions for our county. I realize emotions and opinions are important but we also need to have specialized, expert input to guide with facts and provide reason to our decision making.

As a property owner in the valley, I am deeply concerned about the results of climate change I can see with my own eyes. Our relatively young cedar trees, alders, Indian plum, all native plants are dying off after slowly increasingly years of extreme dryness in our area. My husband and I refer to them as the haunted forests, due to their stark, bare, dead appearance. We are very disconcerted by the die off. As defense, we have resorted to planting species indigenous to Northern California, for example, sequoias and **Western redbud** (Cercis occidentalis), which so far are thriving as they are more drought tolerant.

I hope that with comprehensive input from specialists, we can go forward with a plan to ensure we maintain the beauty, wildness, agricultural lands and clean air, water and soil our valley deserves for our people, plants and wildlife.

Please seriously consider the addition of an environmental advisory board to the decision making process for the good of us all. Just considering commercial and recreational undertakings for our county is not looking at the whole picture. Nothing is sustainable without a healthy environment. Thank you for your time and effort in this endeavor. I appreciate you giving me the opportunity to voice my thoughts on this topic. We need to work together to ensure our county remains the magical, ecologically healthy place it should be for our future generations.

Thank you,
EA Jann
pob 2112
Mount Vernon, WA 98273

**Tara Satushek** Comment # 38

**From:** Sophia Steele <ssteele@wspa.org>
**Sent:** Wednesday, March 12, 2025 3:39 PM
**To:** PDS comments
**Cc:** Jessica Spiegel
**Subject:** Skagit County's 2025 Comprehensive Plan

Dear Planning and Development Services:

The Western States Petroleum Association (WSPA) appreciates the opportunity to provide Skagit County Planning and Development Services (County) with our comments on the County's draft 2025 Comprehensive Plan (Plan). We recognize and appreciate the time and efforts your staff has invested in updating these overarching goals and vision statements that will guide growth and development in Skagit County over the next twenty years.

WSPA is a non-profit trade association representing companies that create the energy we need today for the future of transportation. This includes renewable diesel as well as other biofuels, along with innovative solar, other sustainable energy projects, and carbon capture and sequestration. WSPA members' companies also continue to produce traditional petroleum-based products, which remain a vital energy source in Washington.

Two WSPA member companies own and operate refineries and other assets located in an unincorporated area of Skagit County that also lies within the Urban Growth Area of the City of Anacortes. These companies and their facilities are long-standing community partners and important assets to the local, regional, and state economy. These facilities are also heavily regulated by federal, state, and regional climate policies, as well as a complex myriad of health, safety, and environmental laws and regulations.

The goals, policies, and strategies contained in the draft Plan chapters for Climate and Resiliency Element and associated Greenhouse Gas Emission Reductions Sub-Element should not conflict, but instead remain consistent with those on the federal, state, and regional level. WSPA recommends drafting the goals, policies, and strategies of the Climate and Resiliency Element, as well as other element chapters, such that they will be taken into *consideration* for future planning and development, and thereby providing flexibility for County staff to guide day-to-day decisions, avoid situations of narrowly construing policies and goals in implementing regulations and codes, and foster implementation in a manner that continues to balance protection of the natural environment while supporting appropriate growth and economic development.

On behalf of WSPA and its member companies, I would like to express our appreciation for the County's efforts in allowing stakeholders to provide input on these proposed updates to the Plan. If you have any questions regarding our comments, please do not hesitate to contact me directly at (360) 352-4516 or via email at ssteele@wspa.org.

Sincerely,

Sophia Steele
Sr. Manager, Northwest Region
WSPA

**O** 360.352.4516

Comment # 39

**Tara Satushek**

**From:** John Day <jday0730@gmail.com>
**Sent:** Wednesday, March 12, 2025 4:05 PM
**To:** PDS comments
**Subject:** Skagit County's 2025 Draft Comprehensive Plan Policies

March 12, 2025

To: Skagit County Planning and Development Services

From: John Day
6368 Erwin Road
Sedro-Woolley, WA 98284

Re: Skagit County's 2025 Draft Comprehensive Plan Policies

Thank you for this opportunity to comment on Skagit County's draft 2025 Comprehensive Plan Policies, which addres with some of the critical challenges presented to the County and to us all as citizens by massive forces such as population growth and climate change. Having lived in Skagit County since 1980 and having a deep, abiding love for this place, I appreciate the work that has gone into this draft on the part of PDS staff and their consulting firm. Many of the issues addressed in the draft policies have long been personal concerns. I was a volunteer member of the County's 2008-2009 Climate Change Task Force. I am a supporter of, and a volunteer land steward for, Skagit Land Trust. I also serve on the Board of Directors of the Skagit Audubon Society and am the immediate past President of that organization.

I have reviewed the comments submitted by Skagit Land Trust on the current draft policies and find them to be incisive and thorough. I support them in full. I would like to emphasize the following recommendations:

1. The establishment of an Environmental Advisory Board (EAB) as part of the Environment Element of the Comprehensive Plan.
2. Enhancing Resiliency, Housing Affordability, and Greenhouse Gas Emissions Reductions in Skagit County.
3. Cooperation with Indian Tribes, state and federal agencies, and local non-profit organizations in protecting our natural environment and addressing the threats of climate change.
4. Removing the new provision of Policy 3C-1.6(b) that Rural Village Residential land density may be up to four dwellings per acre for certain housing types which may be more affordable. Allowing higher density in rural areas, even for "affordable" housing, would further strengthen Skagit County's growth trend away from the goal of limiting growth in rural areas to no more than 20 percent and conflict directly with the Growth Management Act. Encouraging residential development in the cities and towns is the best way to promote affordable housing in Skagit County.
5. Support for Policy 4B-2.12, Wildfire Resilience Strategy, with the addition of the language proposed by Skagit Land Trust in their comment letter.
6. Rewording Policy 4B-5.5 to state that Natural Resource Conservation Areas (NRCA) and Natural Area Preserves (NAP) are compatible with Industrial Forest zoning as a mechanism for recognizing and protecting highly sensitive and unique habitat areas within the commercial forest land base.
7. Support for stronger wording emphasizing no net loss of wetland functions and values under Goal 5A and Policy 5A-5.1.

8. The strengthening of language in Goal 5A emphasizing protection of wildlife corridors.

I appreciate your consideration of these comments and look forward to seeing the next iteration of the Comp Plan update.

John Day

**Tara Satushek** Comment # 40

**From:** Mary Ruth Holder <mruthholder@gmail.com>
**Sent:** Wednesday, March 12, 2025 4:23 PM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan Draft Policies

Please accept our comment on the Draft Policies for the 2025 Skagit County Comprehensive Plan. First, we would like to thank both the Planning Department staff and the contractor for their hard work on this draft Plan. The draft Plan contains important updates and is easier to read. We also thank them for their public outreach efforts including open houses held in different parts of the county and outreach to marginalized communities.

Many members of the public, including ourselves, participated in making comments on the Draft in November. Many commenters made it clear that, like us, they treasure the agricultural, forested, rural lands and natural ecosystems in our county that support communities, wildlife and water quality, and want them to be protected.

We have lived here for nearly 20 years and like other commenters (and as previously detailed in our November 9, 2024 comment on the Plan) have witnessed and understand the many ways that climate change is upon us. Skagit must be resilient in the face of its impacts. Resiliency is a key part of the Comprehensive Plan. The changes to the draft Comprehensive Plan addressing resilience are not just driven by "state laws" as some individuals have complained; instead they are driven by the reality facing us and the need for policies that will help Skagit County to meaningfully address that reality for the health, welfare and safety of Skagit's citizens and our natural environment.

In order to help not only with the application and implementation of Comp Plan policies to county actions and decisions, but also to help Commissioners and planners meet the challenges for a county having diverse and complex ecosystems, a changing climate and sea level rise, we again recommend (as we did in our November comment) that the Board of Commissioners create an Environmental Advisory Board (EAB). This Board would give advice on topics not covered by any citizen advisory board at present. For example, the Forest Advisory Board and Agriculture Advisory Board, are narrower in focus and different in scope and makeup. These Boards focus on the economic viability and uses of resource lands. The uncertain times in which we find ourselves now as well as in the future call for advice from an EAB.

We joined a majority of commenters in November, 2024 calling for the Board of County Commissioners to create an EAB. We do so again. Here is what we said then and repeat now: " Going forward, an Environmental Advisory Board with appointed members having appropriate expertise and experience applying "best available science" would help County decision makers address environmental issues in light of the complex and varied ecosystems of Skagit County. Its members would report to the Board of County Commissioners and give advice to the County Commissioners and, where appropriate, the Planning Commission. Issues that could be considered by appointed Environmental Advisory Board members include: natural resource conservation; habitat restoration; climate science; greenhouse gas emissions reduction; climate impacts mitigation; appropriate use of open spaces like bike and walking paths; protection of wildlife habitat and wildlife corridors; natural resource and environmental plans, policies, and programs (including legislation affecting natural lands, open space, water bodies and

wildlife habitat); land use decisions affecting the long-term sustainability of natural processes like rivers and marine shorelines; natural solutions to improve climate preparedness; and environmental justice and environmental stewardship.

Appointed members of an Environmental Advisory Board would have lived experience, background and professional expertise to address these and other issues and would include researchers, scientists, and educators and members of under-served communities.

Other counties [as well as the City of Anacortes] have created this type of Board, sometimes using different names. As our county grows in population and planning decisions grow in complexity, the Board of Commissioners could call upon its Environmental Advisory Board to ensure that consistent with current County policy, the 'best available science' is included in local decision making."

We call upon the Board of County Commissioners to recognize the importance and timeliness of an Environmental Advisory Board and to create an EAB as part of their consideration of the 2025 Comprehensive Plan.

We strongly oppose Policy 3C-1.6(b), “Rural Village Residential,” that would allow increased density of housing in rural villages. Housing density should only occur in urban and urban growth areas. Infill and redevelopment of underutilized properties in cities and towns is an appropriate approach to providing affordable housing, not rural residential development. Rural development will lead to sprawl accompanied by its impacts to adjacent sensitive rural areas. Affordable housing in towns and cities will also to help ensure that residents have greater access to services and modes of transportation that would not increase greenhouse gases. Our County is already falling behind in placing new housing developments in urban areas and protecting the rural areas of the County. Policy 3C-1.6(b) would move us further in the wrong direction. It is not the answer to the affordable housing question. It should be removed from the Plan.

Thank you again for your work on the 2025 Comprehensive Plan Update and for your close consideration of our comments.

Sincerely,
Mary Ruth and Phillip Holder
201 S. 7th St.
Mount Vernon WA 98274

**Tara Satushek** Comment # 41

**From:** Heather Spore <hspore@swinomish.nsn.us>
**Sent:** Wednesday, March 12, 2025 4:35 PM
**To:** PDS comments
**Cc:** lexine.long@commerce.wa.gov; 'misty.blair@ecy.wa.gov'
**Subject:** Skagit County's 2025 Comprehensive Plan
**Attachments:** SITC-L2SkagitCounty-CompPlan_202503012 with Nov 2024.docx.pdf

Skagit Planning and Development Services Staff,

I am submitting comments on the Draft 2025 Comprehensive Plan on behalf of the Swinomish Indian Tribal Community. Our comments are included in the body of this email below and in the attached PDF.

Thank you for considering our comments.

_____

Dear Planning and Development Staff,

The Swinomish Indian Tribal Community submits the following comments on the proposed updates to the Skagit County Draft Comprehensive Plan (Draft Plan). These comments are in addition to those submitted in November 2024 on the Draft Comprehensive Plan Environment and Climate Policies which are fully incorporated herein by this reference and attached to this letter. The Swinomish Tribe recognizes the importance of resilience planning, environmental protection, and sustainable development, and is a longtime leader in advancing these priority policy matters. Given the Tribe's unique vulnerability to climate impacts, and our cultural and ecological connection to the Skagit watershed since time immemorial, we re-emphasize the need for Skagit County to adopt and implement clear, actionable, and science-based policies to address climate change, environmental conservation, and the meaningful protection of natural resources in Skagit County. We also wish to emphasize the need for the County to integrate its updated Shoreline Management Program plans and policies, which are yet to be finalized, into any updated final comprehensive plan.

**Swinomish Tribe's Treaty Rights and Interests Throughout the Skagit Basin**

Swinomish has been the primary steward of the Skagit River and north Puget Sound since time immemorial. Fish and fish habitat are crucial to the cultural, spiritual, subsistence and commercial activities of the Swinomish Tribe. The Tribe exercises Treaty-reserved fishing rights in their "usual and accustomed" fishing areas (U&As), which include an extensive portion of marine waters of the northern Salish Sea, the entirety of the Skagit River watershed and all its tributaries, as well as the Samish River system. The Tribe's Treaty-protected fishing, hunting and gathering rights also extend throughout the Skagit River basin and coastal areas affected by the Draft Plan, among other places. These habitats, all of which are integral to the Swinomish culture and the broader ecosystem, must be safeguarded in all County planning efforts.

## Overarching Draft Comprehensive Plan Concerns

The Swinomish Tribe has serious concerns about the inadequacy of the Draft Plan's proposed environmental protections, its consistency with state law, the complete lack of references to scientific literature related to climate change, and its ability to safeguard critical natural resources in the face of climate change. While the it acknowledges the importance of environmental conservation and climate resilience, **the Draft Plan lacks enforceability, scientific rigor, and regulatory alignment to ensure these resiliency goals are effectively achieved**.

The Draft Plan mentions the importance of planning for and promoting climate resiliency, yet there is:

- no discussion of how the best science and technical data were relied upon,
- no mention of climate or sea level rise projections,
- no metrics related to what the predicted increased risk from drought, wildfire, sea level rise, extreme precipitation and flooding might be.

The Draft Plan promises a "summary of potential climate impacts" in an appendix, but that seems to be omitted from both the "redlines" and "clean" versions of the Plan. Without presenting any scientific facts about sea level rise or future climate change projections, nor meaningful discussion of climate impacts facing the Skagit, this Draft Plan does not meet the express intent and purpose of RCW 36.70A.070(9), nor does it meet the legal obligations established in HB1181 to include a climate element in a comprehensive plan.

Further, the introductory section of Appendix B "Linking Past to the Present" (p. 352, clean version) contains a ***grossly inaccurate portrayal of tribal presence and stewardship in the Skagit Valley prior to colonization***. **We object to this section, the misinformation and oversimplification of tribal lifeways it provides, and misrepresentation of the importance of salmon and presence of historical tribal villages.** The County should remove this section, or allow Swinomish and other tribal nations to provide an accurate and appropriate section that captures a more complete historical context of Skagit Treaty Tribes in the Skagit for millennia prior to colonization.

**Draft Comprehensive Plan Comments**

The Environment Element (Chapter 5) is a crucial component of the Comprehensive Plan, yet it **fails to integrate the best available science (BAS) as required by the Growth Management Act (GMA) and WAC 365-195**. The Draft Plan's Policy 5A-1.1 states that critical areas shall be identified based on BAS, but it does not mandate how or when scientific data will be updated or incorporated into regulatory decisions. Per WAC 365-190-080(1), "*Counties and cities must* [emphasis added] *include the best available science as described in chapter 365-195 WAC, when designating critical areas and when developing policies and regulations that protect critical areas*." Without a formal mechanism for integrating peer-reviewed ecological studies, hydrological models, and habitat assessments, this policy lacks enforceability and leaves critical areas vulnerable to outdated or incomplete assessments. To ensure effective environmental management, the Draft Plan should mandate regular scientific review cycles and independent assessments for all proposed developments in sensitive ecosystems.

Similarly, Policy 5A-1.2 allows for site-specific determinations of critical area protections without requiring independent third-party scientific review, which is likely to lead to inconsistent and inadequately supported decisions. To ensure effective environmental management, **the Draft Plan should mandate that any proposed permitted decision involving critical areas or variances require an independent third-party scientific review that is subject to public review and comment**.

**The Draft Plan also fails to uphold the No Net Loss (NNL) standard**, which is a fundamental requirement of the Shoreline Master Program (SMP) and WAC 365-190-080(1). Policy 5A-5.1 states that critical areas should be protected, but the language is inadequate because it would allow for mitigation without following the requirement to avoid impacts first, before you look to mitigation. **Allowing mitigation without prioritizing protection first via avoidance of impacts directly contradicts the intent of the SMP, which requires a clear commitment to preventing ecological degradation, and all policies therein are considered elements of a County's comprehensive plan (RCW 90.58)**. Furthermore, Policy 5A-5.2 states that land uses incompatible with critical areas "should be discouraged," rather than prohibited unless full mitigation, starting with avoidance of impacts, is demonstrably achieved. The use of "should" instead of "shall" weakens the enforceability of critical area protections. The Plan must be revised to ensure that all permitted activities comply with the NNL standard and require comprehensive compensatory mitigation that provides equivalent or greater ecological function. And, these mitigation measures should be required prior to any permitted activities to ensure no loss of ecological function.

Another significant shortcoming is the lack of adequate protections for riparian habitat areas, which are vital to salmon recovery, water quality, and overall ecosystem health. While the it acknowledges the importance of these habitats, **the**

**Draft Plan does not establish clear regulatory mechanisms to ensure riparian habitat protection**. Policy 5A-5.3(e) states that new development "should incorporate design elements that protect wildlife habitat values," yet **the Draft Plan fails to define minimum buffer widths**. This is particularly concerning given the extensive scientific evidence supporting buffer widths as identified in the peer-reviewed *WDFW Priority Habitat and Species Volume 1.* This document represents the best science for Western Washington regarding how to ensure the ecological integrity of fish-bearing streams. Moreover, Policy 5A-5.1(d)(viii) provides only vague "special consideration" for anadromous fisheries rather than mandating protective measures as required by WAC 365-190-080(2) [in part]: "*Counties and cities must give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries.*" More egregiously, there is no mention of the fact that the Skagit River has three (3) Endangered Species Act-listed anadromous fish species – Puget Sound Chinook, Steelhead and Bull Trout. **To effectively protect these ESA-listed species and the critical habitats they need to recover, the Draft Plan must establish mandatory riparian buffer zones, restrict development in floodplain-adjacent wetlands, and require habitat restoration as a condition for approval.**

The Climate and Resiliency Element (Chapter 12) mentions climate change, yet the chapter:

- lacks a scientific foundation,
- lacks strong enforcement mechanisms and
- fails to integrate the latest climate projections into planning and infrastructure design.

According to RCW 36.70A.070(9)(e)(i), this element must, but currently fails to be, "*consistent with the best available science and scientifically credible climate projections and impact scenarios that moderate or avoid harm*". Policy 12J-1.3 states that climate change "should be considered" in floodplain management planning, but this language is insufficient, not enforceable, and leaves too much to interpretation to ensure that future development is resilient to climate-induced flooding. Given that by the 2040s, today's 100-year flood event will happen about every 20 years due to climate change, the Draft Plan must explicitly require the use of 2050-2100 climate projections in all floodplain planning efforts using updated climate modeling from the University of Washington Climate Impacts Group. Similarly, Policy 12J-1.8 mandates that development withstand "100-year flood frequency" but does not account for shifting baseline conditions, potentially placing infrastructure and communities at risk. This section seems to be in conflict with recommendations made in policy 5B-1.4: "*meet regulatory standards for floodplain development as these standards are updated for consistency with relevant federal requirements including those related to the Endangered Species Act, and to accommodate long-term climate change projections*".

The Draft Plan also fails to establish binding commitments to greenhouse gas (GHG) reduction, a critical component of climate resilience. While Policy 12G-1.5 encourages emissions reductions, it does not set clear targets or require concrete mitigation actions. This is a significant oversight given Washington State's goal of achieving net-zero emissions by 2050. To align with state policy, the Plan must set specific emissions reduction benchmarks, require mitigation measures for high-impact industries, and incorporate carbon sequestration strategies into land use planning County-wide.

In our comment letter submitted last November, the Tribe specifically called out necessary revisions to Policy 12A 1.1 that supports the acquisition of development rights to farmland under the Farmland Legacy Program. Acquisition of farmland development rights should include the possibility for restoration projects, riparian habitat buffers (including to meet federally approved water quality standards), and conversion of unproductive farmland to habitat, all of which have greater contributions to climate resilience than would be gained from farmland alone. We are concerned that the current wording could preclude habitat restoration on agricultural land. Restoration of farmland to wildlife habitat or for conservation purposes, or to forested land should be promoted for climate resiliency, particularly when farmland is no longer productive or sustainable. Restoration of unproductive farmland to wildlife habitat not only enhances climate resilience in general at the landscape level, but will further enhance viability and climate resilience for adjacent agricultural areas. **We request that future conservation easements and acquisitions do not preclude future potential restoration actions**.

**<u>Concerns with the Draft Vulnerability Assessment</u>**

The County's Risk Vulnerability Assessment as written has limited applicability and usefulness in informing the Climate and Resiliency sub-elements as required by HB 1181 because it did not include all readily available best available climate science, contains no quantitative metrics and thus no enforceable standards, and is generally overly vague. The assessment cites outdated climate science from 2010 and 2011 among its references, rather than the litany of literature currently available through federal agencies, universities, and science consortia. Clearly, this does not uphold the best available science standard. Furthermore, all of the FEMA citations utilize the flood maps from 1984, because Skagit County, with the exception of the city of Anacortes, has rejected updated digital flood mapping. Given these shortcomings, it is unclear how the vulnerability assessment will or will not be used in conjunction with the Draft Plan.

1. Use of Best Available Science:
    a. The vulnerability assessment cites limited sources of data (e.g., NOAA, Climate Mapping for a Resilient Washington, and the Skagit River Basin Climate Science Report), but omits the incorporation of directly applicable scientific resources from expert climate agencies like the University of Washington's Climate Impacts Group, Washington Sea Grant, and the Skagit Climate Science Consortium. To be compliant with WAC 365-195-915(1)(b), the County should include a list of relevant and current scientific sources used in their planning decision-making.
    b. The vulnerability assessment uses qualitative risk ratings (low, medium, high) without incorporating quantitative thresholds or advanced climate modeling, which limits the depth of scientific analysis needed for adequate planning.
2. Enforceable Policies and Mitigation Standards:
    a. The Swinomish Tribe emphasizes the need for specific, enforceable, and science-based measures, especially regarding:
        i. Riparian buffer protections,
        ii. No Net Loss (NNL) standards for wetland habitats,
        iii. Mitigation requirements for development in flood-prone areas.
    b. The vulnerability assessment suggests actions like updating county codes and considering development standards but stops short of recommending mandatory policies or enforceable regulations.
3. Shoreline Master Program (SMP) Integration:
    a. The vulnerability assessment fails to address the Tribe's repeated request for alignment with the Shoreline Master Program (SMP). The Tribe stressed the need for consistency between the SMP and climate resilience policies, particularly to ensure the protection of salmon habitats and wetland ecosystems.
4. Water Resource Management and Instream Flows:
    a. The vulnerability assessment does not fully address the Tribe's concerns about maintaining instream flows critical for salmon populations. The Tribe opposes water rights policies that could reduce flows in the Skagit River, arguing that current policies risk violating treaty rights and the Skagit Instream Flow Rule (WAC 173-503). The memo acknowledges drought risks and their impact on fish habitats but stops short of suggesting policy changes that would secure sufficient water flows for salmon and other aquatic species.
5. Floodplain and Wetland Development:
    a. While the vulnerability assessment discusses flood risks and recommends updates to development standards in flood-prone areas, it does not endorse the Tribe's call to preclude new development entirely in high-risk floodplains. The memo also lacks detailed strategies for riparian zone restoration, a critical issue raised by the Tribe.
6. Wildfire Risk and Resilience Planning:

a. The vulnerability assessment identifies wildfire risks but does not align with the Tribe's recommendation to incorporate wildfire mitigation strategies that account for environmental justice and the protection of vulnerable rural communities, as outlined under HB 1181.

**Other Concerns That Remain Unaddressed**

1. Treaty Rights and Cultural Considerations: While the vulnerability assessment acknowledges the cultural importance of fisheries, it does not explicitly integrate the Tribe's treaty-protected fishing rights into the climate risk and planning framework, a major emphasis in the Tribe's previous comment letter from 2024.
2. Mitigation Monitoring and Accountability: The Tribe called for policies requiring long-term monitoring of mitigation projects, adaptive management strategies, and accountability measures. The memo lacks these specific provisions, offering only high-level suggestions without outlining enforcement mechanisms.
3. Opposition to Additional Water Rights for Agriculture: The Tribe strongly opposes granting additional water rights (Policy 12A 1.6) that could harm salmon habitats, yet the memo does not address this issue. The Tribe views this as directly undermining its federally reserved senior protected water rights, state water law and ecological conservation goals necessary for ESA recovery of anadromous fish populations.

**Conclusions**

The Swinomish Tribe remains deeply concerned that the County's planning documents continue to prioritize short-term development interests over long-term ecosystem health, cultural preservation, and climate resilience. The failure to integrate enforceable standards, comprehensive scientific data, and protections for Treaty rights, natural resources and cultural resources leaves critical gaps in the County's planning framework. The Swinomish Tribe urges Skagit County to strengthen the enforceability of its environmental and climate resilience policies by replacing discretionary language with mandatory provisions, fully aligning the Plan with the revised Shoreline Master Program, and ensuring that all climate adaptation and floodplain planning efforts use the latest best scientific technical data and projections. We also request information about how the County will incorporate changes to the non-yet completed or approved new SMP into this revised version of the Comprehensive Plan to meet their stated June 2025 completion timeline.

The Tribe looks forward to continued engagement with the County to ensure that the Comprehensive Plan upholds the highest environmental and climate resilience standards that the community and our natural resources need and deserve. For your reference, the Tribe's previous comments dated November 21, 2024 are attached. Thank you for the consideration of our comments.

Sincerely,

Heather Spore

Heather Spore, MSc.
Environmental Policy Manager
Swinomish Indian Tribal Community
11404 Moorage Way
LaConner, WA 98257
Mobile: 360-503-9226
hspore@swinomish.nsn.us

Main Office: 360.466.3163
Facsimile: 360.466.5309

Swinomish Indian Tribal Community

A Federally Recognized Indian Tribe Organized Pursuant to 25 U.S.C. § 476
* 11404 Moorage Way * La Conner, Washington 98257 *

March 12, 2025

Skagit County Planning and Development Services
1800 Continental Place
Mount Vernon WA 98273

*Sent electronically via email to: pdscomments@co.skagit.wa.us*

Dear Planning and Development Staff,

The Swinomish Indian Tribal Community submits the following comments on the proposed updates to the Skagit County Draft Comprehensive Plan (Draft Plan). These comments are in addition to those submitted in November 2024 on the Draft Comprehensive Plan Environment and Climate Policies which are fully incorporated herein by this reference and attached to this letter. The Swinomish Tribe recognizes the importance of resilience planning, environmental protection, and sustainable development, and is a longtime leader in advancing these priority policy matters. Given the Tribe's unique vulnerability to climate impacts, and our cultural and ecological connection to the Skagit watershed since time immemorial, we re-emphasize the need for Skagit County to adopt and implement clear, actionable, and science-based policies to address climate change, environmental conservation, and the meaningful protection of natural resources in Skagit County. We also wish to emphasize the need for the County to integrate its updated Shoreline Management Program plans and policies, which are yet to be finalized, into any updated final comprehensive plan.

**Swinomish Tribe's Treaty Rights and Interests Throughout the Skagit Basin**

Swinomish has been the primary steward of the Skagit River and north Puget Sound since time immemorial. Fish and fish habitat are crucial to the cultural, spiritual, subsistence and commercial activities of the Swinomish Tribe. The Tribe exercises Treaty-reserved fishing rights in their "usual and accustomed" fishing areas (U&As), which include an extensive portion of marine waters of the northern Salish Sea, the entirety of the Skagit River watershed and all its tributaries, as well as the Samish River system. The Tribe's Treaty-protected fishing, hunting and

gathering rights also extend throughout the Skagit River basin and coastal areas affected by the Draft Plan, among other places. These habitats, all of which are integral to the Swinomish culture and the broader ecosystem, must be safeguarded in all County planning efforts.

**Overarching Draft Comprehensive Plan Concerns**

The Swinomish Tribe has serious concerns about the inadequacy of the Draft Plan's proposed environmental protections, its consistency with state law, the complete lack of references to scientific literature related to climate change, and its ability to safeguard critical natural resources in the face of climate change. While the it acknowledges the importance of environmental conservation and climate resilience, **the Draft Plan lacks enforceability, scientific rigor, and regulatory alignment to ensure these resiliency goals are effectively achieved**.

The Draft Plan mentions the importance of planning for and promoting climate resiliency, yet there is:

- no discussion of how the best science and technical data were relied upon,
- no mention of climate or sea level rise projections,
- no metrics related to what the predicted increased risk from drought, wildfire, sea level rise, extreme precipitation and flooding might be.

The Draft Plan promises a "summary of potential climate impacts" in an appendix, but that seems to be omitted from both the "redlines" and "clean" versions of the Plan. Without presenting any scientific facts about sea level rise or future climate change projections, nor meaningful discussion of climate impacts facing the Skagit, this Draft Plan does not meet the express intent and purpose of RCW 36.70A.070(9), nor does it meet the legal obligations established in HB1181 to include a climate element in a comprehensive plan.

Further, the introductory section of Appendix B "Linking Past to the Present" (p. 352, clean version) contains a ***grossly inaccurate portrayal of tribal presence and stewardship in the Skagit Valley prior to colonization***. **We object to this section, the misinformation and oversimplification of tribal lifeways it provides, and misrepresentation of the importance of salmon and presence of historical tribal villages.** The County should remove this section, or allow Swinomish and other tribal nations to provide an accurate and appropriate section that captures a more complete historical context of Skagit Treaty Tribes in the Skagit for millennia prior to colonization.

**Draft Comprehensive Plan Comments**

The Environment Element (Chapter 5) is a crucial component of the Comprehensive Plan, yet it **fails to integrate the best available science (BAS) as required by the Growth Management Act (GMA) and WAC 365-195**. The Draft Plan's Policy 5A-1.1 states that critical areas shall be

identified based on BAS, but it does not mandate how or when scientific data will be updated or incorporated into regulatory decisions. Per WAC 365-190-080(1), "*Counties and cities must* [emphasis added] *include the best available science as described in chapter 365-195 WAC, when designating critical areas and when developing policies and regulations that protect critical areas*." Without a formal mechanism for integrating peer-reviewed ecological studies, hydrological models, and habitat assessments, this policy lacks enforceability and leaves critical areas vulnerable to outdated or incomplete assessments. To ensure effective environmental management, the Draft Plan should mandate regular scientific review cycles and independent assessments for all proposed developments in sensitive ecosystems.

Similarly, Policy 5A-1.2 allows for site-specific determinations of critical area protections without requiring independent third-party scientific review, which is likely to lead to inconsistent and inadequately supported decisions. To ensure effective environmental management, **the Draft Plan should mandate that any proposed permitted decision involving critical areas or variances require an independent third-party scientific review that is subject to public review and comment**.

**The Draft Plan also fails to uphold the No Net Loss (NNL) standard**, which is a fundamental requirement of the Shoreline Master Program (SMP) and WAC 365-190-080(1). Policy 5A-5.1 states that critical areas should be protected, but the language is inadequate because it would allow for mitigation without following the requirement to avoid impacts first, before you look to mitigation. **Allowing mitigation without prioritizing protection first via avoidance of impacts directly contradicts the intent of the SMP, which requires a clear commitment to preventing ecological degradation, and all policies therein are considered elements of a County's comprehensive plan (RCW 90.58)**. Furthermore, Policy 5A-5.2 states that land uses incompatible with critical areas "should be discouraged," rather than prohibited unless full mitigation, starting with avoidance of impacts, is demonstrably achieved. The use of "should" instead of "shall" weakens the enforceability of critical area protections. The Plan must be revised to ensure that all permitted activities comply with the NNL standard and require comprehensive compensatory mitigation that provides equivalent or greater ecological function. And, these mitigation measures should be required prior to any permitted activities to ensure no loss of ecological function.

Another significant shortcoming is the lack of adequate protections for riparian habitat areas, which are vital to salmon recovery, water quality, and overall ecosystem health. While the it acknowledges the importance of these habitats, **the Draft Plan does not establish clear regulatory mechanisms to ensure riparian habitat protection**. Policy 5A-5.3(e) states that new development "should incorporate design elements that protect wildlife habitat values," yet **the Draft Plan fails to define minimum buffer widths**. This is particularly concerning given the extensive scientific evidence supporting buffer widths as identified in the peer-reviewed

*WDFW Priority Habitat and Species Volume 1.* This document represents the best science for Western Washington regarding how to ensure the ecological integrity of fish-bearing streams. Moreover, Policy 5A-5.1(d)(viii) provides only vague "special consideration" for anadromous fisheries rather than mandating protective measures as required by WAC 365-190-080(2) [in part]: "*Counties and cities must give special consideration to conservation or protection measures necessary to preserve or enhance anadromous fisheries.*" More egregiously, there is no mention of the fact that the Skagit River has three (3) Endangered Species Act-listed anadromous fish species – Puget Sound Chinook, Steelhead and Bull Trout. **To effectively protect these ESA-listed species and the critical habitats they need to recover, the Draft Plan must establish mandatory riparian buffer zones, restrict development in floodplain-adjacent wetlands, and require habitat restoration as a condition for approval.**

The Climate and Resiliency Element (Chapter 12) mentions climate change, yet the chapter:

- lacks a scientific foundation,
- lacks strong enforcement mechanisms and
- fails to integrate the latest climate projections into planning and infrastructure design.

According to RCW 36.70A.070(9)(e)(i), this element must, but currently fails to be, "*consistent with the best available science and scientifically credible climate projections and impact scenarios that moderate or avoid harm*". Policy 12J-1.3 states that climate change "should be considered" in floodplain management planning, but this language is insufficient, not enforceable, and leaves too much to interpretation to ensure that future development is resilient to climate-induced flooding. Given that by the 2040s, today's 100-year flood event will happen about every 20 years due to climate change, the Draft Plan must explicitly require the use of 2050-2100 climate projections in all floodplain planning efforts using updated climate modeling from the University of Washington Climate Impacts Group. Similarly, Policy 12J-1.8 mandates that development withstand "100-year flood frequency" but does not account for shifting baseline conditions, potentially placing infrastructure and communities at risk. This section seems to be in conflict with recommendations made in policy 5B-1.4: "*meet regulatory standards for floodplain development as these standards are updated for consistency with relevant federal requirements including those related to the Endangered Species Act, and to accommodate long-term climate change projections*".

The Draft Plan also fails to establish binding commitments to greenhouse gas (GHG) reduction, a critical component of climate resilience. While Policy 12G-1.5 encourages emissions reductions, it does not set clear targets or require concrete mitigation actions. This is a significant oversight given Washington State's goal of achieving net-zero emissions by 2050. To align with state policy, the Plan must set specific emissions reduction benchmarks, require mitigation measures for high-impact industries, and incorporate carbon sequestration strategies into land use planning County-wide.

In our comment letter submitted last November, the Tribe specifically called out necessary revisions to Policy 12A 1.1 that supports the acquisition of development rights to farmland under the Farmland Legacy Program. Acquisition of farmland development rights should include the possibility for restoration projects, riparian habitat buffers (including to meet federally approved water quality standards), and conversion of unproductive farmland to habitat, all of which have greater contributions to climate resilience than would be gained from farmland alone. We are concerned that the current wording could preclude habitat restoration on agricultural land. Restoration of farmland to wildlife habitat or for conservation purposes, or to forested land should be promoted for climate resiliency, particularly when farmland is no longer productive or sustainable. Restoration of unproductive farmland to wildlife habitat not only enhances climate resilience in general at the landscape level, but will further enhance viability and climate resilience for adjacent agricultural areas. **We request that future conservation easements and acquisitions do not preclude future potential restoration actions**.

**Concerns with the Draft Vulnerability Assessment**

The County's Risk Vulnerability Assessment as written has limited applicability and usefulness in informing the Climate and Resiliency sub-elements as required by HB 1181 because it did not include all readily available best available climate science, contains no quantitative metrics and thus no enforceable standards, and is generally overly vague. The assessment cites outdated climate science from 2010 and 2011 among its references, rather than the litany of literature currently available through federal agencies, universities, and science consortia. Clearly, this does not uphold the best available science standard. Furthermore, all of the FEMA citations utilize the flood maps from 1984, because Skagit County, with the exception of the city of Anacortes, has rejected updated digital flood mapping. Given these shortcomings, it is unclear how the vulnerability assessment will or will not be used in conjunction with the Draft Plan.

1. Use of Best Available Science:
    a. The vulnerability assessment cites limited sources of data (e.g., NOAA, Climate Mapping for a Resilient Washington, and the Skagit River Basin Climate Science Report), but omits the incorporation of directly applicable scientific resources from expert climate agencies like the University of Washington's Climate Impacts Group, Washington Sea Grant, and the Skagit Climate Science Consortium. To be compliant with WAC 365-195-915(1)(b), the County should include a list of relevant and current scientific sources used in their planning decision-making.
    b. The vulnerability assessment uses qualitative risk ratings (low, medium, high) without incorporating quantitative thresholds or advanced climate modeling, which limits the depth of scientific analysis needed for adequate planning.
2. Enforceable Policies and Mitigation Standards:

    a. The Swinomish Tribe emphasizes the need for specific, enforceable, and science-based measures, especially regarding:
        i. Riparian buffer protections,
        ii. No Net Loss (NNL) standards for wetland habitats,
        iii. Mitigation requirements for development in flood-prone areas.
    b. The vulnerability assessment suggests actions like updating county codes and considering development standards but stops short of recommending mandatory policies or enforceable regulations.
3. Shoreline Master Program (SMP) Integration:
    a. The vulnerability assessment fails to address the Tribe's repeated request for alignment with the Shoreline Master Program (SMP). The Tribe stressed the need for consistency between the SMP and climate resilience policies, particularly to ensure the protection of salmon habitats and wetland ecosystems.
4. Water Resource Management and Instream Flows:
    a. The vulnerability assessment does not fully address the Tribe's concerns about maintaining instream flows critical for salmon populations. The Tribe opposes water rights policies that could reduce flows in the Skagit River, arguing that current policies risk violating treaty rights and the Skagit Instream Flow Rule (WAC 173-503). The memo acknowledges drought risks and their impact on fish habitats but stops short of suggesting policy changes that would secure sufficient water flows for salmon and other aquatic species.
5. Floodplain and Wetland Development:
    a. While the vulnerability assessment discusses flood risks and recommends updates to development standards in flood-prone areas, it does not endorse the Tribe's call to preclude new development entirely in high-risk floodplains. The memo also lacks detailed strategies for riparian zone restoration, a critical issue raised by the Tribe.
6. Wildfire Risk and Resilience Planning:
    a. The vulnerability assessment identifies wildfire risks but does not align with the Tribe's recommendation to incorporate wildfire mitigation strategies that account for environmental justice and the protection of vulnerable rural communities, as outlined under HB 1181.

**<u>Other Concerns That Remain Unaddressed</u>**

1. Treaty Rights and Cultural Considerations: While the vulnerability assessment acknowledges the cultural importance of fisheries, it does not explicitly integrate the Tribe's treaty-protected fishing rights into the climate risk and planning framework, a major emphasis in the Tribe's previous comment letter from 2024.
2. Mitigation Monitoring and Accountability: The Tribe called for policies requiring long-term monitoring of mitigation projects, adaptive management strategies, and

accountability measures. The memo lacks these specific provisions, offering only high-level suggestions without outlining enforcement mechanisms.

3. Opposition to Additional Water Rights for Agriculture: The Tribe strongly opposes granting additional water rights (Policy 12A 1.6) that could harm salmon habitats, yet the memo does not address this issue. The Tribe views this as directly undermining its federally reserved senior protected water rights, state water law and ecological conservation goals necessary for ESA recovery of anadromous fish populations**.**

**Conclusions**

The Swinomish Tribe remains deeply concerned that the County's planning documents continue to prioritize short-term development interests over long-term ecosystem health, cultural preservation, and climate resilience. The failure to integrate enforceable standards, comprehensive scientific data, and protections for Treaty rights, natural resources and cultural resources leaves critical gaps in the County's planning framework. The Swinomish Tribe urges Skagit County to strengthen the enforceability of its environmental and climate resilience policies by replacing discretionary language with mandatory provisions, fully aligning the Plan with the revised Shoreline Master Program, and ensuring that all climate adaptation and floodplain planning efforts use the latest best scientific technical data and projections. We also request information about how the County will incorporate changes to the non-yet completed or approved new SMP into this revised version of the Comprehensive Plan to meet their stated June 2025 completion timeline.

The Tribe looks forward to continued engagement with the County to ensure that the Comprehensive Plan upholds the highest environmental and climate resilience standards that the community and our natural resources need and deserve. For your reference, the Tribe's previous comments dated November 21, 2024 are attached. Thank you for the consideration of our comments.

Sincerely,



Heather Spore, Environmental Policy Manager
Swinomish Indian Tribal Community

Cc: WA Department of Commerce
WA Department of Ecology

Main Office: 360.466.3163
Facsimile: 360.466.5309

Swinomish Indian Tribal Community

A Federally Recognized Indian Tribe Organized Pursuant to 25 U.S.C. § 476
* 11404 Moorage Way * La Conner, Washington 98257 *

November 21, 2024

Skagit County Planning and Development Services
1800 Continental Place
Mount Vernon, WA 98273
Via email: pdscomments@co.skagit.wa.us

Subject: Comments on 2025 Skagit County Draft Comprehensive Plan Environment and Climate Policies

Dear Planning and Development Services,

The Swinomish Indian Tribal Community ("Swinomish" or "Tribe") submits the following comments on Skagit County's 2025 Draft Comprehensive Plan (Draft Comp Plan) Environment and Climate Policies. The Swinomish Tribe recognizes the importance of resilience planning, environmental protection, and sustainable development, and is a longtime leader in advancing these priority policy matters. Given the Tribe's unique vulnerability to climate impacts, and our cultural and ecological connection to the Skagit watershed, we reemphasize the need for the County to adopt and implement clear, actionable, and science-based policies to address climate change, environmental conservation, and the meaningful protection of natural resources in Skagit County.

These comments are in addition to those we submitted to the Board of County Commissioners regarding the County's Shoreline Master Program update (SMP) in June 2021, March 2022, during public testimony in the spring of 2023, as well as in a follow-up technical memo later that year. We would like to reiterate the critical concerns raised in those letters and remind the County of the numerous scientific resources and literature we provided, which should be incorporated into the County's planning documents. Most of the issues the Tribe raised regarding the SMP, including the need for specific enforceable measures, science-backed standards, and protection of critical habitats, remain unresolved in these Draft Comp Plan policies. In order for the Draft Comp Plan to meet applicable requirements it must be updated to address the following:

- Need for Specific, Enforceable, Science-Based Measures
- Lack of Alignment with the Shoreline Master Program
- Failure to Meet No Net Loss Standard and Requirements
- Failure to Ensure Mitigation is Adequate and Completed
- Inadequate Protections for Riparian Habitat Areas
- Numerous Draft Climate Change and Environmental Policies

**Swinomish Tribe's Treaty Rights and Interests Throughout the Skagit Basin**

Swinomish has been the primary steward of the Skagit River and north Puget Sound since time immemorial. Fish and fish habitat are crucial to the cultural, spiritual, subsistence and commercial activities of the Swinomish Tribe. The Tribe exercises Treaty-reserved fishing rights in their "usual and accustomed" fishing areas (U&As), which include an extensive portion of marine waters of the northern Salish Sea, the entirety of the Skagit River watershed and all its tributaries, as well as the Samish River system. The Tribe's Treaty-protected fishing, hunting and gathering rights also extend throughout the Skagit River basin and coastal areas affected by the Draft Comp Plan, among other places. These habitats, integral to the Swinomish culture and the broader ecosystem, must be safeguarded in all County planning efforts. We acknowledge the County's inclusion of climate change impacts and resilience measures in the draft; however, the draft policies lack the necessary detail, enforceability, and actionable measures required for effective resilience. Below, we outline specific recommendations, noting that we continue to have similar and overlapping concerns with the County's SMP that must also be addressed.

**Need for Specific, Enforceable, Science-Based Measures**

The Draft Comp Plan covers a broad range of policy areas, but remains overly general and aspirational. The draft lacks clear implementation measures, data-backed standards, or any detailed timelines for implementation. The County needs to clarify how the Draft Comp Plan will satisfy the new climate change and resiliency requirements of House Bill (HB) 1181, including alignment with the Shoreline Master Program (SMP) to provide cohesive protection for interconnected ecosystems, particularly those that support Skagit River salmon populations.

Specifically, HB 1181 directs that the "resiliency sub-element must, among other things, equitably enhance resiliency to, and avoid or substantially reduce the adverse impacts of, climate change in human communities and ecological systems through goals, policies, and programs consistent with the best available science and scientifically credible climate projections and impact scenarios". Skagit County's natural resource-based economic sectors, ecosystems, water resources, infrastructure, emergency management, and public health all face climate change related risks in the future. The County should consider potential long-range climate change implications into its on-going functional planning and implementation actions. As a first step towards this, the County should: 1) study the resilience of its natural and built environments to

the potential impacts of climate change; 2) identify the relative vulnerability of these sectors to climate change; and, 3) examine the adaptive capacity of these sectors to cope with or mitigate climate change.

There are many published online resources authored by the Department of Ecology, Washington Sea Grant, the University of Washington Climate Impacts Group, NOAA, Skagit Climate Science Consortium, and others that include scientific analyses specific to coastal Washington and Puget Sound, all of which represent the most current, accurate and complete science. Many of these publications are specifically geared toward planners and local governments. We encourage the County to ground their revised environmental and climate policy sections in these bodies of work.

**Lack of Alignment with the Shoreline Master Program (SMP)**

Skagit County's Draft Comp Plan Environment Element does not adequately include or reference elements of the County's SMP. As a result, the draft Element does not meet the requirements of the Shoreline Management Act in regards to Standards for Shorelines of the State and Standards for Shorelines of Statewide Significance. The County must clarify how the Draft Comp Plan will integrate the SMP, as we emphasized in our March 2022 SMP comments, to provide cohesive, science-backed protections across land and shoreline interfaces. As the guiding document informing growth-related objectives and goals in Skagit County, the Draft Comp Plan update must incorporate the applicable climate and resiliency elements of the County's SMP in order to ensure that County policy aligns with the requirements of the Shoreline Management Act. Given the interconnected nature of land-use and shoreline policies, the County must clarify the documents to ensure consistency and support for the SMP's objectives.

**Failure to Meet No Net Loss Standard and Requirements**

Environmental policies in the Draft Comp Plan need to be strengthened to adequately meet the No Net Loss (NNL) requirement. While we appreciate the addition of NNL language in 5A and 5A-5.1, subsequent language weakens NNL policy and fails to reflect that NNL is a requirement of the Shoreline Management Act, not an optional recommendation. Furthermore, the Draft Comp Plan does not support NNL policies with guidance or reference for how NNL will be defined, quantified, monitored, and enforced. Despite NNL requirements of the Shoreline Management Act, losses of critical wetland and shoreline habitats continue as a result of permit variances and lack of metrics and enforcement. To address this, we suggest inclusion of additional NNL language wherever applicable, and the addition of policies so that new development requires monitoring, adaptive management, and accountability measures to ensure that NNL is actually achieved through avoidance of critical areas and adequate mitigation.

**Failure to Ensure Mitigation Is Adequate or Completed**

Language in 5A-5.4 requiring applicants to develop comprehensive mitigation plans should not be removed unless further detail of specific requirements of the mitigation plan are included in (e)II. Applicants must still be required to develop a detailed mitigation plan that ensures the success of mitigation projects through application of the best available science, long term monitoring and maintenance, adaptive management, and evaluation of mitigation project efficacy. Policies must include additional language to ensure mitigation is in-kind and in-place, provides equivalent or improved ecological function and value, and accounts for both cumulative impacts and the long ecological timescale. To ensure protection of critical areas and compliance with no net loss, an applicant must be required to have its mitigation plans reviewed by qualified professionals using best available science prior to permit or project approval. Post-project evaluations should also be conducted using best available science to ensure NNL requirements are met. There must also be specific policies put in place to force compliance with no net loss when mitigation measures are shown to be inadequate.

**Inadequate Protections for Riparian Habitat Areas**

In addition to corridor connections and tree canopy which have been called out in the comprehensive plan, riparian zones and habitat buffers that adhere to WDFW Priority Habitat and Species vol 1 (2020) guidance should also be specified in environmental goals and policies wherever applicable. Adequate and mature riparian vegetation plays a critical role in maintaining water quality by reducing water temperature in the stream and microclimate, protecting the hyporheic zone, reducing evaporation, filtering and trapping of sediments and pollutants, increased groundwater infiltration, and preventing eutrophication. Riparian zones also contribute other substantial and critical ecosystem services by providing flood resilience through increased bank stabilization and erosion control, climate change resilience through buffering against extreme weather events and temperature fluctuations, agricultural enhancements through reduced nutrient runoff, reduced need for flood prevention infrastructure, decreased soil compaction, increased organic matter and nutrient cycling, and improved pollination services. Riparian zones also provide important fish and wildlife habitat to over 80% of terrestrial species and enhance the overall quality and aesthetics of the landscape. Therefore, it is essential that riparian habitat be afforded better protections commensurate with the innumerable benefits they provide and more specifically protected in the comprehensive plan policies.

**Specific Environmental Policies**

The Tribe proposes the following specific language changes to the Draft Comp Plan policies:

**5A**: Preserve and protect wetlands to maintain no net loss of wetland habitat, functions, and values. ~~Encourage the voluntary~~ Require restoration and enhancement of wetlands lost or degraded by development to meet no net loss requirements ~~wetlands~~. …Protect, restore ~~where~~

~~practical~~, and enhance fish and wildlife populations and their associated habitats, including corridor connections, riparian buffers, and tree canopy.

**5A-1.2**: The classification and designation of critical areas should not be moved to the Critical Areas Ordinance. This level of detail specifying a list of the types of critical areas to be classified for conservation, protection, and risk is helpful in guiding countywide policy without the need to refer to more detailed ordinances. Additionally, the section of policy (c) "(Critical areas shall be designated upon completion of a site assessment done by a qualified professional) during the process of a permit or development application" is not redundant and should be maintained to ensure that proper critical areas assessments are done during the permitting phase, prior to approval.

**5A-3.1**: Wildlife corridors and connections between areas of native vegetation, and riparian corridors, wetlands, and open space shall~~should~~ be conserved in accordance with state and federal laws and approved recovery plans and additionally protected whenever feasible through incentive programs.

**5A-4.4**: To promote a consistent and efficient regulatory framework, all existing county land use regulations shall be reviewed and, where appropriate, modified to eliminate redundancies or conflicts with other county, state or federal requirements for critical areas including, but not limited to, the Shoreline Management Act, the Endangered Species Act, the Clean Water Act, policies related to No Net Loss, and the Skagit Instream Flow Rule.

**5A-5.1**: Critical Areas shall be designated and protected to maintain no net loss of wetland habitat, functions, and values. Priority shall be given to the avoidance of impacts to Critical Areas, followed by the minimization of impacts and full mitigation respectively.
(a) Wetlands
(iii) Mitigation projects shall~~, whenever feasible~~ achieve no net loss of wetland area and provide equivalent or greater functions and values both on site and, to the extent that impacts may be cumulative, off site. The preferred mitigation sequence (avoid, minimize, rectify, reduce, or compensate for the environmental impact) shall follow that listed in WAC 173-26-201(2)(e) and all mitigation shall account for loss of ecological function during the time it takes mitigation to achieve full functionality.
(iv) A wetland buffer zone of adequate width, as determined by best available science, ~~should~~ shall be maintained between a wetland and any adjacent development to protect the functions and integrity of the wetland. Required buffers must be protected and managed using best management practices to sustain ~~the~~ full and improved buffer functions.
(v) Wetland buffer zones ~~should~~ shall be retained in their natural condition to the greatest extent possible. Re-vegetation may be required to restore the functional value of the buffer zone, and

any mitigation must account for the loss of function during the time it takes a restored buffer to achieve full functionality.
(vi) Regulated wetlands and their associated buffer zones shall be protected from adverse wetland impacts to their overall functions. No wetland or buffer zone alteration should be authorized unless it can be shown that the impact is unavoidable and that the adverse impacts are offset by deliberate restoration, creation or enhancement of wetlands and buffer zones.
(vii) Skagit County shall ensure no let loss to designated Shorelines of the State and Shorelines of Statewide Significance through monitoring, enforcement, reporting and through the application of a robust Shoreline Master Program.
(d) Fish and Wildlife Habitat Conservation Areas
(i) Landscape-scale habitat corridors shall be considered in stream/riparian and wetland buffer regulations ~~as feasible~~ to protect habitats associated with riparian dependent species.

**5A-5.2**: Land uses that are incompatible with critical areas shall be prohibited ~~discouraged~~.

**5A-5.4**: Language in (iv) (b) and (c) must not remove requirements for mitigation plans including monitoring, maintenance, and contingencies to ensure mitigation success.

**5A-5.5**: (C) Critical area restoration, creation, and enhancement projects must~~should~~ be completed prior to alteration, where possible. In all other cases, replacement must~~should~~ be completed prior to use or occupancy of the development.

**5A-5.6**: ~~Continue to I~~ Implement enforcement procedures to ensure compliance with applicable Skagit County ordinances.
(a) Enforcement action shall be taken whenever a person has violated the provisions of any applicable Skagit County ordinance used for critical area protection.
(b) The choice of enforcement action and the severity of any penalty should be commensurate with ~~based on~~ the nature of the violation, the damage or risk to the public, and ~~or~~ the public and natural resources. Damage to critical area values and function shall be assessed by a qualified professional and shall account for short-and long-term direct and indirect impacts, and cumulative impacts.
~~(c) Work with property owners to resolve critical area code violations through voluntary compliance measures as feasible.~~
Climate Change: The following resilience policies are provided to support protection, enhancement, and restoration of the natural environment:
(a) Enhance urban tree canopy to support community resilience, mitigate urban heat, manage stormwater, conserve energy, improve mental and physical health, and strengthen economic prosperity.

(b) Restore and enhance riparian buffers to mitigate effects of rising water temperature, conserve water resources, manage stormwater and pollution, and protect against adverse impacts of extreme weather.
(~~b~~c) Protect and restore natural resources that sequester and store carbon such as forests, farmland, wetlands, estuaries, riparian areas, and urban tree canopy.
(~~c~~d) Identify and address the impacts of climate change on the region's hydrological systems.
(~~d~~e) ~~Consider the~~ Work to mitigate potential impacts of climate change ~~and~~ on fisheries ~~protection~~ and on the region's water supply.

**Specific Climate Change Policies**

**CE 1.1**: Farmland Conservation and Habitat Restoration Conflicts
Draft policy CE 1.1 proposes securing funding to protect agricultural lands, which we understand as an effort to balance agricultural and ecological priorities. However, this policy must not conflict with habitat restoration opportunities, particularly in floodplain, riparian, and estuarine areas critical to salmon recovery, given that a substantial amount of natural habitat and ecological value was lost when these habitats were originally converted to agricultural land. We are concerned that the current wording could preclude habitat restoration on agricultural land. Restoration of farmland to wildlife habitat or for conservation purposes, or to forested land should be promoted for climate resiliency, particularly when farmland is no longer productive or sustainable. Restoration of unproductive farmland to wildlife habitat not only enhances climate resilience in general at the landscape level, but will further enhance viability and climate resilience for adjacent agricultural areas. Because much of the county's existing agricultural lands are within the floodplain, actual development pressure should be relatively low. We recommend the following revision:

> Continue to support and secure funding to protect agricultural land from development ~~conversion to other uses~~ through the Conservation Futures taxing mechanism, federal and state grants, and private funding sources.

**CE 1.4**: Supporting agricultural resilience through providing resilience resources and programs should not only be for the purpose of making informed business decisions, but also for making informed land management decisions. This should include best practices for climate resilient farming, including information about benefits of riparian buffers and water conservation. We suggest the following changes:

> Support the WSU Skagit County extension program and the Skagit County Conservation District in providing agricultural resilience resources and programs to support farmers in making informed land management and business decisions that support climate resilience ~~in a changing climate~~.

**CE 1.6**: Integrated Strategic Investment Plan

Policy CE 1.6 should be revised. Acquisition of farmland development rights should include the possibility for restoration projects, riparian habitat buffers (including to meet federally approved water quality standards), and conversion of unproductive farmland to habitat, all of which have greater contributions to climate resilience than would be gained from farmland alone.

The Tribe strenuously objects to the section regarding supporting water rights for sustaining Skagit Agriculture, and it must be removed. As the County is well aware, this water right would be a violation of the Skagit Instream Flow Rule (WAC 173-503) and impair the Tribe's federally protected senior water rights. We recommend the following policy revisions:

> Protect the +/-88,000 acres of remaining prime farmland in Skagit County. Success requires continued commitment to restrictive farmland zoning and precluding new development in the floodplain to prevent conversion to development; continued farmland development right acquisition through the Farmland Legacy Program; ~~support for an adequate water right necessary to sustain Skagit Agriculture~~; ~~and an integrated, strategic investment plan in partnership with Skagit tribes and diking/drainage districts~~ and a scientifically-based plan to holistically address sea level rise, habitat ~~enhancement~~ restoration, and farmland preservation on the Skagit/Samish Delta ~~downstream of the Wild & Scenic portion of the Skagit River~~.

**CE 9.4: Water Resources**

The Swinomish Tribe does not support Agriculture & Food Systems policy CE 9.4. This policy CE 9.4 should be completely removed from the Draft Comp Plan. Instream flows in the Skagit River have been demonstrated to be inadequate during summer months to support robust salmon populations. Salmon are crucial to the Tribes' wellbeing in addition to being part of its Treaty-secured and adjudicated fishing rights. Additional reductions of instream flows will be detrimental to both salmon populations (including ESA-listed Chinook Salmon) and to the Tribe, which depends on this resource for ceremonial, subsistence and commercial purposes. Additionally, element CE 9.4 disregards the Tribe's federally protected senior water rights that stands to be further impaired if additional uninterruptible water rights are granted for agriculture withdrawals. We are disappointed that the County promotes additional out of stream uses of water to support agriculture without a shred of scientific basis while also ignoring Tribal needs for sustainable salmon populations in the face of projected reductions in instream flow as a result of climate change.

Furthermore, we are deeply troubled that the County intends to support and advocate for additional uninterruptible water rights despite having provided no analysis on the impacts to instream resources as a result of this advocacy. These proposed baseless and entirely

unsupported additional water withdrawals do not comport with GMA Planning Goal 10, "Environment" (RCW 36.70A.020(10)). It requires Skagit County to "protect the environment and enhance the state's high quality of life, including air and water quality, and the availability of water." In addition, this proposed policy is in conflict with Planning Goal 9, "Open Space and Recreation" (RCW 36.70A.020(9), which directs the county to "conserve fish and wildlife habitat." The County should provide the information it relied upon to propose this element of its Comprehensive Plan.

**CE 10.3**: Restrict Development in Flood-Prone Areas with Best Available Climate Science
The language in CE 10.3 suggests elevating or setting back structures in flood-prone areas, which is insufficient. Development should be precluded entirely in these areas, as allowing development—even if modified—disrupts floodplain ecosystems critical for salmon. Additionally, this policy must explicitly require the use of best available climate science, incorporating the most recent flood hazard data and climate projections.

We recommend the following revision: "Preclude new development in flood-prone areas, integrate best available climate science into planning efforts, and prioritize flood hazard management strategies that protect habitat and support salmon recovery." This aligns with the standards outlined in our previous SMP comments and addresses the importance of preserving floodplain ecosystems for ecological resilience.

**CE 10.4**: Shoreline Stabilization with Science-Based Justification
CE 10.4's preference for "soft" shoreline stabilization techniques lacks enforceable requirements for scientific justification. We reiterate our concern that any shoreline stabilization must rely on Best Available Science and require a scientifically justified demonstration of need, performed by a qualified professional. This policy should be consistent with the newly codified USACE Regional General Conditions for Nationwide Permits within Puget Sound (June 2024), specifically those that apply to Nationwide Permit 3. This approach, consistent with our 2022 SMP comments, is necessary to protect natural sediment dynamics, salmon habitat, and riparian health.

We recommend revising CE 10.4 to read: "Shoreline stabilization projects must be based on Best Available Science, including an evidence-based, scientifically justified demonstration of need conducted by a qualified professional." Furthermore, mitigation plans should be required to offset any impacts, with oversight from environmental and tribal experts to safeguard coastal and estuarine ecosystems.

The Tribe also feels there should be an additional climate policy in the Water Resources section supporting the instream flow rule, protecting adequate flow for proper hydrological function and habitat for ESA-listed salmonids and treaty-reserved resources under conditions of climate

change-induced drought and temperature rise. This policy should support the use of full site potential tree height riparian buffers (WDFW PHS Vol 1 2020) to protect critical water resources in the Skagit River basin from increased impacts from climate change.

> Additional Policy CE 9.5 Climate Resilience; Drought; Agriculture: Support climate residence of streams and rivers for salmonid populations by protecting aquatic habitats from low stream flows through preventing further water withdrawals, promoting restoration of full site potential tree height riparian buffers to ameliorate water temperature rise and decrease evaporation, and restoring hydrologic function of waterways.

**Climate Integration: Enhancing Specificity and Enforcement**

The Swinomish Tribe acknowledges these draft climate policy considerations; however, the language is vague and/or lacks specific implementation measures, both of which could hinder effective action on climate resilience and environmental conservation.

- Policy 4A-5.6 on drainage management for agricultural lands emphasizes mitigating flooding and drainage impacts, including the installation of adaptive drainage infrastructure such as improved culverts, ditches, and water retention systems to prevent flooding and waterlogging of crops, but fails to specify how these actions will be monitored and evaluated for effectiveness. The Tribe objects to this policy being included here, unless and until there is a scientific study demonstrating need supported by best available climate science, which addresses potential harm to ESA-listed species and their habitats, and proposes mitigation necessary to offset environmental impacts of additional drainage infrastructure.
- Policy 5A-5.1 regarding critical areas protection outlines objectives for preventing habitat degradation but lacks enforceable language or specific buffer zone widths for wetland and riparian zone protections. Including standards based on the Washington State Wetland Rating System and additional guidelines from WDFW Priority Habitats and Species vol 2 (2022) could strengthen the policy's ecological protections and clarify compliance requirements.
- Policy 4B-2.11 on wildfire resilience lacks detail on funding, staffing, and coordination efforts for wildfire planning, especially in vulnerable rural and forested communities. Per HB 1181, this draft policy should align with the Land Use Element goals, including: 1) giving special consideration to achieving environmental justice in its goals and policies; 2) mitigate the risk to lives and property posed by wildfires by using land use planning tools, which may include reducing residential development pressure in the wildland urban interface area; and 3) separating human development from wildfire prone landscapes.

**Conclusion**

We acknowledge that the Draft Comprehensive Plan represents an incremental step forward from the County's previous draft climate and environmental policies. However, without specific language to ensure salmon habitat protections, enforce adherence to best available science, and clarify alignment with the Shoreline Master Program, these policies fail to meet requirements and risk reinforcing past prioritizations that favored agriculture and development over ecosystem health. The Swinomish Tribe remains committed to collaborating with the County to refine these policies to reflect a balanced, sustainable, and habitat-sensitive approach to climate resilience.

Thank you for the opportunity to comment on these critical issues. Please refer to our June 2021 and March 2022 SMP comments for further details, scientific references, and literature to support this planning process. We look forward to a revised draft that more fully respects and protects the natural and cultural resources within Skagit County.

Sincerely,



Heather Spore
Environmental Policy Manager
Swinomish Indian Tribal Community

**Tara Satushek** Comment # 42

**From:** mbray1107@gmail.com
**Sent:** Wednesday, March 12, 2025 8:17 PM
**To:** PDS comments
**Subject:** Comments on Draft 2025 Comprehensive Plan

Dear Planning Commissioners,

Thank you for the opportunity to comment on Skagit County's draft 2025 Comprehensive Plan.

Updating this plan is a complicated and challenging task. I appreciate the effort that has gone into it. Staff and consultants have done an excellent job; and as volunteers on the Planning Commission -- your hard work and diligence is admirable.

I have lived in rural Skagit County for more than 45 years and I have a deep appreciation for the richness, productivity and beauty of our natural environment and resource lands. In the time I have lived here, the population of the County has more than doubled. The pressure on our natural environment is apparent everywhere – from melting glaciers, and sprawling cities and traffic congestion, to diminishing salmon runs and rural water shortages….

This Plan is an essential tool for responding to these pressures, to safeguard our communities, our priceless natural heritage and our important resource-based industries that depend on a healthy environment. For these reasons, I am especially supportive of the addition of the Climate and Resiliency Chapter, and the work to integrate these policies throughout the plan.

Planning for and anticipating impacts is key when it comes to climate and environmental change – it is about prevention -- before habitats are degraded; before infrastructure is damaged, and before homes are destroyed. These threats are real. We are seeing them here and across the country. Wildfire, flooding, sea level rise, coastal erosion, and the list goes on -- all exacerbated by climate change.

We need prevention and avoidance of the worst impacts – that is why that word, "resiliency" is so key. So, thank you for these new climate and resiliency policies. They are forward-looking and if implemented thoughtfully, will help our communities thrive in the future. But as we all know, a plan is only as good as its implementation. And local governments can only do so much. This is why I believe creating an Environmental Advisory Board is essential to assist County staff and the Commissioners with implementation of this plan, and with other county programs.

We are lucky in this county to have many dedicated environmental professionals working in government agencies, nonprofits and the private sector. Together they have tremendous expertise that could assist and advise County staff and the Commissioners.

To me, "resilience" means working with complex natural systems to understand how to best anticipate, respond to and manage impacts. And, it requires landowner education and coordination of different agencies and programs. This involves many disciplines: environmental education, resource management, habitat restoration and conservation, geology, hydrology, fisheries and wildlife sciences, etc.

Why would the County not want to tap into the diverse skills available in the community? An EAB would not compete with or supplant other advisory committees but would bring important expertise to these complex issues. The existing advisory boards, Agriculture and Forestry are focused primarily on protecting the economic interests of resource-based industries. And the County's Parks and Recreation Advisory Board focuses primarily on County owned recreation

lands. All of this is important, but it is different and insufficient without an environmental committee with equal footing.

This is about our coastal areas subject to sea level rise; riparian areas, wetlands and floodplains; endangered species habitats … all interconnected… we need these places.
It's about ensuring that our native fish and wildlife populations thrive into the future; that the beauty and abundance of our natural landscapes and habitats remain intact, that we have enough clean water 50 years from now; and, that we respond with sound science to these challenges.

Skagit's natural environment is as much an asset to our citizens as commercial agriculture and forestry. And, it is not without its own economic value – Skagit County is renown as a destination for nature-based recreation.

Furthermore, it is my understanding that a majority of comments submitted during the last round of public comment on the Plan included, specifically, a request for an EAB (59 out of 90 comments). I know there has been talk of creating a Climate Advisory Board. However, this is not the same and isn't broad enough in scope. The environmental issues we face are interwoven not only with climate related impacts, but with many others, such as species decline and the loss and degradation of habitat.

**I believe that most Skagit citizens strongly value our county's rich natural legacy and expect our local government to support and enact programs that protect, conserve and restore it. This is a broader mandate than only ensuring the viability of natural resource-based industries. It is time for an Environmental Advisory Board that has equal footing.**

Please, include a policy in this comp plan update that supports the creation of an Environmental Advisory Board.

Thank you,



Martha Bray
6368 Erwin Ln
Sedro-Woolley, WA 98284

**Tara Satushek** Comment # 43

**From:** Katie Rowley <katierowley@gmail.com>
**Sent:** Wednesday, March 12, 2025 8:47 PM
**To:** PDS comments
**Subject:** Possible Spam: Proposed City of Anacortes Urban Growth Area Border Change

Hello and thank you for your time,

My name is Kathleen Rowley and my property borders P19298, proposed to be zoned as an Urban Growth Area. I am opposed to this zoning change. Once designated as an Urban Growth Area, any of the allowed uses would then be permissible. I understand that the City of Anacortes is stating that they don't intend to actually use this parcel as an Urban Growth Area and intend to simply keep it undeveloped land. The City is asking that we trust them that they have only good intentions and have no design to use the zoning changes they are asking for. However, once the zoning is changed, those stated intentions may also change and the allowed uses would then be available to be exercised in full. If the property is not intended to be used as an Urban Growth Area, it should not be rezoned as an Urban Growth Area.

Sincerely,
Kathleen Rowley

Comment # 44

**Tara Satushek**

**From:** Ashley Rowley <ashleyrowley@gmail.com>
**Sent:** Wednesday, March 12, 2025 9:06 PM
**To:** PDS comments
**Subject:** Possible Spam: Proposed City of Anacortes Urban Growth Area Boundary Change

Hello,

My name is Ashley Rowley and my property borders P19298, proposed to be zoned as an Urban Growth Area. I am opposed to this zoning change.

Designation as an Urban Growth Area is entirely inappropriate for this parcel of land, that is on Mt Erie sandwiched between Anacortes Community Forestlands and low density Rural Reserve lands. WAC 365-196-310 states urban growth area requirements include:

*2) Requirements.*
*(a) Each county planning under the act must designate an urban growth area or areas within which urban growth must be encouraged and outside of which growth can occur only if it is not urban in nature. Each county must designate an urban growth area in its comprehensive plan.*
*(b) Each city that is located in such a county shall be included within an urban growth area. An urban growth area may include more than a single city.*
*(c) An urban growth area may include territory that is located outside a city if such territory already is characterized by urban growth or is adjacent to territory already characterized by urban growth.*

Parcel P19298 does not meet these requirements.

Additionally, The City of Anacortes is stating that they do not intend to use the parcel as an Urban Growth Area. If they don't intend to use it as an Urban Growth Area, they should not zone it as an Urban Growth Area.

Again, I am opposed to this proposed rezone.

Thank you,

Ashley Rowley

**Tara Satushek**

Comment # 45

**From:** Richard McKay <mckay@wavecable.com>
**Sent:** Thursday, March 13, 2025 7:39 AM
**To:** PDS comments
**Subject:** Possible Spam: Skagit County's 2025 Comprehensive Plan Draft Policies

Dear Thoughtful Planners,
Noted in the current draft of the Comprehensive Plan, there is no mention of the establishment of an Environmental Advisory Board. In my first letter, I strongly urged an EAB be included in the plan. There was support expressed at the open houses AND in 59 of the 90 comments submitted to PDS by the public regarding the Climate element of the revised Comprehensive Plan 2025 Update this last fall.
The County needs to respond to what a clear majority of the public participating in the comprehensive plan process has requested and include in the Environmental Element of the Comprehensive Plan creating an EAB. Our county's natural environment is blessed with a variety of diverse ecosystems, open spaces and critical areas. Our County policy states that decisions about these complex areas will be based on "best available science". Where will the best available science for decisions come from without a board made up of scientists, environmentalists, researchers, people with professional expertise to make educated recommendations?
Our beautiful and extraordinary County deserves to have thoughtful planning and decisions made concerning the impacts on our natural lands, waters, wildlife habitat, open spaces, and sustainability of our rivers, marine shorelines, and forest. We need an EAB to provide their expertise in planning and protecting the diversity and beauty of our County. Please ensure that the best available science is consistently included in local planning. I strongly support the inclusion of an Environmental Advisory Board in the Comprehensive Plan.

The Rural Element portion of the draft is moving in the wrong direction! While I support allowing certain housing types making housing more affordable, it should NOT be done with an increase in residential densities in Rural Village Residential areas.
I strongly OPPOSE the new provision of policy 3C-1.6(b) that the Rural Residential land density may be up to "4 dwellings per acres" for certain housing types. This density in housing has never been allowed in the rural area under the Growth Management ACT. The trend here has shown the county is moving away from the GMA goal of limiting growth in the rural area to no more than 20 percent. The growth during the period from 2017-2022 has been 24.6% in rural areas and 75.4% in urban areas.
I strongly oppose any effort to create additional development potential in the rural areas.
Thank you for considering my comments and point of view as an engaged, contributing and caring resident of this beautiful county since 1977.
Sincerely,
Eiren McKay
22953 Bumblebee Lane
Mount Vernon, WA 98273

Comment # 46

**Skagit Audubon Society**
P.O. Box 1101
Mount Vernon, WA 98273

RECEIVED
MAR 13 2025
SKAGIT COUNTY
PDS

March 13, 2025

Planning and Development Services
Comments on "Skagit County's 2025 Comprehensive Plan"
1800 Continental Place
Mount Vernon WA 98273

Dear Skagit County Commissioners, Planning Commission, and Planning & Development Services Staff:

Thank you for the opportunity to comment on the draft *Skagit County 2025 Comprehensive Plan*. The following comments are on behalf of the 528 members of Skagit Audubon Society, the National Audubon chapter focused on Skagit County. Skagit Audubon's members share the organization's mission of protecting birds and other wildlife and preserving or restoring wildlife habitat. Without exception Skagit Audubon members appreciate that our eounty's natural and its managed landscapes support many species of birds and, in many cases, significant numbers of particular species. This abundance attracts people to visit or live in Skagit County. Our organization is dedicated to preserving and enhancing what is best about our home in this regard. We appreciate the rural parts of Skagit County and its bays and rivers that support diverse and abundant bird populations, and we support the determination to concentrate human population growth in the incorporated cities and towns.

We extend our thanks for the overall good job Planning & Development Services staff and the county's contractor, Kimley-Horn and Associates, have done in providing multiple opportunities for public comment and updating the draft Comprehensive Plan to reflect public input and the requirements of state law. We especially welcome the new element addressing climate and resiliency and that focused on housing.

Please accept the following comments on a few aspects of the plan. All page references are to the red-line version.

**Environment Element**

1. **Goal 5A** (p.175, the last goal under 5A)
   Draft Comp Plan text: *"Protect, restore where practical, and enhance fish and wildlife populations and their associated habitats, including corridor connections and tree canopy."*

   Comment: We support this goal and appreciate the important support it indicates for corridors which facilitate movement of wildlife between areas of habitat. We suggest adding the word "closed" before "tree" so that the final phrase reads, "… *including corridor connections and closed tree canopy.*"

2. **Policy 5A-3.1** (p.179)
   Draft Comp Plan text: *"Wildlife corridors and connections between areas of native vegetation and riparian corridors that connect wetland systems, and open space should be conserved and protected whenever feasible through incentive programs."*

   Comment: We request that this policy be strengthened by replacing the underlined "should" with "shall."

3. **Policies 5A-5.2**(a) through (c) (p.184-185)
   Draft Comp Plan text: *"Land uses that are incompatible with critical areas should be discouraged. …*
   *(a) Frequently Flooded Areas*
   *(b) Geologically Hazardous Areas*
   *(c) Fish and Wildlife Habitat Conservation Areas"*

   Comment: Skagit Audubon strongly supports protecting critical areas and, by doing so, preventing degradation of natural systems as well as damage to structures and injuries to people. Given the importance of protecting critieal areas, we see no good reason to replace the previous "shall" with "should" in these three policies. Please change the text back to read, "… shall be discouraged." This already is a compromise on what should logically be a strict prohibition on development in these areas.

**Utilities Element**

4. **Goal 9A-5** (p.327)
   Comment: Please add a goal stating something sueh as the following:
   *"Skagit County will strongly support development of community solar projects on county-owned buildings and above county-owned parking areas."*

   Community solar installations will provide residents with the opportunity to invest in solar power when their own properties lack the appropriate location for solar panels or when they cannot afford the cost of a complete installation. Anacortes has several examples on public buildings already.

**Climate and Resiliency Element**

5. **Assets most vulnerable to climate hazards** (p.390, first paragraph)
   Comment: Please include in the list of assets "*beaches and estuarine wetlands.*" Beaches are important habitat for forage fish spawning and are thereby vital to the Puget Sound food chain. Estuarine wetlands such as eel grass meadows and increasingly rare salt marshes are essential to fisheries, and they sequester and store large amounts of carbon. Sea level rise will destroy these wetlands as marine waters push up against dikes where there is no room for wetlands to migrate shoreward. Estuarine wetlands also help buffer storm wave impacts.

6. **Policy 12B-1.4** (p.392)
   Draft Comp Plan text: *"Identify areas in the County that are appropriate for siting renewable energy generation and storage facilities that prioritize protection of Natural Resource Lands."*

   Comment: We support this policy with the following underlined additions:
   *"Identify areas in the County outside hundred year floodplains and distant from residential areas that are appropriate for siting renewable energy generation and storage facilities and that prioritize protection of Natural Resource Lands."*

7. **Goal 12F and Policies 12F-1.1 through 1.4** (pp.394-395)
   Draft Comp Plan text: *"Protect and enhance natural ecosystems to support climate change resilience, carbon sequestration, and GHG emissions reduction."*

   Comment: In accordance with the policies of National Audubon and Audubon Washington, we strongly favor natural climate solutions as outlined in this goal and its associated policies.

8. **Goal 12J** (p.396)
   Draft Comp Plan text: *"Enhance community resilience by integrating climate change projections into land use, infrastructure planning, and development regulations, ensuring long-term safety from sea-level rise, flooding, wildfires, and other climate-exacerbated hazards while protecting natural ecosystems."*

   Comment: We strongly support this goal for zoning and development as written.

9. **Policy 12J-1.1** (p.396)
   Draft Comp Plan text: *"Develop regulations for elevating or setting back new and substantially improved structures to reduce the risk of damage caused by sea level rise."*

   Comment: Please either expand this policy or write a separate one to address existing structures in harm's way from sea level rise or coastal erosion. The policy as written addresses only future construction. Please include a policy to map assets at risk and then prioritize them for adaptive measures or relocation.

10. **Policy 12J-1.2** (p.396)
    Draft Comp Plan text: *"Plan and build facilities, utilities, and infrastructure projects to avoid or withstand flooding from rising sea levels and changing precipitation patterns."*

    Comment: Please either expand this policy or write a separate one to also address existing facilities, utilities, and infrastructure in harm's way from sea level rise, increased flooding, or coastal erosion. The policy as written addresses only future

construction. As mentioned in comment #9, these assets at risk also need to be mapped and prioritized for adaptive measures or relocation.

11. **Policy 12J-1.4** (p.397)
    Draft Comp Plan text: *"Require that proposals for shoreline stabilization demonstrate a need and require the use of soft shore stabilization methods to the extent practicable to protect sites from wave-driven erosion or flooding exacerbated by sea level rise."*

    Comment: We support this policy and urge that "*to the extent practicable*" be interpreted strictly. Hard armoring of the shoreline should be the rare exception. Armoring with hard materials is ultimately futile and degrades shoreline processes. It destroys spawning habitat needed by forage fish such as smelt and sand lance by preventing beach replenishment from shoreline bluffs. Forage fish are the small species at the base of the marine food chain for salmon, seabirds, marine mammals, and ultimately orcas.

12. **Additional Policies Needed**
    Comment: We urge Skagit County to collaborate with the appropriate state and federal agencies to proactively identify and map areas where shoreline residents are at risk from sea level rise (see comments #9 and #10 above). Furthermore, we urge that the Comprehensive Plan include a policy of incentives, for example through a Transfer of Development Rights program, for shoreline residents to relocate out of harm's way. Relevant policies should more strongly discourage building where any type of shore stabilization would be needed and should establish programs to dissuade such development.

13. **Environmental Advisory Board**
    Comment: Many other organizations and individuals participating in the open house opportunities and via written comments and testimony have urged establishment of an Environmental Advisory Board. Skagit Audubon here repeats our support for this idea as mentioned in our November 22, 2024, comment letter. We support the detailed description of this idea which Skagit Land Trust has submitted. The technical aspects of some of the challenges facing Skagit County call for specialized expertise to aid our County Commissioners in making sound decisions based on the best available science.

We appreciate your attention to our comments. Questions about any of these comments can be directed to conservation@skagitaudubon.org (Skagit Audubon Society, PO Box 1101, Mount Vernon, WA 98273).

Sincerely,



Timothy Manns
Conservation Chair
For the Skagit Audubon Board

Comment # 47

RECEIVED

MAR 13 2025

SKAGIT COUNTY PDS

Planning and Development Services
Comments on "Skagit County's 2025 Comprehensive Plan"
1800 Continental Place
Mount Vernon WA 98273

March 13, 2025

Dear Planners:

I attended the meeting on March 11, 2025 and spoke briefly. Our family has a small aggregate business in Eastern Skagit County. Many of the aggregate companies are larger. We have had our sources under Mineral Resource Overlay (MRO) of the Natural Resources Section since inception of MRO. Supposedly this was to protect the availability of mineral resources in Skagit County. In my opinion this failed. In part, I believe this is due to not educating the public as to what good we accomplish for them. One public meeting I attended a fellow got up and rhetorically asked, "What's in it for us?"

As I stated at the meeting, there is soft infrastructure and hard infrastructure. Soft infrastructure are hospitals and the medical occupations, schools, the postal service, police and fire, government and I am not sure where to put internet, but it most likely is a part of soft infrastructure and a part of communication services.

Hard infrastructure encompasses I5, Highway 20, streets, bridges, sidewalks, trails, jetties and dike systems, train railways, plane runways, electric transmission lines, foundations for housing, housing itself, buildings, driveways, sewage treatment plans; and the list goes on. The aggregate business is the foundation of all hard infrastructure. Nothing is built without starting with mineral resources.

In this era, the threat of climate change puts more of an emphasis on the aggregate community, not only for shoring up the dikes and seashores, but also in building materials that won't easily combust in a fire. Our quarry in Marblemount was certified as a source for the Columbia River jetties. It underwent numerous tests for its quality under the stressors of King wave action. A rock that has iron in it reacts to saltwater and disintegrates. A 2-week ethylene glycol test was demanded for its suitability and also a wave action study back in Ottawa, Canada was undertaken by the Army Corps of Oregon. It passed with flying colors. They said it was the best source of jetty stone on the west coast.

Our entire aggregate community is laboring under the stresses of public denouncement and 30 years ago the Mineral Resource Overlay was supposed to help. Every business has things that aren't desirable, albeit noise, dust, increased traffic for mining, but that is true of every business. There are detractors for farming, the medical field, schools.

The Natural Resource section/Mineral Resource Overlay is good. I appreciate the time that went into crafting it. I question exactly how the education of the public is going to take place, but I will try to get better at public speaking and do my part.

Thanks again,

John and Ann Parker

Cunningham Crushing, Inc.

**Tara Satushek**

Comment # 48

**From:** Brenda Cunningham <brenda.cunningham1@outlook.com>
**Sent:** Thursday, March 13, 2025 10:15 AM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan

Dear Skagit County Commissioners, Planning Commission, and Department staff,

Thank you for the opportunity to make comments regarding the comprehensive plan update. I think the contractor and the planning department staff did a fine job incorporating the necessary updates and making it easier to read as a planning document.

**Environmental Advisory Board** – Many people requested such a board during the scoping period, but no mention of it made it into the draft. I think you should reconsider that request. There are many pieces of the puzzle in maintaining the high quality of life in Skagit County and an Environmental Advisory Board would help bring those together in one place.

**Community Support for the Climate Resiliency Element** - County voters had the opportunity to repeal the Climate Commitment Act in November last year, but in Skagit County 57% of the voters chose to retain the act. I know that the Climate Resiliency requirement in the Comprehensive Plan was created by a different law, but it is clear that the citizens of Skagit County are concerned about the climate and would like to see climate addressed. So, I applaud the work done here to incorporate Climate Resiliency into the plan.

**Preservation of Resource Lands** – on Page 22 of the clean version there is a statement that "the transfer of resource lands to nonprofit corporations and other agencies for purposes of habitat protection or enhancement results in farms and forest land being taken out of natural resource production". This statement implies that habitat protection and enhancement preclude resource production. In fact, many easements held by the non-profits in Skagit County allow mixed use and protect these natural resource areas from conversion to non-productive uses. The easements also hold these lands for future generations to decide how they would like them to be utilized. Whereas failure to protect these lands from development results in fewer choices for the future.

**Limited Areas of More Intensive Rural Development** – Starting on Page 60 of the clean version of the plan there is a goal (3B) to allow more high-density development in rural areas. I am concerned that this will lead to greater sprawl and loss of natural resource lands. The policy states that it will be limited to areas with services, but those are not defined. More residential development in rural areas leads to longer commutes and miles driven on our roads. One only has to drive State Route 20 eastward in the morning to see the long streams of traffic headed west to work sites. Services alone are not enough to justify the loss of farm and forest lands in the rural area. Also, this will not alleviate the affordable housing crisis in Skagit County. There is nothing in the policy to indicate these will be affordable and the longer commute to work will make their occupancy by working families unlikely. Please remove this policy.

**Forestry and Wildfire risk** – I am concerned about the existing and growing residential development of lands adjacent to commercial forest lands. Rapid rotations of forest lands lead to drier conditions and greater fire hazards. Small ladder fuels can spread wildfire quickly into these adjacent residential areas. I would like to see greater protection of the forestry on commercial lands by limiting the residential development on adjacent parcels. At the very least, homeowners should be required to participate in Firewise practices around their homes if they are going to expect protection from fires using public resources. Perhaps this can be addressed in an expansion of goal 4B-6.

**Flooding hazards** – I am concerned about the residential development that has been allowed in areas where flooding is frequent, and my concern has grown with the increase in heavy rainfall events in western Washington. Heavier winter rains are already occurring, and more are expected with climate change. The goals in the Critical Areas section (5A) should reflect this change in conditions and alluvial fans should be included in the geohazards where residential development should not be allowed. This is of greatest concern where commercial forestry is occurring upslope from the residential areas. Forestry is an important part of our economy and people should not build homes in harm's way. I encourage everyone to watch the excellent 4-minute animated film found on the homepage of the Skagit Climate Science Consortium (http://www.skagitclimatescience.org/flood-risk-combining-forces/). The film is called "3 ways Climate Change is Bringing more Flooding to the Skagit". This video illustrates in a very succinct manner the impact of heavier rainfall on our valley. Not only should we be examining our forest practices to preserve more carbon, but also to protect those hillsides from landslips like we saw in Oso.

Thank you and I hope you will take these comments into consideration.

Brenda Cunningham
1218 S 13th Street
Mount Vernon, WA 98274

**Tara Satushek**

Comment # 49

**From:** Linda Stucks <lindastucks@gmail.com>
**Sent:** Thursday, March 13, 2025 10:16 AM
**To:** PDS comments
**Subject:** Skagit Counties 2025 Comprehensive Plan Draft Policies

From Linds Stucks
1712 E Fairhaven Ave
Burlington Wa 98234

Here are my wishes and concerns, thoughts and views of the 2025 Comprehensive Plan Draft Policies

1) Establish an Environment Advisory Board

2) Expand Sea Level Rise Policy

•Support revisions CE 10.3
•Support revision CE 10.4

3) Make Changes to Revision of Rural Land Conservation
• Support revision 3A (a)
•Support revision 6.0
•Support revision 6.6
• DELETE 3A (b)

4) Add to Energy Conservation and Storage Policy Revisions
•Support revision CE 2.4
•Support revision CE 10.5

Plan for Community Solar Arrays
Plan now for Clean Energy Installation and Develop Code for the Siting of Electrical Energy Generation and Storage Facilities.

Indicate Where Such Facilities can be Sited with the Least Conflict and Where They Belong

5) Expand Forest Resource Lands and Wildlife Strategy
•Support revision CE 10.6
•Support 4B 2.11

Thank you for your time

Linda Stucks
1712 E Fairhaven Ave
Burlington Wa 98233

**Tara Satushek**

Comment # 50

**From:** Judith Chilcote <judithchilcote@gmail.com>
**Sent:** Thursday, March 13, 2025 11:41 AM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan Draft Policies

March 13, 2025

Re: Skagit County's 2025 Comprehensive Plan Draft Policies

Dear Members of the Planning Commission,

Thank you for your work on the Climate section of the Skagit County's Comprehensive Plan Draft and for taking comments. I am a citizen of Skagit county and have been for 50 years. My main concern is that Skagit County NOT follow in neighboring counties' footsteps with population growth sprawling to rural areas.

As I understand, the Comprehensive Plan will establish policies for uses of land in unincorporated Skagit County over the next twenty years. The Plan will guide physical, growth and development. I strongly support those plans to protect natural resource lands, open space and rural areas while creating urban growth areas where development should be directed.

I support, as many in a clear majority of the public participating in the comprehensive plan process have requested, to include an Environmental Advisory Board (EAB). An EAB would help leaders to look at environmental issues to make decisions based on the best available science. An EAB could be made up of people who have lived experience and those with professional expertise on a variety of environmental issues, including conservation, habitat restoration, climate science, greenhouse gas (GHG) emissions reduction, climate impacts mitigation, along with urban and rural planning.

Now is the time to plan for open spaces issues like bike and walking paths connecting both urban and wildlife corridors. We need to create spaces that allow people to use bikes, for instance to commute. I just visited my family in The Netherlands where one witnesses both urban and rural bike paths that parallel all roads, city streets, or nearby trails offroad. All pathways work together creating opportunities for all citizens, young and old, traveling to jobs, daycare, schools, trains, neighborhoods and grocery stores; literally every walk of life (no pun intended).

I live on Little Mountain Road and would love to feel safe riding a bike to and from town. However, I do not.

Finally, in regard to growth in our county. I strongly oppose the new provision of policy 3C-1.6(b) that the Rural Village Residential land density may be up to "4 dwelling per acres" (sic) for certain housing types. Though this may be more affordable, four dwelling units per acre has never been an allowable density in the rural area under the Growth Management Act (GMA). The most recent population growth trends show the county moving away from the GMA goal of limiting growth in the rural area to no more than 20 percent.

Thank you for your time, and your work as stewards of our county land and its development.

Sincerely,
Judith Chilcote
22303 Little Mountain Road
Mount Vernon, WA 98274

**Tara Satushek** Comment # 51

**From:** Molly Doran <mollyd@skagitlandtrust.org>
**Sent:** Thursday, March 13, 2025 11:42 AM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan- Skagit Land Trust

**Thursday, March 13, 2025**

**Submitted by Molly Doran**

**Executive Director, Skagit Land Trust**

**1020 S 3rd, Mount Vernon WA 98273**

---

**Skagit Land Trust's Comments on Skagit County's 2025 Comprehensive Plan**

Thank you for the opportunity to comment on the proposed update to Skagit County's Comprehensive Plan. We have participated in various open houses and focus group meetings hosted by the county and submitted comments on preliminary drafts of the Comprehensive Plan elements. We appreciate this opportunity to comment once again on the draft plan as it goes to the Planning Commission and then to the Board of County Commissioners.

Skagit Land Trust conserves wildlife habitat, working agricultural and forest lands, scenic open space, wetlands, and shorelines for the benefit of our community and as a legacy for future generations. Our organization has over 1,700 family and business supporters (members) and 400 active volunteers who work to protect the most important and beloved places in Skagit County. Today, the Trust protects more than 11,000 acres, including more than 50 miles of shoreline.

Our comments draw from this mission and seek to ensure that the Skagit County Comprehensive Plan works to maintain the resilience of Skagit County's natural environment in the face of population growth and the impacts of climate change.

Page numbers referenced below refer to the Redline version of the Comprehensive Plan draft.

---

**Preface**

- **We support the new language on p. 6 indicating Skagit County's intent to work through its planning efforts with tribal governments to protect cultural and natural resources.**
- **We support the Resiliency and Greenhouse Gas icons introduced on p. 18** that are used throughout the comprehensive plan to identify policies that will have a positive impact on resiliency and greenhouse gas reduction. They are important to help establish the link in the public's mind between land use policies and improved climate performance.

**1. Introduction and Summary**

- **We recommend different wording in the paragraph at the top of p.32 titled "Emphasis on the preservation of resource land band."** The sentence reads: "In particular, the transfer of resource lands to non-profit corporations and other agencies for purposes of habitat protection or enhancement results in farms and forest land being taken out of natural resource production."

**We propose refining this statement to emphasize seeking partnership with nonprofits and agencies in protecting resource lands, rather than excluding them.** The current wording overlooks the

environmental complexity of resource lands and the valuable contributions these organizations and agencies make.

Nonprofits and agencies often secure grant funding to purchase land or conservation easements where sustainable farming and forestry practices continue. Many habitat conservation efforts are compatible with ongoing natural resource management activities. In other instances, restoration efforts are focused on specific areas like wetlands or riparian zones. For instance, Skagit Land Trust actively manages hundreds of acres of agricultural lands, leases farmland, and holds conservation easements that protect both wildlife habitat and working landscapes. **In 2024, for example, the land trust permanently protected approximately 300 acres of agricultural land- that remains in agricultural use. The land trust also safeguards working forests.**
Private landowners often see long-term conservation partnerships with nonprofits or agencies as a way to preserve their farm or forest land for future generations, especially when county funded programs are not an option. Landowners may even donate land or conservation easements to achieve their goals, illustrating the mutual benefits of collaboration in protecting natural resource lands.
Given Skagit's lengthy marine and river shorelines, forests and wetlands, many natural resource lands contain extensive critical areas or sensitive natural areas. Natural resources lands are complex. We understand that large habitat restoration projects do take place in the Skagit on resource lands - and we concur that it is best when these are collaborative. However, **the majority of lands that we and other groups or agencies conserve or restore for habitat that are situated in natural resource areas, are lands where that use has been abandoned typically because resource use was not profitable or possible any longer, the lands were never viable for that use or, natural processes are re-establishing themselves.** They are typically better suited for fish and wildlife habitat restoration.

Conservation organizations and agencies are important partners with Skagit County in protecting natural resource land for ongoing resource production while also restoring important fish and wildlife habitat and improving Skagit County's resilience against flooding, sea level rise and other natural disasters.

- We appreciate the plan's identification at the bottom of p. 32 of several key themes that have emerged through community and stakeholder engagement activities in the Comprehensive Plan update process, namely **Enhance Resiliency in Skagit County**, **Housing Affordability**, and **Greenhouse Gas Emissions Reductions**. It will be important to ensure that these key themes continue to be recognized by the Planning Commission and Board of County Commissioners, and continue to be reflected in Comprehensive Plan policies, through the remainder of the update process.

**2. Urban, Open Space and Land Use Element**

- We support policy 2A-1.4 regarding meaningful consultation with federally recognized Indian tribes when they may be potentially affected by changes in urban growth boundaries.
- **We support policy 2A-8.7 regarding collaboration with the Skagit Council of Governments to consider revising Countywide Planning Policy 1.2 to reduce the target growth allocation in rural areas. Our earlier comment letters have recommended dropping the rural population target to 10 percent from the current 20 percent. With climate change, many of the factors that previously dictated where growth and development should go must be updated with greater emphasis on natural hazards and limited resources.** Thus, things such as water supply, single source aquifers, flood plain hazards, forest fire hazards, erosion, landslides, and transportation routes in floodplains all need to be considered. We believe affordable housing and environment conservation goals are best served by targeting most new residential growth to the urban areas.
- **We support and hope to see greater emphasis and detail placed on policy 2B-1.3, "Skagit County should continue to work with its partners….to identify, prioritize and conserve open space corridors within and between urban growth areas…"**

- **We believe the Skagit County UGA Open Space Plan should be updated with climate change in mind.** The plan helps focus our and other organizations' conservation work around these cities and towns. Recommended next steps include:
    - A considerable amount of greenbelt and open space identified in the Open Space Concept Plan has been protected by the County, conservation organizations such as Skagit Land Trust, cities, the Port of Skagit, agencies, tribes, etc. However, the green space/open space elements of the plan need to be updated to include key unprotected areas for fish and wildlife habitat particularly for at-risk species, increased storm water runoff and floodwater storage, natural heat sinks near cities and towns, nature parks near growing populations centers, access points to water, etc.
    - The trails section of the Open Space Concept Plan has not seen as much accomplished and needs to be updated with denser cities in mind. Right now, it is very unsafe to bike to cities from a rural area or between cities and towns. It is not easy to get to rural areas for recreation by foot or bike. Trails encourage people to walk, use bikes, etc. rather than cars. More people will choose to live in cities if they know they can easily visit rural areas without getting in a car. The County needs to understand where multi-use trails should be located to assist with emission reductions.
- **Policy 2G-1.1 on p. 70, under Land Division, makes great sense for the protection of Ag-Natural Resource Land. The same process should be made available in other land use designations to separate an existing house from land to be conserved in perpetuity for natural resources, open space, habitat or other purposes**. This "Conservation Subdivision" would allow professional conservation organizations or government entities to purchase part of a property from a voluntary landowner for strict conservation purposes without going through the current arduous and expensive subdivision process.

**3. Rural Element**

**According to the draft on p. 76, the rural area accepted 24.6% of the County's growth from 2017-2022, compared to 75.4% for the urban areas. This reflects a movement in the wrong direction** from the 2000 to 2010 period when rural area growth was 21% versus 79% for the urban area. **For this reason, we strongly oppose any effort to create additional development potential in the rural area, as appears to be the intent in policy 3B-1.6, as discussed below**.

- **We support adding the word resilience to Goal 3A-1(a),** reflecting an understanding that maintaining the natural and open space character of the rural area is important in maintaining the county's resilience to climate change.
- **We oppose the new provision of policy 3C-1.6(b) that the Rural Village Residential land density may be up to "4 dwelling per acres" (sic) for certain housing types which may be more affordable. Four dwelling units per acre has never been an allowable density in the rural area under the Growth Management Act.**

**Encouraging most residential development in cities and towns is the best way to promote affordable housing in Skagit County.** The most recent population growth trends show the county moving away from the goal of limiting growth in the rural area to no more than 20 percent. Allowing additional density in the rural area, even for the important purpose of increasing affordable housing, is moving in the wrong direction.

**Allowing certain housing types which may be more affordable is a worthwhile goal, but it should not be coupled with an increase in residential densities in Rural Village Residential.**

**4. Natural Resource Lands**

- **We support the new language on p. 131, proposed as policy 4A-1.1 (e), that "Site-specific proposals to de-designate natural resource lands must be deferred until a comprehensive countywide analysis is conducted."** This policy applies to Ag-NRL lands only. This same provision should be applied to policy 4B-3.3 on p. 144, regarding forest lands of long-term commercial significance.

Site-specific de-designation requests are often submitted simply because the landowner seeks to gain additional development potential on their land, regardless of whether their parcel meets the Natural Resource Land designation criteria. It is very difficult and time-consuming for planners to consider such isolated de-designation requests separate from a more comprehensive review of the natural resource land base. On rare occasions a parcel may have been incorrectly designated as Natural Resource Land, but this should only be evaluated on a comprehensive basis when looking at the agricultural or forest land base as a whole.

- **We support policies 4B-2.7 and 4B-2.11 seeking to increase public and forest landowner awareness and preparedness for wildfires and to reduce their occurrence**.
- **We strongly support policy 4B-2.12, "Wildfire Resilience Strategy. Develop a comprehensive, county-wide wildfire resilience strategy planning program to increase public safety and awareness regarding forest fire dangers, and establish the means of managing, reducing and suppressing catastrophic wildfires."**
-
    - As an important tool in protecting property and lives, as previously proposed, we also recommend the following additional language. This will decrease the risk of home-building in areas that may be impossible to defend from wildfires. Some other vulnerable communities are no longer allowing development in fire prone forests and wildlands:

    "**Identify and implement strategies for reducing residential development pressure in the wildland-urban interface. The County should discourage building in some forested areas due to increased risk of intense wildfires.** The County could achieve this by proactively purchasing development rights or assisting conservation agencies and nonprofits to purchase development rights."

    - **Policy 4B-5.5 contains a fundamental contradiction that needs to be addressed. As written, Policy 4B-5.5 states**:
    "Continue [sic] Natural Resource Conservation Areas (NRCA) and Natural Area Preserves (NAP), as defined by RCW 79.71, shall be considered compatible with Industrial Forest. However, Skagit County strongly encourages that these lands be maintained in forest production. If NRCA or NAP lands are taken out of forestry production, they shall be included in the Converted Natural Resource Lands Database (Policy 4F-1.4)."

**We recommend strongly that the policy be modified for the following reasons:**

- NRCAs and NAPs represent highly sensitive and ecologically unique habitats.
- RCW 79.70.020 states, in part, that [NAPs are] "valuable for the purposes of scientific research, teaching, as habitats of rare and vanishing species, as places of natural historic and natural interest and scenic beauty, and as living museums of the original heritage of the state."
- RCW 79.71.020 states that [NRCAs have] "flora, fauna, geological, archaeological, scenic, or similar features of critical importance to the people of Washington and that has retained to some degree or has reestablished its natural character."
- Commercial timber harvest is incompatible with these land designations except as a management tool to restore the ecological values of the conservation area. Furthermore, regulation and management of these lands is not within the jurisdiction of Skagit County and should not be within the scope of the County's Comprehensive Plan.
- NRCAs and NAPs are created through State acquisition programs with funds designated for such purpose, or through the Trust Land Transfer Program. When these lands are transferred out of Trust Land status, RCW79.71.050 explicitly requires the Trust to be made whole by replacing the forestland removed: "The proceeds from such transfers shall be used for the exclusive purpose of acquiring real property to replace those interests utilized for the conservation area in order to meet the department's fiduciary obligations and to maintain the productive land base of the various trusts." Therefore, there is no net loss to the commercial

timber base resulting from these land designations. Furthermore, the RCW provides for payment in lieu of taxes by the State to affected Counties.

**For these reasons, we strongly recommend that Policy 4B-5.5 be modified as follows:**

> **"Natural Resource Conservation Areas (NRCA) and Natural Area Preserves (NAP), as defined by RCW 79.70 and 79.71, shall be considered compatible with Industrial Forest zoning as a mechanism for recognizing and protecting highly sensitive and unique habitat areas within the commercial forest land base.**

**5. Environment.**

**We respectfully submit the following comments and proposed changes to the draft Environment Element. Please note that many of the comments below are repeated from our previous letter submitted in November 2024. We are disappointed that many of our proposed changes to this element were apparently not considered. We would welcome a discussion with the County staff regarding the importance of these proposed changes.**

- **We support Environment Element Goal 5A (p 174),** and the strengthening of the first item to emphasize no net loss of wetland functions and values: "Preserve and protect wetlands to maintain no net loss of wetland functions and values." However, while the County must achieve no net loss of wetland functions and values, **we also recommend that it prevent the continued loss and degradation of wetlands themselves.**
- **We support the corresponding language change to Policy 5A- 5**.1 emphasizing no net loss of wetland functions and values however again recommend adding "**and no net loss of wetlands**". **The loss of wetlands themselves should be a priority**.
- **We recommend that the fourth item under Goal 5A, on page 175, be modified with the following underlined language to read:**
  - Protect hydrologic functions, plan for changing climate conditions, and reduce the potential for physical injury and property damage associated with flooding <u>including from the dynamic presence of beaver dams on the landscape.</u>
- **As we commented in our previous letter, we recommend that the final item under Goal 5A be strengthened with the following underlined language to emphasize protection of wildlife corridors:**
  - Protect, restore where practical, and enhance fish and wildlife populations and their associated habitats, including <u>seeking opportunities to protect and restore</u> corridor connections and <u>continuous</u> tree canopy <u>and cover, to allow wildlife movement and migration across the landscape</u>."
- **We recommend Policy 5A-1 be modified to include reference to the NGOs** which play a significant role in protecting Skagit County's critical areas. The policy would then read as follows: "**In cooperation with local, state, federal, and tribal agencies and jurisdictions, non-profit organizations, and regional partners, Skagit County…"**
- **As previously proposed, we recommend corresponding language changes to Policy 5A-5.1**:
  - **Emphasize protection and restoration of habitat corridor connections and continuous tree canopy and cover to allow wildlife movement and migration.**
  - **Given beavers' role in maintaining healthy wetlands, the County also should consider** ways to incentivize relocation of infrastructure and structures away from areas likely to support beavers or potentially at risk if a beaver dam should breach. Beavers create, protect and restore wetlands, helping to maintain healthy, climate-resistant watersheds. We appreciate that the County's Natural Resources Division has provided the public with education about living with beavers, and about how to manage beavers when they cause trouble.

- **As previously proposed, we recommend that 5A-2.2 be more specific to assist with hazard reduction. Debris flows and mass wasting events in alluvial fan areas will happen more frequently with the intense precipitation events expected with climate change. While Skagit County code does recognize alluvial fans as hazard areas, specific assessment or development standards for alluvial fans are absent. These should be added to the code to reduce risk and damage.** We recommend adding specific standards such as these examples from Whatcom County code:
-
    - Permanent residential structures and commercial developments shall be allowed in alluvial fan hazard areas only if the hazard area has undergone a county-approved study to assess potential hazards, determine risks, and identify mitigation measures and is deemed suitable for development.
    - **The determination of risk and mitigation should be based on a detailed assessment by a qualified professional that identifies the risks associated with a 500-year return period debris flow, or the maximum credible event, that could impact the alluvial fan.**
- **We support the additions to policy 5A-3.1 which emphasize providing landowner incentives for protecting habitat and wildlife corridors. Thank you for adding these sections.**
- **We strongly support Policy 5A-3.3: "Public and private acquisition of critical areas should be encouraged for permanent conservation**".
- **We are concerned that in the new draft, proposed Policy 5A-3.6 appears to have been deleted: "Protection of habitat conservation areas should be encouraged through acquisition". Land acquisition is an important conservation tool; we recommend restoring this language.**
- **We request that Policy 5A-5.1(a)(iii) be strengthened by changing the "should" to "shall," so it reads:** "Mitigation projects **shall** achieve no net loss of wetland area." Consistent with this policy, item (iv) should also use "shall" so that it reads, "(iv) A wetland buffer zone of adequate width **shall** be maintained between a wetland and any adjacent development to protect the functions and integrity of the wetland."
- **We support the strong emphasis in policy 5A-5.1(d)(i) and (ii) on protecting stream and wetland buffers and minimizing habitat fragmentation**:

"(i) Stream and wetland buffers must be set so as to protect habitats associated with riparian dependent species."

"(ii) Habitat fragmentation must be minimized to enhance wildlife diversity by protecting important wildlife areas, open space, and interconnecting corridors that form a continuous habitat network."

- **We request that Policy 5A-5.2, page 184, be strengthened by changing the "should" back to "shall" so it reads,** "Land uses that are incompatible with critical areas **shall** be discouraged." We recommend the same retention of "shall" rather than "should" in the sub-policies that follow and in Policy 5A-5.3. We see no good reason to weaken measures designed to avoid creating hazardous situations.
- **We recommend modifying Policy 5A-5.3 (c)(ii), page 186, to read: "The construction of critical facilities** (i.e. schools, hospitals, police, fire, emergency response installations, nursing homes, major electrical facilities such as substations and battery energy storage systems, and installations which produce, use or store hazardous materials or hazardous waste) **should be prohibited within the 100 year floodplain.** (Note the added wording: "major electrical facilities such as substations and battery energy storage systems").
- **We support the new Goal 5B, which addresses climate hazards and greenhouse gas reductions** through protection, enhancement and restoration of the natural environment, along with policies 5B1.1 through 5B1.4 that follow. Thank you for adding this important language.

**Creation of an Environmental Advisory Board**

Finally, in two previous comments to Planning and Development Services (PDS), **Skagit Land Trust has recommended the creation by the County Commissioners of an Environmental Advisory Board (EAB). We modeled our recommendation on the already existing policies in the Natural Resource Element that established the Agricultural Advisory Board, the Conservation Futures Advisory Board and the Forestry Advisory Board. We are extremely disappointed that the proposed Environmental Element of the Comprehensive Plan 2025 Update does not contain a policy recommending establishment of an EAB.**
At the start of the 2025 Comprehensive Plan Update process, the County reached out to the public asking for input at Open Houses and later via written comment. **Support for an EAB was expressed at the Open Houses, and in 59 of the 90 comments submitted to PDS by the public on the revised Comprehensive Plan 2025 Update this past Fall. One comment asked for a Climate Policy Advisory Team.**
**The County needs to respond to what a clear majority of the public participating in the comprehensive plan process have asked for: a policy creating an EAB.**
Establishing an Environmental Advisory Board will help the Skagit County Commissioners , the Planning Department and the Planning Commission understand the unique biodiversity and multilayered ecosystems that make up Skagit County's natural world so that they can make informed judgements, based on the best available science, about our natural lands, waterways and wildlife habitat, and make well thought-out plans for dealing with the intensification of climate change's impacts upon our county far into the future. **Skagit County's natural resources and our communities are deeply connected to the environment.**
**We are again submitting (at the end of this comment letter) our full recommendation for an EAB to be included in the Skagit County Comprehensive Plan 2025 Update, as well as the following suggested policy language to be added to the Environment Element:**
**<u>Proposed Policy</u>**

**Establish a Skagit County Environmental Advisory Board to report and make recommendations to the Skagit County Board of Commissioners and Planning Agency on natural resource and environmental plans, policies and programs** including, but not limited to:

1. **Existing and proposed legislation affecting natural lands, open space, waters and wildlife habitat of Skagit County;**
2. **Land uses as they impact the long-term sustainability of natural processes** (river process, marine shoreline, etc.);
3. **Ways to maintain, enhance, collaborate on, and promote natural solutions to improve climate preparedness;**
4. **Ways to maintain, enhance, collaborate on, and promote environmental justice and environmental stewardship**.

**6. Shoreline Master Program**

The draft Comprehensive Plan contains no proposed language for this element, saying existing policies "remain in place and are being updated through a parallel process." **Skagit Land Trust and other members of the public would be interested in an update on what is happening with this important element.**

**7. Housing**

**The Land Trust appreciates and supports the variety of activities the county is engaged in to increase the supply of housing generally, and affordable and farmworker housing in particular**. This includes cooperative planning with the cities and towns through the Skagit Council of Governments to link the location of high employment areas and housing; and initiatives such as the North Star Project and the Skagit County HOME Consortium.

- **As stated in our comments on the Rural Element, however, we do not support efforts to increase residential densities in any of the rural zones, including Rural Village Residential (RVR). If there are ways to allow more affordable housing types in RVR without increasing densities, we would support that.**
- **If there are ways, such as a TDR program, to transfer development rights from Natural Resource Lands or environmentally sensitive areas to Rural Villages to facilitate these more**

**affordable housing types, we would also support that; provided there is no overall increase in density or development potential in the rural area.**

**8. Transportation**

**We strongly support revised and newly proposed policies included in the draft Transportation Element to create an Active Transportation Component "that includes collaborative efforts to identify and designate planned facility improvements for ADA, pedestrian, and bicycle travel that address and encourage enhanced community access, promotion of healthy lifestyles, and reduction of vehicle miles traveled and greenhouse gas emissions."** This reflects a new GMA requirement and is also consistent with comments expressed during the preliminary public comment period.

**We also support transportation policies encouraging greater use of transit vs. single-occupant vehicles, and denser urban land use patterns** that will result in fewer vehicle miles traveled and lower greenhouse gas emissions.

**Specifically, policies we support include:**

- **New language in policy 8B-1.8 (p. 301)** emphasizing climate resiliency, equity and greenhouse gas reductions in the planning and design of transportation projects.
- **New language in policy 8B-1.10 (p. 301)** considering ecotourism opportunities such as bird-watching when making decisions about management of the roadway system.
    - **We recommend additional language emphasizing that safe active transportation is of utmost importance to many tourists and must be prioritized.**
- **New language in policy 8D-1.1 (p. 303**) encouraging Skagit Transit to encourage citizens and businesses to participate in transit use over single-occupant vehicles.
- **Policy 8G-1.12 (p 307)** that emphasizes the "maintenance of existing active transportation facilities, including road sweeping, striping, signing, and debris removal, and the ongoing development of smooth and continuous road shoulders, including asphalt overlays or enhanced chip sealing where appropriate and feasible."
    - **We applaud this policy but recommend additional language stating the need to maintain bridge roadways in a similar fashion, particularly with the removal of debris which often severely impedes safe active transport on bridges.**
- **Policy 8G-1.13 (p. 307) encouraging updates to the 2004 Non-Motorized Plan and the 2009 Open Space Concept Plan** to support expansion of the multi-use trail network for transportation, recreation, eco-tourism, and resilience to flooding and adverse climate impacts.
    - **We recommend that this policy be changed to read: "The County <u>shall update</u> both the 2004 Non-Motorized Plan and the 2009 Open Space Concept Plan to support expansion of the multiuse trail network for transportation, recreation, eco-tourism, and resilience to flooding and adverse climate impacts".**
    - **While progress has been made, the green space/open space elements of the plan need to be updated** to include key unprotected areas for fish and wildlife habitat particularly for at-risk species, increased storm water runoff and floodwater storage, natural heat sinks near cities and towns, nature parks near growing population centers and access points to water.
    - **Completion of the Centennial Trail between Snohomish County and Whatcom County should be a priority.** Only a ½ mile section of the Centennial Trail is open for public use in Skagit County.
- **Policy 8G-1.14's goal** "to reduce air pollution and greenhouse gas emissions by promoting the use of alternative transportation modes, reducing vehicular traffic, maintaining acceptable traffic flow, and siting of facilities."
    - **We recommend the word "safe" be placed in front of "alternative transportation modes"** as active transportation is not used unless safety of the users is given top priority.
- **Goal 8K's policies that provide for educating the public about transportation safety**, noting in particular the importance of policy 8K-1.1 "Safety Improvements - Include safety improvements as a priority in all capital projects and maintenance decisions relating to the County road system."

- **We support policy 8M-1.1** "Implement transportation system management techniques, such as the synchronization of traffic signals and provision of left-turn lanes, as a way to increase the efficiency and safety of the existing transportation system with a minimum of cost."
- **Policy 8N-1.13 (p. 312**) promoting transportation improvement strategies that support future densification of urban growth areas while also connecting seamlessly to rural areas. This policy should also emphasize the inclusion of active transportation improvement strategies.
- **Policy 8O-1.1 (with the following recommended modification in track changes):** "When a development project has a particular impact on the safety, structure or capacity of the County's road system, suitable mitigation shall be required in the form of improvements or through the use of adopted impact fees, which may include including pedestrian and bikeway projects."
- **We support policy 8Q-1.3 (p. 316**) emphasizing coordination of transportation capital improvement projects with the removal of fish passage barriers and improving wildlife habitat connections and pedestrian recreational connection opportunities.

**Additionally, we recommend new policies supporting the following:**

- **Develop ways to open more public access trails on dikes. Develop incentives and protections for dike districts and adjacent landowners.**
- **Add a policy supporting the expansion of electrical vehicle charging infrastructure throughout Skagit County.** There are no public electric vehicle (EV) charging stations east of Interstate 5. Skagit Land Trust conducts a lot of work upriver and has an EV truck. The absence of charging stations limits when and where we can work, no doubt creates a significant disincentive for others buying and using EVs.

**As stated in our comment letter on the earlier draft of the Transportation Element, we also encourage the County to implement the following:**

- **Develop a bike path from Edison to Burlington**. The Samish Flats are a tourism site needing safer passage for bikers and walkers.
- **Map and identify roads that are currently dangerous for cyclists and develop plans to make them safer.** Example: Bike safety on bridges, such as the Fir Island Road bridge over the North Fork of the Skagit River, the Highway 536 bridge from downtown Mount Vernon to West Mount Vernon, and the Highway 9 bridge near Sedro-Woolley. Plan now for adding shoulders or specific bike lanes when replacing those bridges.
- **Recognize the rise of e-bikes**, their potential use for commuting, and make chargers and safe routes available.

**9. Utilities Element**

**We support the first sentence of Policy 9A-3.2 (p.327) stating, "Siting of Major Facilities** - Outdoor installations of transfer and distribution stations providing electrical power, communications, and natural gas, should, where practicable, be located in industrial or commercially zoned areas." **We recommend adding, "out of the 100-year floodplain."**

**We ask that the second sentence of Policy 9A-3.2 (p.328) be strengthened in light of the known potential impacts of siting Battery Energy Storage Systems (BESS). We recommend the following new (underlined) wording:**

> "Where system design or economics necessitate location of such installations in residential or rural areas, installations shall be suitably screened or enclosed so as to eliminate or substantially reduce the visual <u>and auditory</u> impact. This may be achieved through appropriate setbacks and screening, such as, buildings, natural topography, landscaping, and vegetation. <u>Such installations shall also be designed to maximize protection of nearby residential areas from the heat, flames, and fumes associated with potential industrial accidents at the installation such as fires.</u>" (We note that BESS installations can generate constant noise from cooling fans.)

**We recommend the following additional policy:**

**"Skagit County shall identify least conflict areas for potential siting of major energy facilities needed in the foreseeable future."**

**We note that Policy 9B-1.11 (p.335) seems out of place in the Utilities Element as it does not address utilities**. The policy reads,

> "Participate in and develop an integrated strategic investment plan in partnership with Skagit tribes and diking/drainage districts to holistically address sea level rise, habitat enhancement, and farmland preservation on the Skagit/Samish Delta downstream of the Wild & Scenic portion of the Skagit River."

**10. Capital Facilities**

**We repeat our request to include a policy concerning community solar on public buildings. It could be worded as follows:**

> **Policy xxxx: Locations shall be identified for community solar systems on public buildings providing residents with the opportunity to purchase solar power.**

**11. Economic Development**
**In at least two instances, policy 11A-1.5 (p. 376) and 11D-1.9 (p. 382), the draft erroneously refers to the Economic Development Association of Skagit County. Several years ago, the organization changed its name to the Economic Development Alliance of Skagit County. The entire document should be searched to make this correction.**

**As noted in our earlier comment letter, we continue to oppose proposed changes to Goal 11D (p. 381), specifically the removal of the words "sustainable natural resource industry," "valued open space" and "environmental quality" from the goal relating to Skagit County's quality of life. These are extremely valuable aspects of Skagit County's quality of life that the public emphasized in the County's own public opinion surveys related to the Comprehensive Plan update.**

**12. Climate and Resiliency.**

Resilience Sub-Element

We appreciate the identification of Skagit County assets and their organization into community sectors.

**We recommend the following additions to the chart of Community Assets by Sector section on pages 389, redline version**:

- **The Agriculture and Food System Sector should include fisheries as an asset as Skagit County is important in providing salmon, crab, and shellfish from tribal and commercial fishers.**
- **The Cultural Resources and Practices Sector should include more than fisheries as there are many cultural and archeological resources at risk to sea level rise and other climate impacts.**

**We recommend the addition of estuarine wetlands and beaches to the list of assets most vulnerable to climate hazards on page 390, redline version**.

**Estuarine wetlands are vital not only for fisheries habitat, but also for carbon sequestration and storage.** They are especially at risk in the diked deltas of the Skagit and Samish Rivers and will be squeezed out against dikes with seal level rise if there is no room for shoreward migration.

- **Beaches are important assets for recreation as well as natural resources.** These resources will also be squeezed out by sea level rise against hard shoreline structures which block shoreward migration.

Resiliency Goals and Policies

- **We support Goal 12A-1(p 392) to "Promote a resilient and sustainable agricultural sector by preserving farmland, supporting climate resilience efforts, and ensuring the wellbeing of farmworkers and farming communities."**

- **We support policy 12A 1.6 (p 392), to protect the remaining prime farmland in Skagit County.**

**We praise the recognition of the need to truly address the issues of preserving prime farmland holistically, with "an integrated, strategic investment plan in partnership with Skagit tribes and diking/drainage districts, to holistically address sea level rise, habitat enhancement, and farmland preservation.** (We note that, for some reason, the wording concerning an integrated plan also occurs as policy 9B-1.11 (p 335) in the Utilities Element. It seems out of place there).

These issues, including sea level rise, diking and drainage, and open space needs for habitat and communities affect many parties. Thus we encourage either an expanded or parallel process to include agencies, NGO's, towns and cities, other affected parties and those who have climate change expertise.

**As noted in our earlier comment letter, we urge Skagit County to consider holistic planning associated with climate impacts looks at the watershed as a whole instead of only at areas of the delta below the Wild and Scenic portion of the Skagit River (as proposed in policy 12A 1.6) and involve the widest slate of affected parties.** Agricultural lands, including those identified as unique or USDA prime farmland, extend well into the Wild and Scenic portion of the Skagit watershed. As well, agriculture, forestry, fisheries, habitat, water, and the built environment all interact in, and will face interdependent challenges, as the climate changes. Watersheds are interconnected systems.

- **We recommend the addition of the following new policy to the 12A Goal:**
  - **<u>12A new policy</u>: Inventory and assess threats to the future viability of existing farmland, from sea level rise and increased flooding, throughout the Skagit and Samish watersheds**. Work with all affected parties to develop a response plan which includes identifying needs for dike setbacks and managed retreat coordinated with the needs for flood storage and ecosystem restoration.
- **We support Goal 12 B**, "Enhance the resilience and reliability of energy infrastructure. Promote and support building designs that better withstand climate change impacts."
- **We strongly support policy 12B 1.1, (pg. 392)** to "Develop regulations that require commercial developments to address climate resilience through best management practices…"

**However, we recommend elaborating for clarity to say, "Develop regulations that require commercial and residential developments to address climate resilience through best management practices such as installing soft rather than hard shoreline armoring**."

- **We strongly support Goal 12 F (p 394-395),** "Protect and enhance natural ecosystems to support climate change resilience, carbon sequestration, and GHG emissions reduction." and its accompanying policies 12F-1.1 through 12F 1.4
- **We support Goal 12 G (p 395),** "Promote transportation resilience to climate impacts and reduce vehicle miles traveled while prioritizing benefits for overburdened communities."
- **We voice our particularly strong support for Goal 12 J (p 396-397**), "Enhance community resilience by integrating climate change projections into land use, infrastructure planning, and development regulations, ensuring long-term safety from sea-level rise, flooding, wildfires, and other climate-exacerbated hazards while protecting natural ecosystems."
- **Policy 12 J -1.1, (p 396)** "Develop regulations for elevating or setting back new and substantially improved structures to reduce the risk of damage caused by sea level rise." This is critical to reducing impacts to both health and safety and to shoreline resources.

**We recommend adding more specificity, such as "any existing structure damaged 50% or more over its functional life by sea level rise and storm surge shall be elevated above or removed from the floodplain."** Similar language has been suggested for amending the County Shoreline Master Program for a decade and a half.

- **We recommend techniques in addition to "elevating" and "setting back" structures, such as property buy-outs, be added as new 12J policy.** Working with organizations that can assist with voluntary buyouts as part of their conservation strategy should be identified in the new policy. These

voluntary buyouts can happen well before the situation becomes critical which assists property owners and meets local adaptation needs.

- **We strongly support policy 12 J -1.3 (p 396 to 397)** "Consider climate change, including sea level rise, extreme precipitation, increased winter streamflow, landslide risk, and other impacts, in floodplain management."
- **We strongly support policy 12J- 1.4 (p 397),** "Require that proposals for shoreline stabilization demonstrate a need, and require the use of soft shore stabilization methods to the extent practicable to protect sites from wave-driven erosion or flooding exacerbated by sea level rise."
- **We want to emphasize the need to interpret "to the extent practicable" as maintaining a strong requirement and not allowing this to become a major loophole**.
- **We support policy 12J-1.7 (p 397**) "Assess the sea level rise vulnerability of wetlands, aquatic vegetation, beaches and dunes, and other valuable natural assets and collaborate with landowners and partners to support resilience-building, as needed." It is a worthy policy as far as it goes. **However, more detail and development of regulatory requirements are needed beyond "assess" and "collaborate" to address this issue**.

**As we have proposed in previous comments, this policy should be expanded to include the need to address protection and resilience through planning for shoreline migration and natural processes. This policy should address the importance of identifying, protecting, and restoring submerged aquatic plants (eelgrass, kelp, etc.) that provides aquatic habitat, "blue" carbon storage, and other ecosystems. Managed retreat should be identified as a tool to create restored natural habitats and manage flood risk. Language should be added that supports working with partners and funding sources to protect these lands as part of resilient community project.**

- **We support policy 12J -1.8 (p 397)** "All residential and commercial development and accessory uses, port and water related industrial facilities, equipment, and works should be located, designed, and maintained to avoid, or if necessary, withstand 100-year flood frequency flooding and/or storm tides or surges without becoming hazards and without the placement of flood hazard reduction measures or other hard structural shoreline stabilization. Incorporate climate projections to account for anticipated changes in flood frequency, storm intensity, and sea-level rise. Ensure that designs and maintenance plans adapt to these projections to enhance long-term resilience against evolving climate impacts."

**This policy is necessary and critical to reduce future damage to such facilities and to natural resources associated with the shoreline. We particularly echo the need to address this without the use of hard shoreline stabilization.** We recommend adding that projections for sea level rise, and increases in storm intensity and flood frequency, should be done for the anticipated lifetime of a given development of facility. **However, as we have previously noted, there needs to be additional emphasis concerning hazardous industries and essential public services which need to be located well above the 100-year flood level. This includes, for example, major electrical power facilities such as substations and battery energy storage systems.**

---

**Recommendation for The Board of County Commissioners to Create an Environmental Advisory Board.**

**<u>Reason for this recommendation</u>**

Although 2023 Washington state legislation requires that local comprehensive plans include specific goals and policies for climate change preparedness, response, and recovery, Skagit County does not have a committee or board to advise and make recommendations on all the foundational elements of these issues. Our county needs an environmental board focused on Skagit County's open space and natural lands that would also provide input on plans critical to climate change adaptation and carbon emissions reduction.

Natural ecosystems are all of a piece. They work together to regulate our climate, lock away carbon, clean and store the water we drink, provide adequate habitat for native fish and wildlife to adapt, slow and alleviate flooding, control storm water and filter pollutants, create natural beaches protecting communities, help deter invasive species, protect biodiversity, and allow people from all communities to connect with nature in healthy, low carbon ways.

None of our commissioner-appointed advisory boards associated in any way with the environment is charged with looking at Skagit County's natural lands from a holistic point of view. The Agricultural Advisory Board (AAB) and Forest Advisory Board (FAB) have a commercial interests' focus. The County Parks and Recreation Advisory Board focuses largely on the recreational aspects of lands within the county parks system. The Marine Resources Committee is concerned principally with science, monitoring, education and restoration projects and does not play as advisory board role.

Critical area regulations do not cover the significant need the county has to identify and plan for conservation and restoration of a broad range of interconnected natural lands and environments, especially their critical role in climate adaptation and mitigation.

The County needs an environmental board with a diverse membership to evaluate Skagit County's natural lands and related policies through a variety of lenses, including social justice, biological and ecological sciences, climate science, and sustainability concepts to help the commissioners and the County make balanced decisions about the totality of our natural world and the people who inhabit it.

**Proposed Primary Role and Duties**

**The Environmental Advisory Board reports to and makes recommendations to the Skagit County Board of Commissioners and Planning Agency on natural resource and environmental plans, policies and programs including, but not limited to:**

A. Existing and proposed legislation affecting natural lands, open space, waters and wildlife habitat of Skagit County

B. Land uses as they impact the long-term sustainability of natural processes (river process, marine shoreline, etc.)

C. Ways to maintain, enhance, collaborate on, and promote natural solutions to improve climate preparedness.

D. Ways to maintain, enhance, collaborate on, and promote environmental justice and environmental stewardship.

**For example, a key role of an Environmental Advisory Board would be to review and comment on evolving drafts of the comprehensive plan and climate change elements concerning the environment.** Reviewing and commenting on plans is one of the main roles of the FAB and the AAB and would thus also apply here.

The Commissioners do not need to adopt a comprehensive plan policy calling for an Environmental Advisory Board in advance of its establishment; however, such a policy should be included in the proposed comprehensive plan update.

**The advisory board would complement and not compete with any other governmental efforts to restore and manage the natural environment.**

**Additional roles of the Environmental Conservation Advisory Board**

- Examine and advise on possible solutions and options for natural resource and environmental issues as they arise in Skagit County.
- Ensure that best available science is consistently available for consideration in local planning.
- Advise on updates and priorities in the County's Open Space Concept Plan to account for climate change.
- Advise on Integrated Plans as they develop; in particular, areas of fish and wildlife habitat and corridors.
- Make recommendations on measures that may be needed to protect the Skagit's unique natural ecosystems.
- Advise on ways to honor private property rights while supporting voluntary conservation and restoration.

**Groups and Community Members that might be considered for appointment to the board include**:

- **Nonprofit and Public Conservation and Restoration organizations that focus on environmental sustainability in the Skagit Area** (Skagit Land Trust, Skagit Fisheries Enhancement Group, Skagit River Systems Cooperative, Skagit Watershed Council, Skagit Conservation District, The Nature Conservancy, etc.)

- **Organizations focused on education or research about the environment, including climate change** (Skagit Climate Science Consortium, North Cascades Institute, Padilla Bay National Estuarine Research Reserve, Skagit Audubon Society, Evergreen Islands, etc.)
- **Conservation-oriented businesses and nonprofits with demonstrated knowledge, interest and experience in one of the following areas:** natural sequestering of carbon; recycling; gleaning; native habitat restoration and/or engineering; surface water management; conservation biology; climate impacts on forests; aquatic or terrestrial ecology; hydrology etc.
- **Next generation groups with environmental programs** (Skagit Valley College, Triumph Teen Centre, Vamos Outdoors, Anacortes Green Club, etc.)
- **Community members and landowners at large from each district including young people** (under 23), those interested or with expertise in environmental issues, and members of an underserved community that may be disproportionally affected by climate change impacts.
- **This group would consult as needed with others including: tribal representatives; large ecosystem public land managers** (National Park Service, US Forest Service, Bureau of Land Management, WA Department of Fish and Wildlife, WA Department of Natural Resources, WA State Parks, etc.); **other entities** planning for natural lands and open space locally; **natural resources** boards etc.

**Tara Satushek**

Comment # 52

**From:** Karen Gardiner <kgardinerb@gmail.com>
**Sent:** Thursday, March 13, 2025 12:08 PM
**To:** PDS comments
**Subject:** Skagit County 2025 Comprehensive Plan Draft Policies

Thank you for all your work on this plan so far.

I have lived in Skagit County for over 35 years and am very concerned about preserving our rural character and farmland. I am part owner of a small blueberry farm that has been producing blueberries for over 50 years.

I would like to see the establishment of an environmental advisory board. Support for this was expressed previously but it is not in the current draft. Knowledgable citizens and professionals would be able to help the County Commissioners and Planning Commission look holistically and make decisions based on the best available science.

I strongly oppose any effort to create additional development potential in the rural area. We must encourage residential development in our cities and towns.

Thank you

Karen Gardiner
726 N 14th St
Mount Vernon, WA 98273
(360) 428-5627

**Tara Satushek** Comment # 53

**From:** Allen Bush <bushman@mail.com>
**Sent:** Thursday, March 13, 2025 12:08 PM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan

-
Public Comment for the Comprehensive Plan

CompPlan2025_WholeDocumentRedlines_V2.0.pdf

These are examples of Skagit county's references to the Guemes Island Ferry and descrepancies between the language in the proposed comprehensive plan and ongoing county policy making

The first major discrepancy is the use 10 year old data references when comparing what was planned and what was enacted since 2013.

Page 419
Guemes Island. The Guemes Island Subarea Plan, adopted in January 2011, contains recommendations to protect the sole-source aquifer, shoreline environs, open space and natural resource lands, and transportation, among other topics. Some of those recommendations are proposed for implementation through code as part of the 2016 periodic update to the comprehensive plan and development regulations.
- **GIPAC and GIFC is ready to collaborate on these island related issues especially the Guemes Island Ferry and yet decisions are being made without public engagement**

Page 458
The County has recognized the Guemes Island Planning Advisory Committee (GIPAC) as the community-based representative for subarea planning for Guemes Island.
- **GIPAC and GIFC is ready to collaborate on these island related issues especially the Guemes Island Ferry and yet decisions are being made without public engagement**

Page 250
Transportation System Inventory of Existing Facilities and Services
The County maintains an ongoing database of current conditions of the County roadway network and the Guemes Ferry system, the two county-owned and operated modes. For the roadway network, the including an inventory includes with extensive information on the condition, Comprehensive Plan utilization, and shortfalls that exist. Similar information for the ferry vessels and terminals is included. In addition to supporting planning, this information is used to program on-going maintenance of the system.
**- If there are existing inventories of Facilities and Services why is there only 2013 facts and figures being referenced with regard to the Guemes Island Ferry?**

Page 266
The inventory of facilities includes an evaluation of current LOS for the roadway system, and Guemes ferry based on traffic counts for roads, and the capacity utilization of the ferry.
**- If there are current Levels of Srevice for the Guemes Island Ferry why is there only 2013 facts and figures being referenced in the current Comprehensive Plan Update?**

Page 285
Marine Ferry Performance Measures
Discussion of service levels for both the Skagit County-funded Guemes Island Ferry, as well as WSDOT-funded San Juan Island ferries is included in the Marine Transportation section below, but formal LOS standards are not adopted for the County ferry system.
**-Why is there only 2013 facts and figures being referenced in the current Comprehensive Plan Update?**

Page 304
Ferry Service
Goal 8F Goal 8A-5 Work to maintain county and state ferry services as an important element of the transportation network.

policy 8F-1.1 policy 8A-5.1 Encourage the provision of adequate street, highway, and road pedestrian, bicycle, transit, vehicle, and freight facilities to accommodate traffic multimodal travel to the County and State ferry terminals in Anacortes.
**-Current Parking Projects are not fully considering pedestrian, bicycle, transit and vehicle accomodations at the Guemes terminal.**

policy 8F-1.2 policy 8A-5.2 Work with the City of Anacortes, property owners, and residents on Guemes Island to develop and maintain adequate parking areas.
**-Current Parking Projects are not fully considering pedestrian, bicycle, transit and vehicle accomodations at the Guemes terminal in collaboration with the city of Anacortes.**

policy 8F-1.3 policy 8A-5.3 To meet future increases in demand, increase service capacity of the Guemes Island Ferry by:
(a) encouraging car-pooling and walk-on passengers;
(b) increasing the frequency of ferry runs based on demand;
(c) considering additional ferry capacity if the aforementioned procedures fail to accommodate demand; and
(d) adding additional runs outside the current schedule.
**These policy recommendations are not being considered in this Comprehensive Plan Update with current information. Only data from 2013**

policy 8F-1.4 policy 8A-5.4In making all decisions related to the Guemes Island Ferry, balance the needs of the Island residents, the non-resident property owners, and the County citizenry as a whole. Decisions that would have significant service or financial impacts should be made after providing ample opportunities for public review and comment.
**-Guemes Island Ferry related issues have seen less public comment opportunities since the rescinding of the Public Forum Resolution**

Page 449
• Guemes Island Ferry 14-year Capital Plan, 2024-2037
• Guemes Island Ferry Operations and Service Study Plan, 2021
**Although referenced here, these documents documents are not highlighted in this 2025 Comprehensive Plan Update**

Page 285 2014 Bridge report
Guemes Island Ferry Dock sufficiency rating: Superstructure – Rated Poor
**-This "Poor" Rating has been updated since 2013 and should be noted in the 2025 Comprehensive Plan Update**

Page 494
Major Transit Stations, Transfer Terminals, Park and Ride Lots, and Destinations - Skagit Transit provides services to the following public transportation facilities:
Washington State Ferry Terminal & Guemes Island Ferry Terminal, Anacortes
**Current Plans include elimination of on the dock bus and transit turnaround**

Page 497
2.4 Water + Air
County Ferry Service
In the State of Washington, there are four counties that own and operate their own ferry system. One of the four is Skagit County, which operates a ferry between Anacortes and Guemes Island. Additional details on the Skagit County ferry can be found in the most current version of the 14-year Ferry Capital Improvement Plan.
**Why are there no current figures being used other than 2013?**

Page 519
3.3 Skagit County Ferry
The level of service (LOS) for the County ferry system is closely tied to its vehicle carrying capacity because vehicle traffic has a greater impact on the ferry system than walk-on passenger traffic. Simply put, the M/V Guemes can carry far more walk-on passengers than vehicles.
**Current Plans include Paid Parking in Anacortes and is not included in the 2025 Comprehensive Plan Update**

Page 530
5.5 Ferry Needs
A Guemes Island Ferry Fourteen-Year Capital Improvement Plan 2015-2028 was approved in December of 2014 to meet the ongoing RCW requirement to produce a 14-year long-range capital improvement plan. The 2016 TIP includes

$12,500,000 in federal and state funds to replace or modify the current Guemes Island ferry to meet current and future needs, in addition to repaving the ferry parking facility. The project is scheduled to begin in 2020. See project list in
Exhibit 31. Item 43 Guemes Ferry Boat Replacement or Overhaul Replace/overhaul ferry $12,000,000.
**The Current Replacement Project is an All Electric Ferry $45M**

Page 552
7.1 Skagit County Ferry
There are several TSM strategies that could be used to increase the vehicle carrying capacity of the Guemes Island Ferry system, including, but not limited to:
• Providing additional parking facilities near ferry terminals,
• Increasing the number of scheduled ferry crossings, and
• Replacing the vessel with a larger ferry.
**There have been no additional parking facilities near the terminal and current plans include less parking, and new ferry is not referenced or illustrated**

Page 553
Providing Adequate Parking Facilities
As noted above, the Skagit County Comprehensive Plan clearly states that it is desirable to reduce vehicle demand on the M/V Guemes. There is no guaranteed method of getting people out of their cars, however. One method of effectively reducing the demand for vehicle capacity is to encourage ferry users to ride as walk-on passengers rather than vehicle drivers. In order to accomplish this, there must be convenient and adequate parking facilities in place near the ferry terminals in Anacortes and on Guemes Island. Skagit County Comprehensive Plan Transportation Element Policy 8A-5.1 states the County should "work with the city of Anacortes, property owners, and residents on Guemes Island to develop adequate parking areas."

Replacing the Vessel with a Larger Ferry
In 2013, Skagit County adopted a Ferry Replacement Plan. According to the plan, while the overall condition of the vessel is fair, it is recommended that the M/V GUEMES not be operated for more than another ten years without a major overhaul. Immediate vessel replacement was recommended; if selected as an option, it is estimated that a new vessel would enter service in approximately three years, due to the time required initially for vessel planning, including design development, and acquisition, including construction and commissioning. The report notes that immediate or near term replacement of the M/V GUEMES with a new vessel "will minimize the overall cost of ownership and provide environmental improvements in vessel operation." (Elliot Bay Design Group 2013)

Page 555
Pricing Policy
Pricing policy is a TDM strategy that Skagit County can and has used to provide an incentive for ferry users to ride the ferry as walk-on passengers rather vehicle drivers. The Skagit County Comprehensive Plan Transportation Element Policy 9A-8.3 states "In making all decisions related to the Guemes Island Ferry, the County shall balance the needs of the Island residents, the non-resident property owners, and the County citizenry as a whole." In addition, policy 9A-8.5 specifically states "The County shall continue to provide safe and adequate ferry service between Anacortes and Guemes Island, and a fare structure designed to recover as much operating cost as practical from the users." The intent of these policies is to provide adequate ferry service to Guemes Island in a financially sustainable manner, if possible.
**Not sure a 70% rate hike is practical or sustainable**

Page 565
Ferry Tolls
Skagit County operates a ferry between Anacortes and Guemes Island. This ferry is subsidized by the County government with a cost-recovery target from fare-box of 65%. These fares are one of the County's dedicated transportation revenue sources. The County Board of Commissioners sets fares for the ferry annually. Exhibit 40 shows historical and future projected revenues from ferry tolls for Skagit County.
Exhibit 40: Historical and Future Revenues from Ferry Tolls, 2005 to 2036
Source: Skagit County 2015 Draft Fare Revenue Target Report, 2015; BERK Consulting, 2015. As shown in Exhibit 40, while revenues presented in nominal dollars are projected to grow over the next 20 years, the actual value of the revenues generated is not expected to grow as highly. The revenue projections assume 3% annual growth in revenues from Ferry tolls.
**We are experiencing an 70% rate hike under current fare increase. Far from the 3% suggested here**

Page 575
Restructure Ferry System
Currently the County Board of Commissioners is considering several strategies for more closely managing the relationship between ferry revenues and expenditures. These ideas, documented in the Draft 2015 Fare Revenue

Target Report, include:
• Establishment of an Enterprise Fund for the Ferry starting on January 1, 2016. The Enterprise Fund would account for all activities of the ferry, including revenues, operational and capital expenditures; or
• Implementation of a rate setting policy for the purposes of determining the appropriate fare structure based on a current methodology in place; or
• The creation of a Ferry District per RCW 36.54.110 for Guemes Island and assessing 75 cents per $1,000 in valuation. The proceeds of the assessment would be retained in the Ferry Enterprise fund for capital purposes including the eventual replacement of the current ferry. Estimated revenue from a Guemes Island Ferry District is just over $200,000 per year.
**There is no reference to the Capital Surcharge that was implemented in 2018**

Allen Bush
6628 West Shore Dr
Anacortes WA 98221

**Tara Satushek** Comment # 54

**From:** Mikala Staples Hughes <mikalas@sakumabros.com>
**Sent:** Thursday, March 13, 2025 12:33 PM
**To:** PDS comments; Vincent Henley - gmail; Angela Day - gmail; Amy Hughes - gmail; Joe woodmansee - gmail; Tim Raschko - gmail; T. Candler - gmail
**Subject:** Skagit County's 2025 Comprehensive Plan-- Western Washington Agriculture Association
**Attachments:** WWAA Public Comments on Comp Plan Update.pdf

Dear Planning Commissioners and Department Staff:

On behalf of the **Western Washington Agricultural Association (WWAA)**, please find attached our comments regarding the proposed revisions to Skagit County's 2025 Comprehensive Plan. We appreciate the opportunity to provide feedback on these important land-use policies that will shape the future of agricultural resource lands in our region.

As outlined in the attached letter, we have **significant concerns** regarding the changes to Section 4: Natural Resource Lands, Agricultural Resource Lands. Many of the proposed revisions weaken enforceability, remove key agricultural support policies, and introduce ambiguous language that could undermine farmland protections. Given that only 7.44% of Skagit County's land base is currently in agricultural use, it is critical that the Comprehensive Plan maintains strong, clear policies that prioritize and protect agriculture.

The enclosed attachment outlines our specific recommendations, including restoring original language where necessary, refining certain provisions for clarity, and ensuring consistency with the Growth Management Act. We urge the Planning Commission to carefully review these recommendations and make the necessary adjustments to safeguard the future of agriculture in Skagit County.

We welcome further discussion and would be happy to answer any questions staff or individual commissioners may have. You can contact me directly at my cell phone by calling (360) 770-7268.

Best regards,

*"Honoring our past, growing our future."*

**Mikala Staples Hughes**
VP, Processing Operations + Human Resources
Sakuma Bros. Farms and Processing
**M:** 360-770-7268 **P:** 360-639-6172
**E:** mikalas@sakumabros.com
PO Box 427 - 17400 Cook Road
Burlington, WA 98233
www.sakumabros.com

The content of this email is confidential and intended for the recipient specified in message only. It is strictly

forbidden to share any part of this message with any third party, without a written consent of the sender. If you received this message by mistake, please reply to this message and follow with its deletion, so that we can ensure such a mistake does not occur in the future.

March 13, 2025

Skagit County Planning and Development Services
1800 Continental Place
Mount Vernon WA 98273

Re: Skagit County's 2025 Comprehensive Plan

Dear Planning Commissioners and Department Staff:

The Western Washington Agricultural Association (WWAA) has been a steadfast advocate for agriculture in Western Washington for 80 years, particularly in Skagit County. Our region's farms—producing essential products such as berries, potatoes, seeds, livestock and row crops—are vital to local communities and the global food supply. We appreciate the opportunity to review the proposed Comprehensive Plan revisions and provide feedback on behalf of our membership.

We are concerned that nearly every policy in Section 4: Natural Resource Lands, Agricultural Resource Lands (beginning on Page 130 of the redlined version) of the Comprehensive Plan has been modified. While we acknowledge that a periodic review is required by law, it does not mandate the rewriting or removal of existing policies without clear justification. Policy changes should strengthen protections for agricultural lands, not weaken them. The consultant stated that many of the revisions to Agricultural-NRL policies were made to "be more concise." However, consolidation should not come at the expense of critical protection. Simplifying language must not diminish enforceability or weaken longstanding policies that safeguard farmland.

According to 2025 Assessor data, only 7.44% of Skagit County's land base is currently designated as agricultural land in use. With agricultural land already diminishing due to development pressures, rising operational costs, and competing land-use priorities, reducing protection is a direct threat to the long-term sustainability of farming in our region. Weakening policies designed to protect and promote this industry contradicts the county's long-standing planning principles and commitment to farmland preservation.

**We have included Attachment 1 in this document, which contains the Agricultural Resource Lands section along with our recommendations to either restore the original language, make slight modifications to the revisions, or accept the proposed changes.**

Below is an outline of our specific concerns with the revisions, detailing why we believe the proposed changes should not be adopted.

**Removal of Policies Supporting Agriculture**

Several key policies that directly support youth education, sustainable agriculture, public awareness, and local farm viability have been entirely removed from the comprehensive plan, signaling a troubling shift away from proactive agricultural support. These include:

- Policy 4A-2.10 Sustainable Agriculture Practices
- Policy 4A-2.11 Promote Agricultural Products
- Policy 4A-2.12 Promote Public Awareness
- Policy 4A-2.13 Promote Education

The removal of these policies represents a significant step backward in the county's commitment to agricultural sustainability, economic vitality, and public engagement. Without policies that promote best management practices, local product branding, and agricultural education, the county risks undermining the long-term viability of its farming sector.

According to the Natural Resource Lands Element Policy Database file, these policies were removed for conciseness and administrative cleanup. However, streamlining language should not come at the expense of essential protections.

If the county is truly committed to preserving farmland and supporting agriculture, these policies must be reinstated. We urge decision-makers to prioritize agricultural viability by maintaining strong, proactive policies that safeguard Skagit County's farming legacy for future generations.

**Weakening Enforcement on Farmland**

The proposed changes weaken farmland protections by introducing ambiguous language where clear, enforceable policies are essential. A primary concern is the systematic replacement of "shall" with weaker, non-binding language, stripping critical policies of their enforceability. If allowed to stand, these changes could undermine farmland protections, increase conflicts between agricultural and non-agricultural land uses, and erode the county's commitment to preserving and building its agricultural economy.

***Specific Examples of Weakened Protections***

**These are some of the most concerning examples, though they are not exhaustive. Any instance where a directive has been weakened should be carefully reviewed and restored to maintain clarity and enforceability.**

**Policy 4A-2.1 (Agricultural Advisory Board Representation)**

- **Current:** *"The Agricultural Advisory Board shall represent agricultural producers."*
- **Revised:** *"Ensure the Agricultural Advisory Board represents the agricultural community."*

The revised language weakens specificity by broadening representation from agricultural producers to the agricultural community, potentially including non-farming interests. This dilutes the board's primary function—ensuring those directly engaged in production agriculture have a voice in land-use decisions.

Additionally, replacing "shall" with "ensure" makes the policy less prescriptive and enforceable. The board was established to advocate for farmers, who represent just 1% of the population, ensuring their perspectives are prioritized over those who live in rural areas but are not actively engaged in agriculture.

To preserve its intended role, the policy should retain clear, directive language that keeps the focus on agricultural producers.

**Goal 4A-4 (Allowable Land Uses)**

- **Current:** *"Land uses allowed on designated agricultural land shall promote agriculture, agricultural support services, and promote diverse agricultural industries."*
- **Revised:** *"Allow land uses on designated agricultural land that support agricultural production as the highest priority and establish Agricultural Support Services, Farm-Based Businesses, and residential uses as accessory uses."*

The revised language weakens the explicit prioritization of agriculture by shifting from a clear mandate to a more permissive structure. The original policy clearly required that all land uses promote agriculture, whereas the revised version dilutes this priority by introducing additional uses, such as residential development, as "accessory uses." This could open the door for competing land uses that may gradually erode farmland protections.

**Policy 4A-2.5 (Farmland Reporting)**

- **Current:** *"Skagit County, through the Farmland Legacy Program, shall prepare a periodic report on the 'state of Skagit County agriculture' using the US Census of Agriculture and other sources."*
- **Revised:** *"Prepare a periodic report on the 'state of Skagit County agriculture' using the US Census of Agriculture and other sources."*

By removing *"Skagit County, through the Farmland Legacy Program, **shall**"*, the revised policy reduces accountability and the guarantee of regular reporting. This reporting is critical to the continued support for the Farmland Legacy Program and to fulfil the county's obligations stated in other areas of the plan.

**Policy 4A-4.5 (Special Events and Activities)**

- **Current:** *"Special events and activities on agricultural lands shall be conducted in ways that reduce potential impacts resulting from the activity."*
- **Revised:** *"Conduct special events and activities on agricultural lands in ways that reduce potential impacts resulting from the activity."*

The removal of "shall" diminishes the policy's strength and enforceability, making compliance less assured.

**Policy 4A-5.2 (Deed Restrictions)**

- **Current:** *"All real estate transactions involving residential development on or within one mile of agricultural resource lands shall contain recorded documentation of the residential owners' acknowledgment of the potential farming activities and receipt of the Right-to-Manage Natural Resource Lands information."*

- **Revised:** *"Require recorded documentation of the residential owners' acknowledgment of the potential farming activities and receipt of the Right-to-Manage Natural Resource Lands information for all real estate transactions involving residential development on or within one mile of agricultural resource lands."*

The revised wording weakens enforceability by introducing ambiguity where the original language was clear and direct. The original mandate for recorded documentation in all real estate transactions is now less prescriptive, creating inconsistency in application.

Conflicts between residential and agricultural land typically arise at zoning transitions, making strong disclosure requirements essential to prevent disputes. RCW 64.06.022 already mandates that sellers inform buyers of nearby farming or forestry operations, reinforcing protections under the Washington Right to Farm Act (RCW 7.48.305). Weakening Policy 4A-5.2 undermines this legal standard by adding unnecessary ambiguity to an already well-defined state requirement.

**Policy 4A-4.1 (Agricultural Production Priority)**

- **Current:** *"Agricultural production is the highest priority use in designated agricultural resource lands."*
- **Revised:** *"Support, adopt, and implement regulations and policies that support agricultural production as the highest priority use in designated agricultural resource lands."*

The revised version adds unnecessary qualifiers, making the policy less direct and more susceptible to interpretation. The original language clearly establishes agricultural production as the highest priority, while the revision introduces bureaucratic phrasing ("support, adopt, and implement") that could allow competing land uses to gain footing over time. This shift weakens the policy's enforceability and could lead to loopholes that undermine farmland protections.

**Policy 4A-4.3 (Farm Based Business)**

- **Current:** *"Farm-based businesses shall be allowed as an accessory use."*
- **Revised:** *"Support farm-based businesses as an agriculture accessory use."*

The revised language weakens the directive by replacing "shall be allowed" with "support", making the policy less enforceable and more open to interpretation. The original wording ensures farm-based businesses are permitted, while the revision introduces ambiguity about whether such businesses are guaranteed as an accessory use or merely encouraged.

**Policy 4A-4.6 (Habitat Restoration)**

- **Current:** *"Habitat restoration projects are a permitted use of agricultural lands so long as it is shown through project review that the proposed restoration project does not have an adverse impact on hydrologic functions, drainage infrastructure or the ongoing agricultural use of adjacent properties"*
- **Revised**: *"Permit habitat restoration projects on agricultural lands so long as it is shown through project review that the proposed restoration project does not have an adverse impact on hydrologic functions, drainage infrastructure or the ongoing agricultural use of adjacent properties"*

The revised language alters the intent of the policy by creating the perception that habitat restoration is an inherently permitted use on agricultural lands, rather than a conditional activity subject to review. This is misleading and could be misinterpreted as a policy shift toward prioritizing restoration over agricultural use.

To maintain clarity and ensure the policy reflects its original intent, the language should explicitly state that habitat restoration projects are only allowable when they do not negatively impact hydrology, drainage, or adjacent agricultural operations.

***Recommendations to Strengthen Farmland Protections***

Given the concerning shift toward weaker, less enforceable language in the revised Comprehensive Plan, we strongly recommend the following actions to restore the clarity, enforceability, and intent of farmland protection policies:

1. **Restore Clear, Mandatory Language**
   Reinstate the use of "shall" in all policies where it has been removed or replaced with weaker terms such as "support" or "ensure." The use of mandatory, prescriptive language is essential to uphold farmland protections and prevent unintended interpretations that could favor non-agricultural land uses.

2. **Ensure Agricultural Representation Remains Clear and Unambiguous**
   Policies governing agricultural advisory boards and land-use decision-making bodies must clearly state their responsibility to represent agricultural producers without diluting their mandate.

3. **Preserve the Prioritization of Agriculture in Land Use Policy**
   Agricultural Resource Lands must remain explicitly prioritized for agricultural production.

**Inconsistency with the Growth Management Act (GMA)**

We also note concerning **inconsistencies with the Growth Management Act (GMA)** in **Policy 4A-1.1e** regarding the de-designation of Agricultural Resource Lands:

- **Newly Added Section 4A-1.1e**: *"Site-specific proposals to de-designate natural resource lands must be deferred until a comprehensive countywide analysis is conducted."*

The GMA mandates a clear process for the designation and de-designation of resource lands (RCW 36.70A.170, WAC 365-190-050, and WAC 365-190-040). The Comprehensive Plan must reference this legal requirement and established process to compliance with state law and avoid potential conflicts with land-use policies.

**Inconsistent Terminology – Farmland Legacy Program**

There is inconsistent terminology used throughout the document when referring to the Farmland Legacy Program. The revised plan replaces references to this well-established program with "Conservation Futures Program." However, as stated on the Farmland Legacy Program website, the Skagit County Conservation Futures Advisory Board (CFAB) is responsible for administering the program. Participants, stakeholders, and community members recognize the program as the Farmland Legacy Program, not by the advisory board name.

We recommend using "Farmland Legacy Program" as the primary reference and only referencing the Conservation Futures Advisory Board where necessary. Additionally, in Policy 4A-2.3, the term "Conservative Futures Advisory Committee (CFAC)" appears instead of Conservation Futures Advisory Board (CFAB)—this inconsistency should be corrected.

**Conclusion and Recommendation**

We urge the Planning Commission to carefully evaluate the proposed revisions, as even minor grammatical changes can have significant implications for policy enforceability and the long-term protection of farmland. Clear, prescriptive, and enforceable policies are essential to safeguarding agricultural land and ensuring the continued viability of the agricultural industry.

To support this effort, we have provided a document included in **Attachment 1** outlining our specific recommendations, including which revisions should be retained, modified, or rejected.

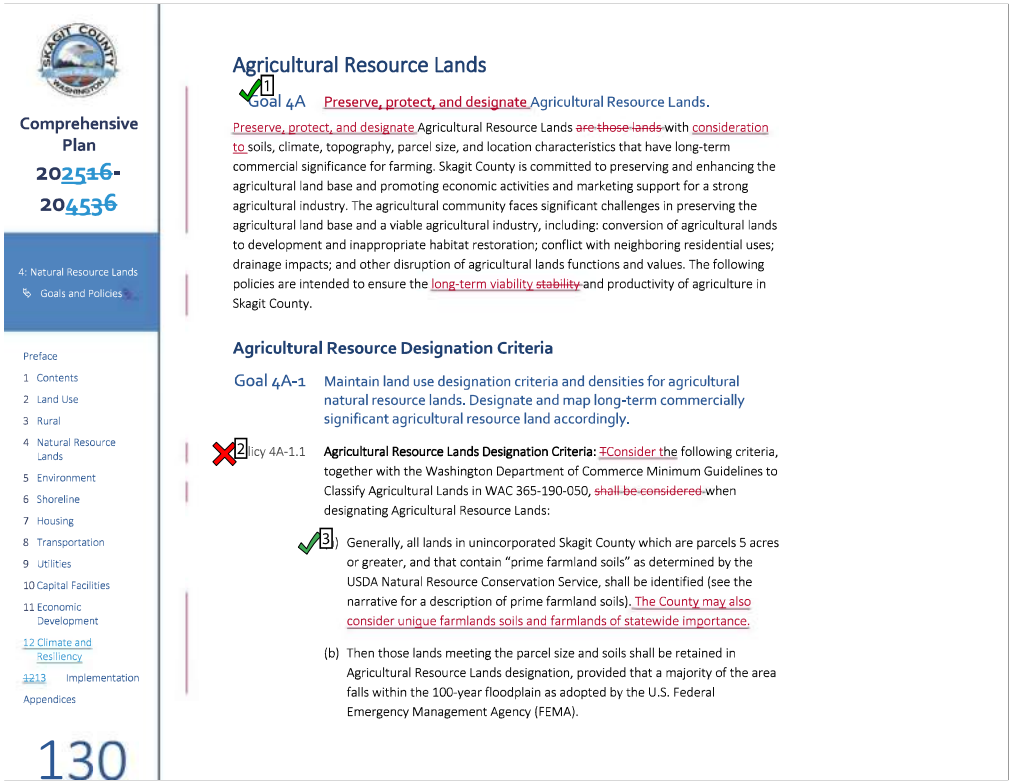
Respectfully,

Mikala Staples Hughes
*Member Board of Directors*
*Cell: (360) 770-7268*

Owen Peth, President
Jennifer Smith, Vice President
Dan Gundersen, Treasurer
Aaron Taylor, Secretary

**Board Members:**
Brandon Hansen | Tyler Breum | Jacob Slosberg | Torey Wilson | Troy Hansen

*Enclosure: Attachment 1*



Comprehensive Plan
2025~~16~~-
2045~~36~~

4: Natural Resource Lands
Goals and Policies

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
~~12~~13 Implementation
Appendices

130

## Agricultural Resource Lands

1 Goal 4A Preserve, protect, and designate Agricultural Resource Lands.

Preserve, protect, and designate Agricultural Resource Lands ~~are those lands~~ with consideration to soils, climate, topography, parcel size, and location characteristics that have long-term commercial significance for farming. Skagit County is committed to preserving and enhancing the agricultural land base and promoting economic activities and marketing support for a strong agricultural industry. The agricultural community faces significant challenges in preserving the agricultural land base and a viable agricultural industry, including: conversion of agricultural lands to development and inappropriate habitat restoration; conflict with neighboring residential uses; drainage impacts; and other disruption of agricultural lands functions and values. The following policies are intended to ensure the long-term viability ~~stability~~ and productivity of agriculture in Skagit County.

### Agricultural Resource Designation Criteria

Goal 4A-1 Maintain land use designation criteria and densities for agricultural natural resource lands. Designate and map long-term commercially significant agricultural resource land accordingly.

2 licy 4A-1.1 **Agricultural Resource Lands Designation Criteria:** ~~T~~Consider the following criteria, together with the Washington Department of Commerce Minimum Guidelines to Classify Agricultural Lands in WAC 365-190-050, ~~shall be considered~~ when designating Agricultural Resource Lands:

3 (a) Generally, all lands in unincorporated Skagit County which are parcels 5 acres or greater, and that contain "prime farmland soils" as determined by the USDA Natural Resource Conservation Service, shall be identified (see the narrative for a description of prime farmland soils). The County may also consider unique farmlands soils and farmlands of statewide importance.

(b) Then those lands meeting the parcel size and soils shall be retained in Agricultural Resource Lands designation, provided that a majority of the area falls within the 100-year floodplain as adopted by the U.S. Federal Emergency Management Agency (FEMA).

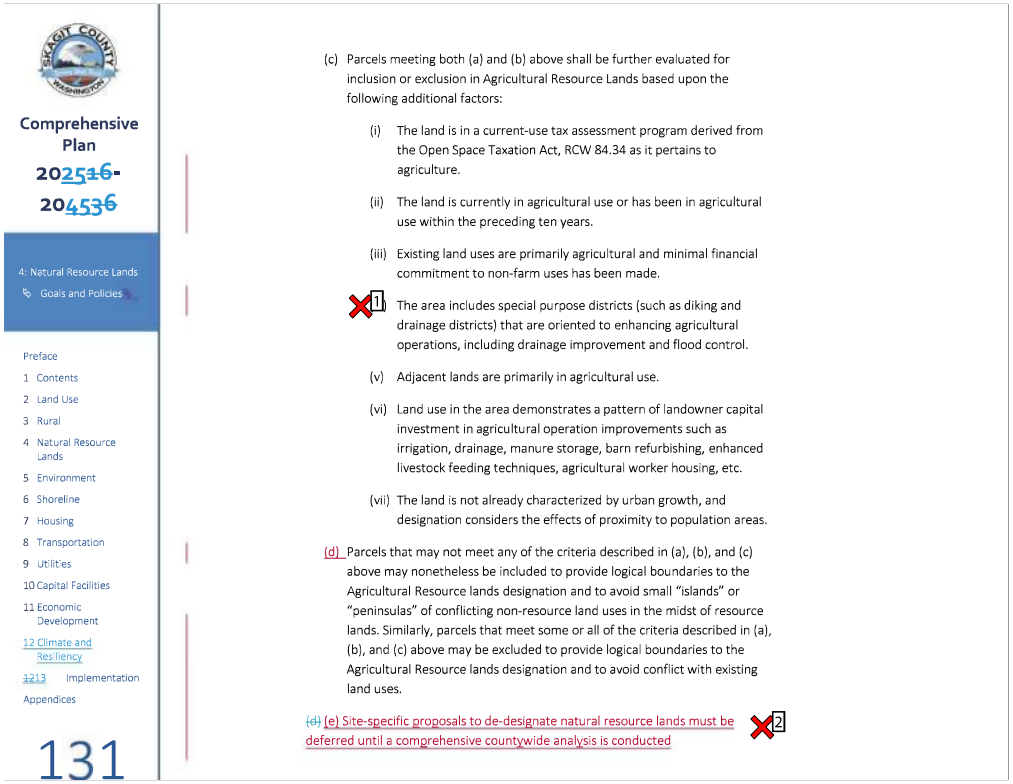
# Summary of Comments on CompPlan2025_WholeDocumentRedlines_V2.0.pdf

## Page: 1

Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:44:23 AM
Goal 4A: Accept Change.

Number: 2 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:45:38 AM
4A-1.1 Restore original language.

Number: 3 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:45:32 AM
4A1.1 (a) Accept change.



Comprehensive Plan
2025~~16~~-
2045~~36~~

4: Natural Resource Lands
Goals and Policies

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
~~12~~13 Implementation
Appendices

131

(c) Parcels meeting both (a) and (b) above shall be further evaluated for inclusion or exclusion in Agricultural Resource Lands based upon the following additional factors:

(i) The land is in a current-use tax assessment program derived from the Open Space Taxation Act, RCW 84.34 as it pertains to agriculture.

(ii) The land is currently in agricultural use or has been in agricultural use within the preceding ten years.

(iii) Existing land uses are primarily agricultural and minimal financial commitment to non-farm uses has been made.

(iv) The area includes special purpose districts (such as diking and drainage districts) that are oriented to enhancing agricultural operations, including drainage improvement and flood control. 1

(v) Adjacent lands are primarily in agricultural use.

(vi) Land use in the area demonstrates a pattern of landowner capital investment in agricultural operation improvements such as irrigation, drainage, manure storage, barn refurbishing, enhanced livestock feeding techniques, agricultural worker housing, etc.

(vii) The land is not already characterized by urban growth, and designation considers the effects of proximity to population areas.

(d) Parcels that may not meet any of the criteria described in (a), (b), and (c) above may nonetheless be included to provide logical boundaries to the Agricultural Resource lands designation and to avoid small "islands" or "peninsulas" of conflicting non-resource land uses in the midst of resource lands. Similarly, parcels that meet some or all of the criteria described in (a), (b), and (c) above may be excluded to provide logical boundaries to the Agricultural Resource lands designation and to avoid conflict with existing land uses.

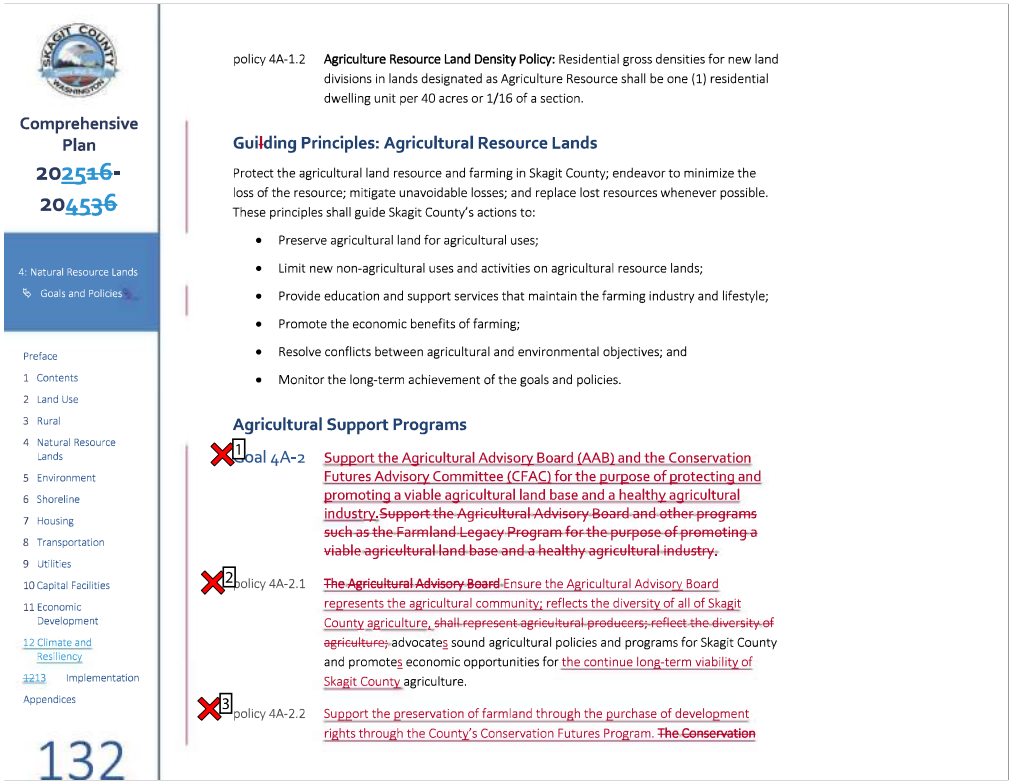
~~(d)~~ (e) Site-specific proposals to de-designate natural resource lands must be deferred until a comprehensive countywide analysis is conducted 2

## Page: 2

Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:45:17 AM
4A1.1 (c) (iv) Revise: The area includes special purpose districts (such as diking, drainage and irrigation districts) that are oriented to enhancing agricultural operations, including drainage improvement and flood control.

Number: 2 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:46:16 AM
4A1.1 (e) See WWAA comments pertaining to GMA. Ensure reference is made to process prescribed in WAC 365-190-040.

Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:25:13 AM
Move to Policy 4A-3.1 where de-designation of agricultural land is already discussed.



Comprehensive Plan
2025~~16~~-
2045~~36~~

4: Natural Resource Lands
Goals and Policies

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
~~12~~13 Implementation
Appendices



policy 4A-1.2 **Agriculture Resource Land Density Policy:** Residential gross densities for new land divisions in lands designated as Agriculture Resource shall be one (1) residential dwelling unit per 40 acres or 1/16 of a section.

### Gui~~l~~ding Principles: Agricultural Resource Lands

Protect the agricultural land resource and farming in Skagit County; endeavor to minimize the loss of the resource; mitigate unavoidable losses; and replace lost resources whenever possible. These principles shall guide Skagit County's actions to:

- Preserve agricultural land for agricultural uses;
- Limit new non-agricultural uses and activities on agricultural resource lands;
- Provide education and support services that maintain the farming industry and lifestyle;
- Promote the economic benefits of farming;
- Resolve conflicts between agricultural and environmental objectives; and
- Monitor the long-term achievement of the goals and policies.

### Agricultural Support Programs

1 Goal 4A-2 Support the Agricultural Advisory Board (AAB) and the Conservation Futures Advisory Committee (CFAC) for the purpose of protecting and promoting a viable agricultural land base and a healthy agricultural industry. ~~Support the Agricultural Advisory Board and other programs such as the Farmland Legacy Program for the purpose of promoting a viable agricultural land base and a healthy agricultural industry.~~

2 policy 4A-2.1 ~~The Agricultural Advisory Board~~ Ensure the Agricultural Advisory Board represents the agricultural community; reflects the diversity of all of Skagit County agriculture, ~~shall represent agricultural producers; reflect the diversity of agriculture;~~ advocates sound agricultural policies and programs for Skagit County and promotes economic opportunities for the continue long-term viability of Skagit County agriculture.

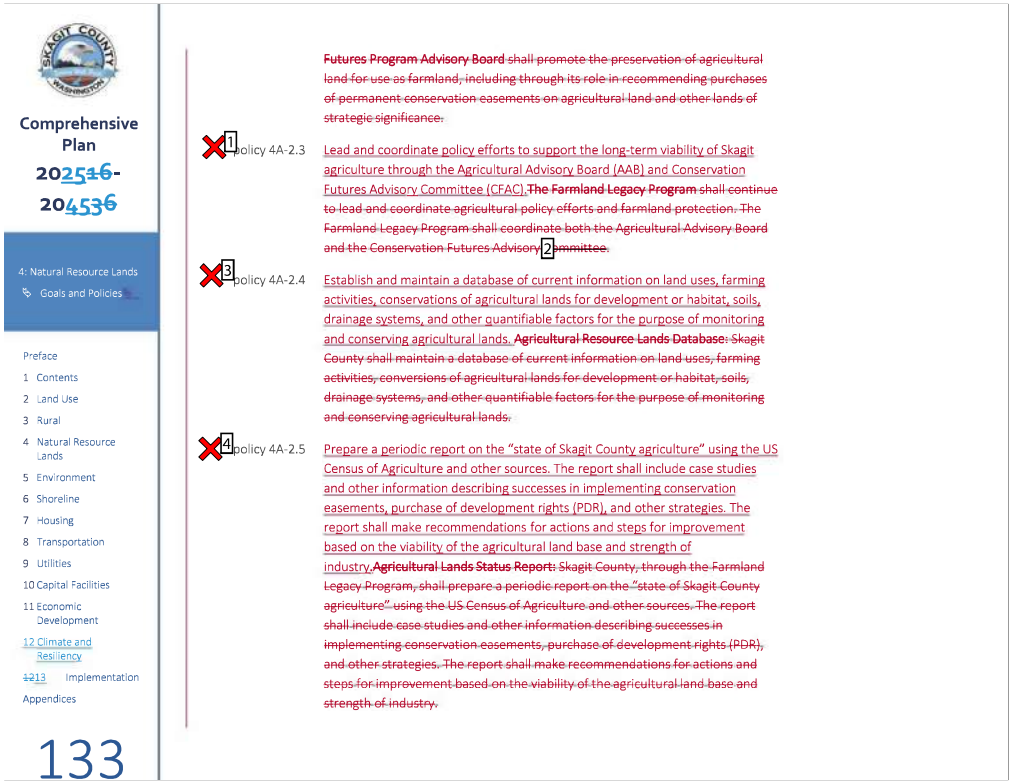
3 policy 4A-2.2 Support the preservation of farmland through the purchase of development rights through the County's Conservation Futures Program. ~~The Conservation~~

## Page: 3

Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:46:56 AM
Goal 4A-2 Restore original language.

Number: 2 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:47:09 AM
4A-2.1 Restore original language.

Number: 3 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:47:27 AM
4A-2.2 Restore original language.



Comprehensive Plan
2025~~16~~-
2045~~36~~

4: Natural Resource Lands
Goals and Policies

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
~~12~~13 Implementation
Appendices

133

~~Futures Program Advisory Board~~ ~~shall promote the preservation of agricultural land for use as farmland, including through its role in recommending purchases of permanent conservation easements on agricultural land and other lands of strategic significance.~~

1 policy 4A-2.3 Lead and coordinate policy efforts to support the long-term viability of Skagit agriculture through the Agricultural Advisory Board (AAB) and Conservation Futures Advisory Committee (CFAC). ~~The Farmland Legacy Program shall continue to lead and coordinate agricultural policy efforts and farmland protection. The Farmland Legacy Program shall coordinate both the Agricultural Advisory Board and the Conservation Futures Advisory~~ 2 ~~Committee.~~

3 policy 4A-2.4 Establish and maintain a database of current information on land uses, farming activities, conservations of agricultural lands for development or habitat, soils, drainage systems, and other quantifiable factors for the purpose of monitoring and conserving agricultural lands. ~~Agricultural Resource Lands Database: Skagit County shall maintain a database of current information on land uses, farming activities, conversions of agricultural lands for development or habitat, soils, drainage systems, and other quantifiable factors for the purpose of monitoring and conserving agricultural lands.~~

4 policy 4A-2.5 Prepare a periodic report on the "state of Skagit County agriculture" using the US Census of Agriculture and other sources. The report shall include case studies and other information describing successes in implementing conservation easements, purchase of development rights (PDR), and other strategies. The report shall make recommendations for actions and steps for improvement based on the viability of the agricultural land base and strength of industry. ~~Agricultural Lands Status Report: Skagit County, through the Farmland Legacy Program, shall prepare a periodic report on the "state of Skagit County agriculture" using the US Census of Agriculture and other sources. The report shall include case studies and other information describing successes in implementing conservation easements, purchase of development rights (PDR), and other strategies. The report shall make recommendations for actions and steps for improvement based on the viability of the agricultural land base and strength of industry.~~

## Page: 4

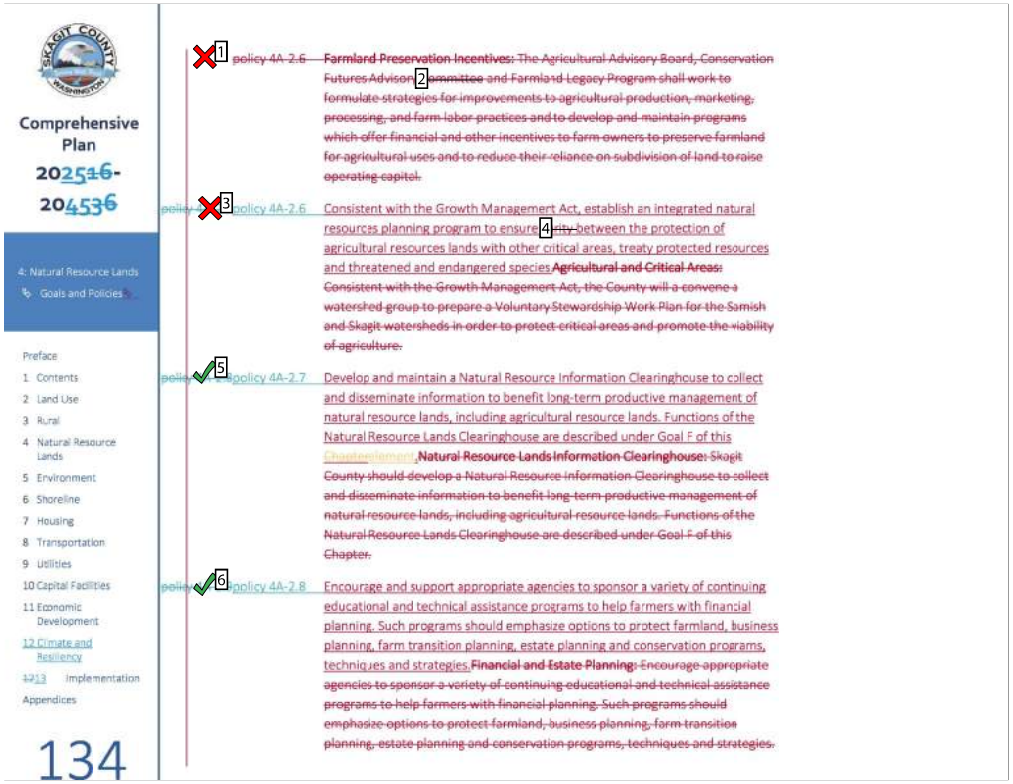
Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:47:43 AM
4A-2.3 Restore original language, replace "Conservative Futures Advisory Committee" with " Conservation Future Advisory Board"

Number: 2 Author: Mikala Staples Hughes Subject: Cross-Out Date: 3/13/2025 9:15:19 AM
4-A2.3 Replace Committee with Board.

Number: 3 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:48:03 AM
4A-2.4 Restore original language.

Number: 4 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:48:18 AM
4A-2.5 Restore original language.

# WWAA Comp Plan Comments




## Page: 5

Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:53:56 AM
4A-2.6 Restore original language.

Number: 2 Author: Mikala Staples Hughes Subject: Cross-Out Date: 3/13/2025 11:27:18 AM
Board

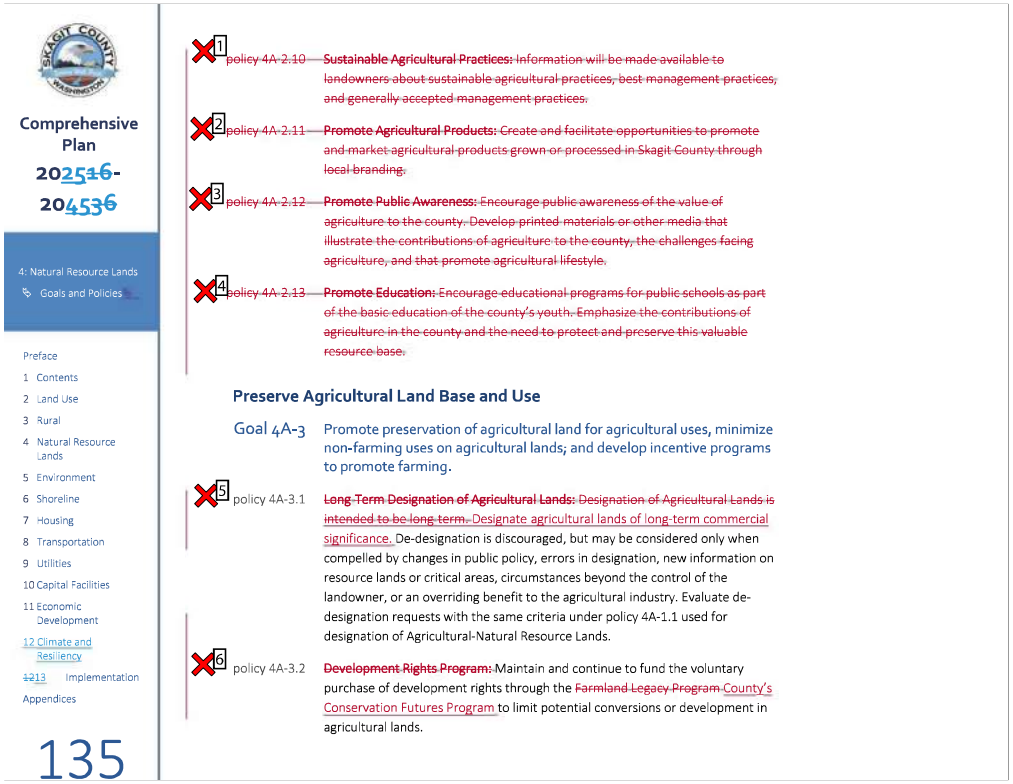
Number: 3 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:55:10 AM

Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:55:19 AM
4A-2.6 Revise: Consistent with the Growth Management Act, establish an integrated natural resources planning program that ensures balanced consideration of agricultural resource land protection alongside other critical areas, treaty-protected resources, and threatened and endangered species.

Number: 4 Author: Mikala Staples Hughes Subject: Cross-Out Date: 3/13/2025 11:54:53 AM
4A-2. 6 Revise. Parity is not the correct word.

Number: 5 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:53:13 AM
4A-2.7 Accept change.

Number: 6 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:53:13 AM
4A-2.8 Accept change.



Comprehensive Plan
2025~~16~~-
20453~~6~~

4: Natural Resource Lands
Goals and Policies

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
~~12~~13 Implementation
Appendices



1 ~~policy 4A-2.10 Sustainable Agricultural Practices: Information will be made available to landowners about sustainable agricultural practices, best management practices, and generally accepted management practices.~~

2 ~~policy 4A-2.11 Promote Agricultural Products: Create and facilitate opportunities to promote and market agricultural products grown or processed in Skagit County through local branding.~~

3 ~~policy 4A-2.12 Promote Public Awareness: Encourage public awareness of the value of agriculture to the county. Develop printed materials or other media that illustrate the contributions of agriculture to the county, the challenges facing agriculture, and that promote agricultural lifestyle.~~

4 ~~policy 4A-2.13 Promote Education: Encourage educational programs for public schools as part of the basic education of the county's youth. Emphasize the contributions of agriculture in the county and the need to protect and preserve this valuable resource base.~~

### Preserve Agricultural Land Base and Use

**Goal 4A-3** Promote preservation of agricultural land for agricultural uses, minimize non-farming uses on agricultural lands; and develop incentive programs to promote farming.

5 policy 4A-3.1 ~~Long-Term Designation of Agricultural Lands: Designation of Agricultural Lands is intended to be long-term.~~ Designate agricultural lands of long-term commercial significance. De-designation is discouraged, but may be considered only when compelled by changes in public policy, errors in designation, new information on resource lands or critical areas, circumstances beyond the control of the landowner, or an overriding benefit to the agricultural industry. Evaluate de-designation requests with the same criteria under policy 4A-1.1 used for designation of Agricultural-Natural Resource Lands.

6 policy 4A-3.2 ~~Development Rights Program:~~ Maintain and continue to fund the voluntary purchase of development rights through the ~~Farmland Legacy Program~~ County's Conservation Futures Program to limit potential conversions or development in agricultural lands.

## Page: 6

Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:48:47 AM
4A-2.10 Restore original language.

Number: 2 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:48:47 AM
4A-2.11 Restore original language.

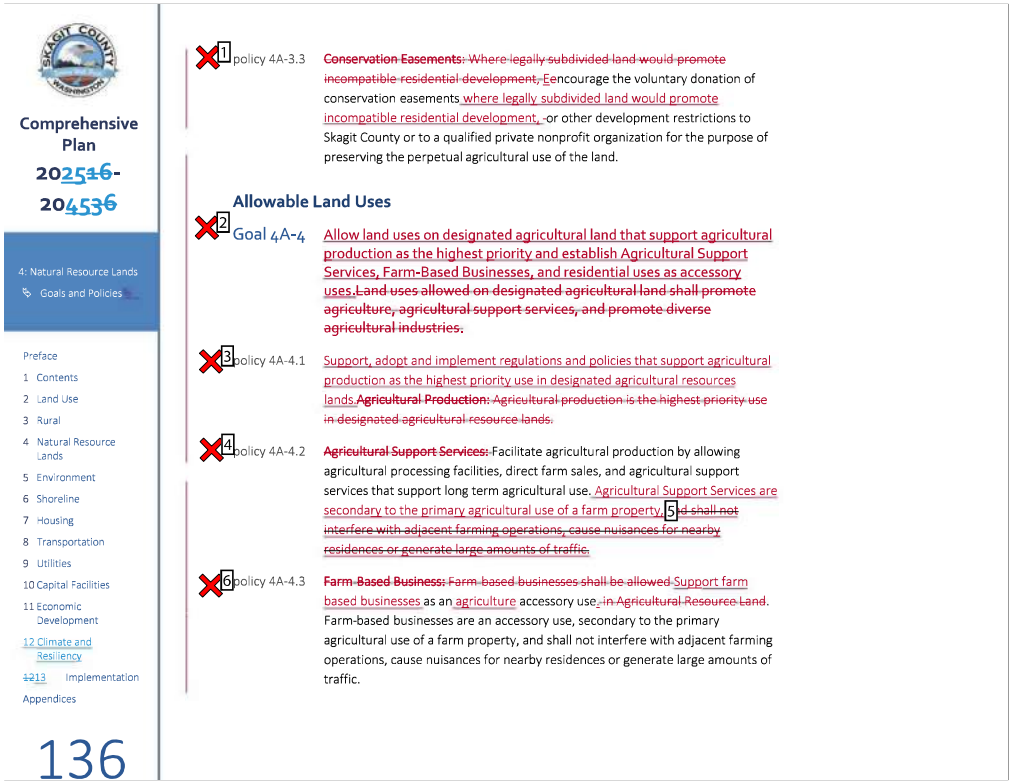
Number: 3 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:48:47 AM
4A- 2.12 Restore original language.

Number: 4 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:48:47 AM
4A-2.13 Restore original language.

Number: 5 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:49:09 AM
4A-3.1 Restore original language.

Number: 6 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:49:22 AM
4A-3.2 Restore original language and reference to the Farmland Legacy Program.

# WWAA Comp Plan Comments



Comprehensive Plan 2025~~16~~-2045~~36~~

4: Natural Resource Lands
Goals and Policies

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
~~12~~13 Implementation
Appendices

136

1 policy 4A-3.3 ~~Conservation Easements: Where legally subdivided land would promote incompatible residential development,~~ Eencourage the voluntary donation of conservation easements where legally subdivided land would promote incompatible residential development, or other development restrictions to Skagit County or to a qualified private nonprofit organization for the purpose of preserving the perpetual agricultural use of the land.

## Allowable Land Uses

2 Goal 4A-4 Allow land uses on designated agricultural land that support agricultural production as the highest priority and establish Agricultural Support Services, Farm-Based Businesses, and residential uses as accessory uses.~~Land uses allowed on designated agricultural land shall promote agriculture, agricultural support services, and promote diverse agricultural industries~~.

3 policy 4A-4.1 Support, adopt and implement regulations and policies that support agricultural production as the highest priority use in designated agricultural resources lands. ~~Agricultural Production: Agricultural production is the highest priority use in designated agricultural resource lands.~~

4 policy 4A-4.2 ~~Agricultural Support Services:~~ Facilitate agricultural production by allowing agricultural processing facilities, direct farm sales, and agricultural support services that support long term agricultural use. Agricultural Support Services are secondary to the primary agricultural use of a farm property, 5 ~~and shall not interfere with adjacent farming operations, cause nuisances for nearby residences or generate large amounts of traffic.~~

6 policy 4A-4.3 ~~Farm-Based Business: Farm-based businesses shall be allowed~~ Support farm based businesses as an agriculture accessory use, ~~in Agricultural Resource Land~~. Farm-based businesses are an accessory use, secondary to the primary agricultural use of a farm property, and shall not interfere with adjacent farming operations, cause nuisances for nearby residences or generate large amounts of traffic.

## Page: 7

Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:49:37 AM
4A-3.3 Restore original language.

Number: 2 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:49:55 AM
GOAL 4A-4 Restore original language.

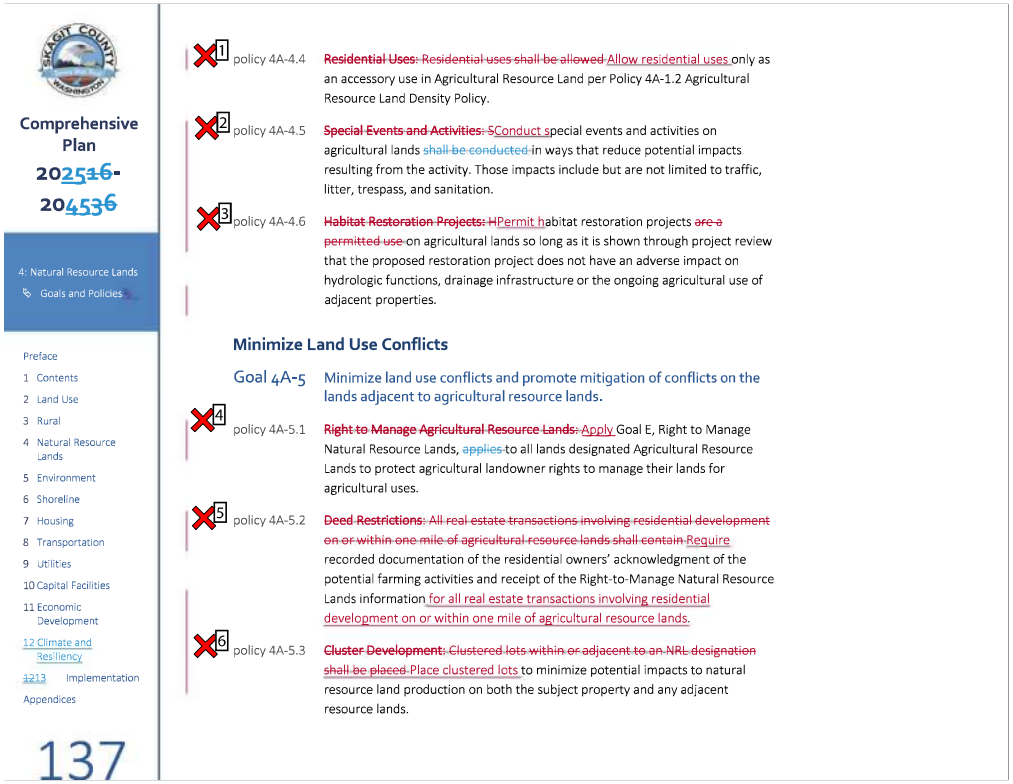
Number: 3 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:50:23 AM
4A-4.1 Revise to: Agricultural production is the primary and highest-priority use of designated agricultural resource lands. Policies and regulations shall be adopted, implemented, and upheld to ensure its protection and viability.

Number: 4 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:50:30 AM
4A-4.2 Strike "and shall not interfere with adjacent farming operations, cause nuisances for nearby residences or generate large amounts of traffic.

Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:34:40 AM
This should align with current SCC definition 14.04 Agricultural Support Services.

Number: 5 Author: Mikala Staples Hughes Subject: Cross-Out Date: 3/13/2025 8:53:41 AM

Number: 6 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:50:34 AM
4A-4.3 Restore original language.



Comprehensive Plan
2025~~16~~-
2045~~36~~

4: Natural Resource Lands
Goals and Policies

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
~~12~~13 Implementation
Appendices

137

1 policy 4A-4.4 ~~Residential Uses: Residential uses shall be allowed~~ Allow residential uses only as an accessory use in Agricultural Resource Land per Policy 4A-1.2 Agricultural Resource Land Density Policy.

2 policy 4A-4.5 ~~Special Events and Activities: S~~Conduct special events and activities on agricultural lands ~~shall be conducted~~ in ways that reduce potential impacts resulting from the activity. Those impacts include but are not limited to traffic, litter, trespass, and sanitation.

3 policy 4A-4.6 ~~Habitat Restoration Projects: H~~Permit habitat restoration projects ~~are a permitted use~~ on agricultural lands so long as it is shown through project review that the proposed restoration project does not have an adverse impact on hydrologic functions, drainage infrastructure or the ongoing agricultural use of adjacent properties.

### Minimize Land Use Conflicts

Goal 4A-5 Minimize land use conflicts and promote mitigation of conflicts on the lands adjacent to agricultural resource lands.

4 policy 4A-5.1 ~~Right to Manage Agricultural Resource Lands: Apply~~ Goal E, Right to Manage Natural Resource Lands, ~~applies~~ to all lands designated Agricultural Resource Lands to protect agricultural landowner rights to manage their lands for agricultural uses.

5 policy 4A-5.2 ~~Deed Restrictions: All real estate transactions involving residential development on or within one mile of agricultural resource lands shall contain~~ Require recorded documentation of the residential owners' acknowledgment of the potential farming activities and receipt of the Right-to-Manage Natural Resource Lands information for all real estate transactions involving residential development on or within one mile of agricultural resource lands.

6 policy 4A-5.3 ~~Cluster Development: Clustered lots within or adjacent to an NRL designation shall be placed~~ Place clustered lots to minimize potential impacts to natural resource land production on both the subject property and any adjacent resource lands.

## Page: 8

Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:51:28 AM
4A-4.4 Restore original language.

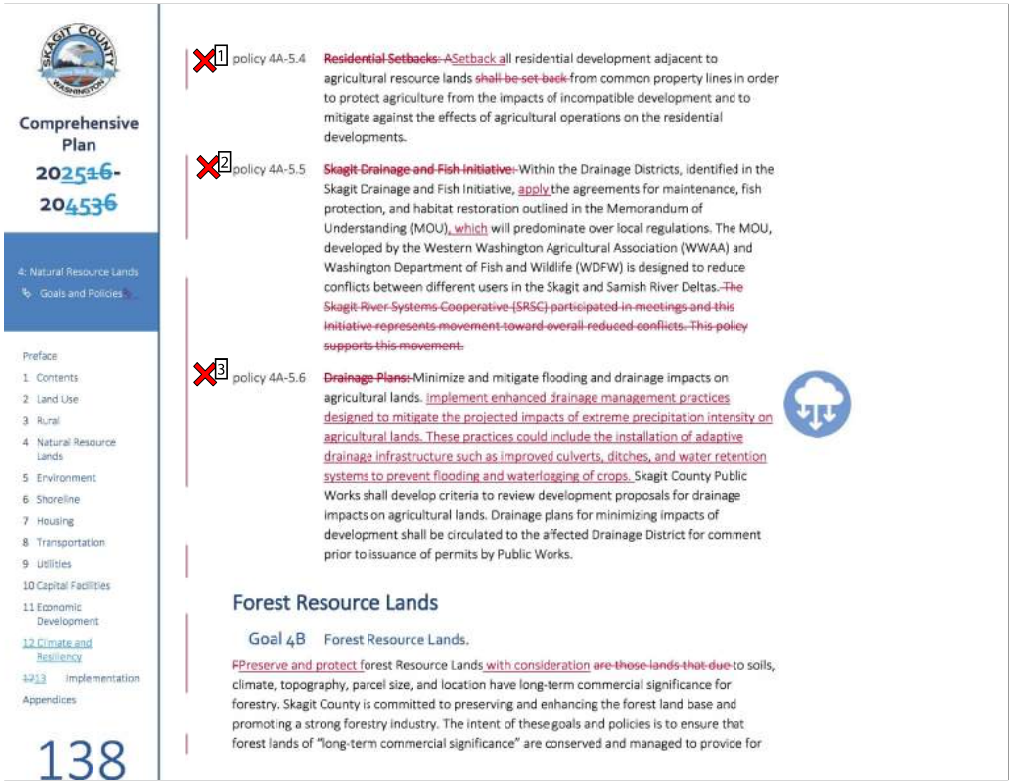
Number: 2 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:51:28 AM
4A-4.5 Revise: Special events and activities, related to agricultural production, on agricultural lands shall be permitted under Special Use Permit Process and conducted in ways that reduce, potential impacts resulting from the activity and will not interfere with adjacent agricultural production.

Number: 3 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:51:28 AM
4A-4.6 Revise: Prohibit habitat restoration projects on agricultural lands except through a special use permit process to ensure restoration projects do not have an adverse impact on hydrology functions, drainage infrastructure or the ongoing agricultural use of adjacent properties.

Number: 4 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:52:04 AM
4A-5.1 Restore original language.

Number: 5 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:52:04 AM
4A-5.2 Restore original language.

Number: 6 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:52:04 AM
4A-5.3 Restore original language.



Comprehensive Plan 2025~~16~~-2045~~36~~

4: Natural Resource Lands
Goals and Policies

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
~~12~~13 Implementation
Appendices

138

1 policy 4A-5.4 ~~Residential Setbacks:~~ ASetback all residential development adjacent to agricultural resource lands ~~shall be set back~~ from common property lines in order to protect agriculture from the impacts of incompatible development and to mitigate against the effects of agricultural operations on the residential developments.

2 policy 4A-5.5 ~~Skagit Drainage and Fish Initiative:~~ Within the Drainage Districts, identified in the Skagit Drainage and Fish Initiative, apply the agreements for maintenance, fish protection, and habitat restoration outlined in the Memorandum of Understanding (MOU), which will predominate over local regulations. The MOU, developed by the Western Washington Agricultural Association (WWAA) and Washington Department of Fish and Wildlife (WDFW) is designed to reduce conflicts between different users in the Skagit and Samish River Deltas. ~~The Skagit River Systems Cooperative (SRSC) participated in meetings and this initiative represents movement toward overall reduced conflicts. This policy supports this movement.~~

3 policy 4A-5.6 ~~Drainage Plans:~~ Minimize and mitigate flooding and drainage impacts on agricultural lands. Implement enhanced drainage management practices designed to mitigate the projected impacts of extreme precipitation intensity on agricultural lands. These practices could include the installation of adaptive drainage infrastructure such as improved culverts, ditches, and water retention systems to prevent flooding and waterlogging of crops. Skagit County Public Works shall develop criteria to review development proposals for drainage impacts on agricultural lands. Drainage plans for minimizing impacts of development shall be circulated to the affected Drainage District for comment prior to issuance of permits by Public Works.

## Forest Resource Lands

Goal 4B Forest Resource Lands.

~~F~~Preserve and protect forest Resource Lands with consideration ~~are those lands that due~~ to soils, climate, topography, parcel size, and location have long-term commercial significance for forestry. Skagit County is committed to preserving and enhancing the forest land base and promoting a strong forestry industry. The intent of these goals and policies is to ensure that forest lands of "long-term commercial significance" are conserved and managed to provide for

## Page: 9

Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:52:30 AM
4A-5.4 Restore original language.

Number: 2 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:52:30 AM
4A-5.5 Revise: Within the Drainage Districts apply the Skagit Drainage Fish Initiative Drainage Maintenance Agreements between WDFW and individual Districts for fish protection and habitat restoration. The DFI Maintenance Agreements will predominate over local regulations. These Drainage Maintenance agreements are designed to reduce conflicts between different users in the Skagit and Samish River Deltas.

Number: 3 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:52:30 AM
4A-5.6 Restore original language.

**Tara Satushek** Comment # 55

**From:** Joyce <expressing.joyce@gmail.com>
**Sent:** Thursday, March 13, 2025 12:54 PM
**To:** PDS comments
**Subject:** Possible Spam: Skagit County's 2025 Comprehensive Plan Draft Policies

From: Joyce Siniscal

429 Cayuse Place

La Conner, WA 98257

TO: Whom It May Concern

I have been a resident of Skagit County since the 1970's. Protection of our amazing natural resources and agriculture should be our number one priority for not only our generation but for future generations. Over the many decades I have lived here I have experienced danger several times because of Skagit River Flooding and Clear Lake flooding. Planning that considers alarming climate changes is extremely important to protect our farms producing food, forest lands, open spaces, and the air we breathe for the survival and health of our county residents.

Please register my support for the following recommendations and changes to Skagit County's 2025 Comprehensive Plan Draft Policies:

• **Propose policy revision CE 10.3** "Consider climate change, including sea level rise, extreme precipitation, increased winter streamflow, and other impacts, in floodplain management planning by updating flood hazard zones according to most recent climate change projections and modeling."

• Skagit County should actively plan for sea level rise and climate

change by updating the Shoreline Master Program in the next three years.

• Require that new development be situated to avoid needing shoreline stabilization and encourage new development be situated to avoid needing shoreline stabilization.

• Recognize the value of conserving rural lands including agricultural lands, grasslands, forests, and wetlands because of their important role in carbon sequestration. In addition, forest lands without development are easier to manage during wildfires, and grasslands, wetlands, and marginal agricultural land can hold flood waters thus protecting homes and businesses.

• The County needs to prohibit more development outside of cities, towns, and urban growth areas. Rural development will result in increased greenhouse gas emissions due to frequent travel for schools, shopping, jobs, and essential services.

• **Delete existing policy 3A(b)** "Protect the rural landscape, character, and lifestyle by providing for a variety of rural densities and housing opportunities." Goal 3A(b) allows an increase in rural housing densities which would change Skagit County's rural landscape, character, and lifestyle. It would increase GHG emissions by increasing vehicular miles driven.

**Tara Satushek**

Comment # 56

**From:** Christie Stewart Stein <jsteinwa@earthlink.net>
**Sent:** Thursday, March 13, 2025 1:26 PM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan Draft Policies

Skagit County PDS,

Thank you for the opportunity to comment on the draft 2025 Comprehensive Planning Policies. In general, our family of 10 voters spanning three generations agrees that some very good work has been done to develop the current draft of the policies.

However, there are two areas we feel have not been adequately addressed.

First, Policy 3C-1.6(b) increases allowed density of housing in rural villages. Our county is already falling behind in **placing new housing developments in the urban areas and protecting the rural areas of the county.** This new policy would result in more housing in areas with few services, resulting in more driving and fewer rural acres protected. It does not solve the affordable housing crisis to put people in remote areas.

The citizens of Skagit County made their views on this issue very clear during the ill-fated efforts to consider allowing so-called Fully Contained Communities to be built in rural areas. Skagitonians want new construction to be built in the existing urban growth areas of the cities and towns. We do NOT want more development in the rural areas. County Commissioners received thousands of phone calls and emails about this as well as thousands of petition signatures. This fierce response forced the County to drop the FCC proposals. Policy 3C-1.6(b) as drafted is simply another method to create sprawl and diminish the rural character of Skagit County. Voters have made it clear, we DO NOT support this.

Second, many members of the public (a majority of commenters) asked for the creation of an Environmental Advisory Board, made up of citizens, similar to the Agriculture, Forestry and Park Advisory Boards. This is not addressed in the draft update. This is a reasonable request by Skagitonians to provide science-based recommendations to County Commissioners to inform their decisions regarding the health and protection of our local environment. So, our family of voters again requests this be included in the 2025 Comp Plan policies update.

Thank you for your attention to these matters.

Christie Stewart Stein
16384 Donnelly Road
Mount Vernon, WA 98273

**Tara Satushek**

Comment # 57

**From:** Callie Lowenstein <callie.lowenstein@gmail.com>
**Sent:** Thursday, March 13, 2025 1:50 PM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan

Good afternoon,

Please find my comments below:

*GENERAL COMMENTS:*

1. *Need more specific and concrete goals for increasing tree canopy, particularly urban tree canopy, most particularly in UGAs, and intended strategies for increasing canopy, such as narrowing overly-wide roads and increasing sidewalk strips to accommodate our large native evergreens which store far more carbon than any of the alternatives. Specific goals around restoring native trees and plants, particularly in our UGAs, and replacing lawns with native meadows that will restore pollinator and wildlife habitat in neighborhoods and on city/county land.*
2. *Need more specific goals on reducing impermeable surfaces generally, particularly both massive oversized parking lots (especially in Burlington and northern Mount Vernon), general oversupply of parking in downtown Mount Vernon (many could be converted to parks or community gardens) and overly wide streets in low traffic neighborhoods, which would reduce run-off, create opportunities to increase canopy and reduce heat islands, and improve quality of access and experience for non car modes of transportation (biking or walking in these areas is incredibly unpleasant because it is ugly, overheats easily, and dangerously car-centric!)*

policy 2A-6.3 Concentrate facilities and services within Urban Growth Areas, using urban design principles, to make them desirable places to live, work, and play; increase the opportunities for walking and biking within the community; use existing infrastructure capacity more efficiently; and reduce the long-term costs of infrastructure maintenance.

*COMMENT: Needs explicit mention of "greening" areas targeted for more housing, as density in-filling is often on "hellscape" corridors of massive parking lots, big box stores, and stroads (e.g. northern part of MV) – these areas would not be desirable to live without significant re-greening of parking lots and protection of sidewalks with trees and creation of public green spaces and community gardens.*

Nonmotorized transport: Objective 1
• In addition to the system described above, Skagit County will identify and map a countywide system of key streets and separated shared use facilities which are high priority facilities for specific non-motorized improvements and/or development and consistent with the regional non-motorized system. However, most non-motorized improvements on this network will be made when general reconstruction, major maintenance or new construction allows application of new design standards to be applied as a cost-effective element of the overall project.

*COMMENT: high priority streets for bike access improvement should be targeted for urgent improvements – not only when general construction etc.*

policy 8D-1.4 Encourage public transportation services to serve cities, towns, and Rural Villages, and to link with systems in adjoining counties, when financially feasible and supported by the public.

*COMMENT: Public support often follows the improvement in quality of services. We need to make meaningful, nontrivial investments in public transportation in order to increase ridership, which will generate more revenue and public support!*

policy 8E-1.2 Work with the Washington State Department of Transportation, local jurisdictions other agencies, and the public to make safety and other improvements to the rail corridors to allow for increased speeds for passenger trains.

*COMMENT: This is not enough! We need to be figuring out how to either reclaim existing tracks from corporate ownership or reclaiming lanes of I-5 (probably the better option) to get high speed and local commuter rail service now.*

policy 8E-1.5 Plan for commuter rail service to Skagit County at such time it is determined to be economically and socially acceptable.

*COMMENT: This is not enough! The right time for commuter rail to Skagit was 20 years ago, the second best time is now. We need to re-claim I-5 for human beings by turning it into commuter rail.*

policy 8I-1.3 Encourage the state to consider high-season traffic demand on SR 20 in East Skagit County whenever the state studies the need for improvements

*COMMENT: Do not widen local roads that barely see any traffic most of the year! Instead, let's think of creative programs like buses from downtown MV and increased train and bus service from Seattle and other major areas during the month of April that will increase foot traffic in our local businesses and decrease vehicle traffic out to the tulip fields.*

policy 8K-1.3 Education -Encourage educational programs that teach or encourage transportation safety for all non-motorized users. Encourage awareness among motorists of the rights and responsibilities of motorists and cyclists and the importance of "sharing the road."

*COMMENT: Skagit County has way too many trucks and massive SUVs and too few normal cars. WA has the third lowest mileage per vehicle in the United States. We need more education of our communities about the impacts of these massive vehicles on public safety, climate, and road conditions/wear and tear.*

policy 8N-1.12 Where on-going maintenance costs can be justified, promote the use of Low Impact Development (LID) techniques, such as permeable pavement, in transportation projects to mitigate the harmful impacts of roadway runoff on critical salmon habitats

*COMMENT: Remove hedging language. Promote those LID techniques!*

**Tara Satushek** Comment # 58

**From:** Anne Winkes <annewinkes@gmail.com>
**Sent:** Thursday, March 13, 2025 2:18 PM
**To:** PDS comments
**Subject:** "Skagit County's 2025 Comprehensive Plan"

3/13/25

Dear PDS,

Kudos for so effectively engaging the public in the 2025 comprehensive plan update process. I have participated in the public process from the beginning, sharing my thoughts at open houses and submitting comments on the initial climate change draft policy revision about ways the County could and should best respond to the impacts of climate change as it sets goals and policies aimed at reducing greenhouse gases and increasing climate resiliency in the 2025 Comprehensive Plan update that will guide development decisions over the next 20 years. As I note in the following comments on the draft plan released in February, I am pleased with many of the goals and policies PDS has added to, expanded upon and/or amended in the Comprehensive Plan update, but disappointed by the absence of others.

As you know, the natural world of Skagit County is unique with tremendous biodiversity in its myriad ecosystems. During our 40 plus years of living here, my husband and I have explored much of Skagit County—hiking and backpacking its foothills and mountains, canoeing and swimming in its lakes and rivers, cycling its country roads. Living in Conway we've listened to coyotes howling, geese honking, and the sometimes almost deafening chorus of spring peepers. We've watched bald eagles soar as crops are planted and harvested. Skagit County is beautiful, and we love living here.

<u>Environmental Advisory Board</u>

The County Commissioners make many decisions about development in Skagit County, decisions that can forever change how and where we live in Skagit County, which parts of our economic base will be encouraged or restricted (tourism, agricultural, forestry, industry), what parts of our natural world will be preserved, what wildlife will be protected, how and where we recreate.

The County Commissioners, the Planning Commission and the staff of the planning department seek guidance from the experts on county commissioner appointed advisory committees and boards as they make decisions that will influence what happens in Skagit County for many years. The county commissioners have an Agricultural Advisory Board, a Conservation Futures Advisory Board, and a Forestry Advisory Board.

The majority of commenters (59 of 90) responding to the initial draft revision of the comprehensive plan recommended the County Commissioners establish an Environmental Advisory Board to help the commissioners understand the complexities of the multiple ecosystems in Skagit County and guide them to make informed, science-based decisions about Skagit County's natural world—its lands, its waterways, its wildlife habitat.

I am extremely disappointed that PDS staff and consultants chose to ignore the recommendations of the clear majority of commenters and did not include in the current draft a policy for establishing an Environmental Advisory Board. I urge PDS to correct its omission.

An Environmental Advisory Board would help the County make well thought out, carefully considered plans for dealing not only with the intensification of climate change's impacts upon our county far into the future but could also advise on a variety of environmental concerns, including conservation of lands and waterways, restoration of wildlife habitat (including salmon habitat) and preservation of wildlife corridors, that face Skagit County. The public at the open houses, at the planning commission's public hearing and in their written comments have established their clear interest in preserving Skagit County's natural environment. An Environmental Advisory Board is key to enabling the County to do so.

Active Transportation

In my previous comment on the revised transportation element of the 2025 comprehensive plan, and in my oral comments at the Planning Commission's public hearing on 3/11/25, I stressed the importance of looking at safety and connectivity when developing goals and policies specific to cycling, walking, and rolling. I am pleased to see that many of the goals and policies under active transportation in the new draft plan concern safety and connectivity and have incorporated many of the recommendations detailed in WSDOT's "Active Transportation and Beyond".

However, I am disappointed the draft plan notes that costs associated with implementing active transportation policies may make it unreasonable "to expect this network to be completed by 2045, which is the twenty-year timeframe of this plan." (p 275)

- Missing from the draft plan is a needed emphasis on how by promoting active transportation use, the County would decrease its GHG emissions by reducing vehicle miles traveled, a cost benefit for the County, the environment, and the community.

Missing from the draft plan is a much needed first step.

- The County should add a policy that addresses the immediate need to make roads safer for everyone by mapping and identifying roads, including round-abouts, that are currently too dangerous for walking, cycling, or rolling, and then develop plans to make them safer for non-motorized use.

Per WSDOT's "Active Transportation, 2020 and Beyond", studies show that physically separating cyclists and walkers from traffic is one of the most effective ways to provide safe active transportation routes.

- The County should add a policy allowing public access on dikes for bicycling and walking by creating incentives and protections for dike districts and adjacent landowners. Such a policy would provide safety for walkers and cyclists, both locals and tourists, as well as much needed connectivity between rural areas, towns, and cities.

I support (though suggest additional language in some) the following added or amended policies that concern the need for the County to ensure safety and/or connectivity for users of active transportation. The page numbers listed are from the redline version of the draft plan.

- Policy 8B-1.1 (p 300) “Monitoring for Congestion Relief- Monitor the capacity and completeness of the multimodal transportation system to meet adopted LOS (level of service) standards and in an effort to manage traffic congestion and provide safe and complete active transportation connections.”

However, to accurately monitor congestion relief, the County must not exclude, as it proposes to do, those means which per WSDOT, studies show are most effective in making walkers and riders feel safe (i.e. reducing traffic speed and physically separating users from traffic).

- Policy 8B-1.3 (p 300) “Multimodal transportation- Participate in the planning and implementation of multi-modal transportation systems to increase the safety, security and mobility of all users, especially in underserved communities, and provide affordable, accessible, and reliable alternatives to the passenger car, emphasizing the selection of projects that incorporate safety and security and reduce vehicle miles traveled.”

- Policy 8B-1.8 (p 101) “To ensure integration of transportation and land use planning, make decisions regarding the location and improvement of transportation facilities and public transit in a manner consistent with the Comprehensive Plan’s goals, policies, and land use map. Emphasize climate resiliency, equity, and reduction of greenhouse gas emissions in the planning and design of these projects, ensuring they support sustainable development and provide fair access to all communities.”

- Policy 8B-1.10 policy ((p 301) “Economic and Eco-Tourism Opportunities - consider opportunities to support economic and eco-tourism (Tulip Festival, bird-watching, etc.) when making decisions about the management and maintenance of the roadway system.”

I recommend adding that safe active transportation is of utmost importance to many tourists and must be prioritized.

For example, as I noted in my oral comment at the planning commission’s public hearing, the North Fork Bridge Safety Project in Appendix C (p 534) of the draft plan would improve bicyclist safety by installing rider activated flashing beacons and signs warning motorists of bicycles on the bridge. This bridge is used by many cyclists, both local and tourists. For the safety of cyclists, this project should be prioritized.

Note that almost all bridges in Skagit County because of their narrow roadways are not safe for active transportation.

- Policy 8G-1.12 (p 307) that emphasizes the “maintenance of existing active transportation facilities, including road sweeping, striping, signing, and debris removal, and the ongoing development of smooth and continuous road shoulders, including asphalt overlays or enhanced chip sealing where appropriate and feasible”.

I applaud this policy but recommend an addition stating the need to maintain bridge roadways in a similar fashion, particularly with the removal of debris which often severely impedes safe active transport on bridges.

If carried out this policy would greatly improve the safety of active transportation. It should be rewritten as an action item, not a wish list.

- Policy 8G-1.13 (p307), "Encourage updates to both the 2004 Non-Motorized Plan and the 2009 Open Space Concept Plan to support expansion of the multiuse trail network for transportation, recreation, eco-tourism, and resilience to flooding and adverse climate impacts".

However, I note that twenty-one years have passed since Skagit County's Non-Motorized Transportation Plan (NMTP) was adopted in 2004 and 16 years since the County adopted its Open Space Concept Plan.

I recommend that this policy should be changed with the following underlined language to read: "The County must update both the 2004 Non-Motorized Plan and the 2009 Open Space Concept Plan to support expansion of the multiuse trail network for transportation, recreation, eco-tourism, and resilience to flooding and adverse climate impacts".

Completion of the Centennial Trail between Snohomish County and Whatcom County must be a priority. Only a ½ mile section of the Centennial Trail is open for public use in Skagit County.

- Policy 8G-1.14's (p 307) goal "to reduce air pollution and greenhouse gas emissions by promoting the use of alternative transportation modes, reducing vehicular traffic, maintaining acceptable traffic flow, and siting of facilities."

I recommend the word "safe" be placed in front of "alternative transportation modes" as active transportation is not used unless safety of the users is given top priority.

- I strongly support the policies under Goal 8K (p 309) that provide for educating the public about transportation safety noting in particular the importance of policy 8K-1.1 "Safety Improvements - Include safety improvements as a priority in all capital projects and maintenance decisions relating to the County road system."

I value this policy's emphasis on implementing safety measures, rather than simply depending on education about the "rules of the road" to increase safety.

- Policy 8M-1.1 (p310) "Implement transportation system management techniques, such as the synchronization of traffic signals and provision of left-turn lanes, as a way to increase the efficiency and safety of the existing transportation system with a minimum of cost."

Additional specific safety management techniques for active transportation users should be included. Turning opportunities should be provided for cyclists. Per WSDOT, a signal can have one phase with the WALK signal on and no left turn permitted for drivers, and a separate phase with DON'T WALK and driver left turns permitted; this provides separation in time. And restrictions on drivers making right turns on red after stopping can help to reduce conflicts between turning drivers and pedestrians or bicyclists.

- Policy 8N-1.13 (p 311) "Promote transportation improvement strategies that support future densification of urban growth areas while transitioning and connecting seamlessly to rural areas".

This policy should also emphasis the inclusion of active transportation improvement strategies.

- Policy 8O-1.1 (p 313) "When a development project has a particular impact on the safety, structure or capacity of the County's road system, suitable mitigation shall be required in the form of improvements or through the use of adopted impact fees, which may include pedestrian and bikeway projects."

I strongly support your addition of "may include pedestrian and bikeway projects" but this policy would be strengthened further by changing "may" to "need to" so it reads, "…which need to include pedestrian and bikeway projects."

- Policy 8P-1.2 (p 314) SR 20 "Encourage the state to provide facilities for non-motorized active transportation as part of improvements to SR20 all state highways, consistent with RCW 47.04.035 Complete Street Principals."

Reducing vehicular speed is the best way to improve active transportation users' safety. Reducing speed on SR 20 is not possible, but per WSDOT, bike paths or trails paralleling heavily trafficked routes wherever possible are more protective than bike lanes or wide shoulders. Bike paths should be considered for SR 20.

- Policy 8Q-1.3 policy (p 316) All transportation capital improvements shall incorporate removal of barriers to fish passage, where applicable. These projects will also consider wildlife habitat connection opportunities, pedestrian recreational connection opportunities, and climate-related adaptation potential."

Rural element

I am concerned that allowing more dwellings in Rural Village Residential areas will diminish the rural character of our county (one of the main reasons it is loved by so many who choose to live here and those who come to visit), while increasing GHG emissions as more people drive farther to access schools, shops, jobs, and essential services.

I recommend the deletion of policy 3C-1.6(b) that would allow 4 dwellings per acre for certain housing types considered more affordable. The County needs to encourage more residential development in cities and towns, not in rural areas where growth should be limited to no more than 20%.

Thank you for reading and considering my thoughts.

Anne Winkes
18562 Main St,
Conway, WA
98238

Email: annewinkes@gmail.com
Mailing address: PO Box 586, Conway WA 98238-0586

**Tara Satushek** Comment # 59

**From:** kirkjohn <kirkjohn@comcast.net>
**Sent:** Thursday, March 13, 2025 3:11 PM
**To:** PDS comments
**Subject:** Fwd: Skagit County's 2025 Comprehensive Plan

I've added my complete mailing

Thank you for the opportunity to comment on the proposed update to Skagit County's Comprehensive Plan. I am writing as a Skagit County resident, a retired land use planner, and a board member for the Skagit Land Trust.

**1. Introduction and Summary**

- I recommend revised wording in the paragraph at the top of p. 18 titled "Emphasis on the preservation of resource land band." The sentence reads: "In particular, the transfer or resource lands to non-profit corporations and other agencies for purposes of habitat protection or enhancement results in farms and forest land being taken out of natural resource production."

  It's important to note that many of the lands conserved by the Skagit Land Trust and other conservation organizations allow continued natural resource production activities, including farming and forestry, as well as open space and wildlife habitat conservation. In other cases, lands that we conserve are not viable for ongoing farming or forestry because of their location in the Skagit River floodway. In these instances, the lands are better suited for fish and wildlife habitat restoration. Conservation organizations like the Land Trust are important partners with Skagit County in protecting natural resource land for ongoing resource production while also restoring important fish and wildlife habitat and improving Skagit County's resilience against flooding, sea level rise and other natural disasters.

- I appreciate the plan's identification at the bottom of p. 32 of several key themes that have emerged through community and stakeholder engagement activities in the Comprehensive Plan update process, namely **Enhance Resiliency in Skagit County**, **Housing Affordability**, and **Greenhouse Gas Emissions Reductions**. It will be important to ensure that these key themes continue to be recognized by the Planning Commission and Board of County Commissioners, and continue to be reflected in Comprehensive Plan policies, through the remainder of the update process.

**2. Urban, Open Space and Land Use Element**

- I support policy 2A-8.7 regarding collaboration with the Skagit Council of Governments to consider revising Countywide Planning Policy 1.2 to reduce the target growth allocation in rural areas. The Land Trust's earlier comment letters have recommended dropping the rural population target to 10 percent from the current 20 percent. With climate change, many of the factors that previously dictated where growth and development should go must be updated with greater emphasis on natural hazards and limited resources. Thus, things such as water supply, single source aquifers, flood plain hazards, forest fire hazards, erosion, landslides, and transportation routes in floodplains all need to be considered. Affordable housing and environment conservation goals are best served by targeting most new residential growth to the urban areas.

- I support and hope to see greater emphasis and detail placed on policy 2B-1.3, "Skagit County should continue to work with its partners....to identify, prioritize and conserve open space corridors within and between urban growth areas..."

- Policy 2G-1.1 on p. 70, under Land Division, makes great sense for the protection of Ag-Natural Resource Land. The same process should be made available in other land use designations to separate an existing house from land to be conserved in perpetuity for natural resource, open space, habitat or other purposes. This "Conservation Subdivision" option would allow conservation organizations or government entities to purchase part of a property from a voluntary landowner for strict conservation purposes without going through the current arduous and expensive subdivision process.

**3. Rural Element**

According to the draft on p. 76, the rural area accepted 24.6% of the County's growth from 2017-2022, compared to 75.4% for the urban areas. This reflects a movement in the wrong direction from the 2000 to 2010 period when rural area growth was 21% versus 79% for the urban area. For this reason, I oppose any effort to create additional development potential in the rural area, as appears to be the intent in policy 3B-1.6, as discussed below.

- I oppose the new provision of policy 3C-1.6(b) that the Rural Village Residential land density may be up to "4 dwelling per acres" (sic) for certain housing types which may be more affordable. Four dwelling units per acre has never been an allowable density in the rural area under the Growth Management Act.

  Encouraging most residential development in the cities and towns is the best way to promote affordable housing in Skagit County. The most recent population growth trends show the county moving away from the goal of limiting growth in the rural area to no more than 20 percent. Allowing additional density in the rural area, even for the important purpose of increasing affordable housing, is moving in the wrong direction.

Allowing certain housing types which may be more affordable is a worthwhile goal, but it should not be coupled with an increase in residential densities in Rural Village Residential.

**4. Natural Resource Lands**

- I support the new language on p. 131, proposed as policy 4A-1.1 (e), that "Site-specific proposals to de-designate natural resource lands must be deferred until a comprehensive countywide analysis is conducted." This policy applies to Ag-NRL lands only. This same provision should be applied to policy 4B-3.3 on p. 144, regarding forest lands of long-term commercial significance.

  Site-specific de-designation requests are often submitted simply because the landowner seeks to gain additional development potential on their land, regardless of whether their parcel meets the Natural Resource Land designation criteria. It is very difficult and time-consuming for planners to consider such isolated de-designation requests separate from a more comprehensive review of the natural resource land base. On rare occasions a parcel may have been incorrectly designated as Natural Resource Land, but this should only be evaluated on a comprehensive basis when looking at the agricultural or forest land base as a whole.

- I support policies 4B-2.7, 4B-2.11 seeking to increase public and forest landowner awareness and preparedness for wildfires and to reduce their occurrence.

- I strongly support policy 4B-2.12, "Wildfire Resilience Strategy. Develop a comprehensive, county-wide wildfire resilience strategy planning program to increase public safety and awareness regarding forest fire dangers, and establish the means of managing, reducing and suppressing catastrophic wildfires."

  - As an important tool in protecting property and lives, as previously proposed, I also recommend the following additional language. This will decrease risk of home-building in areas that may be impossible to defend from wildfires. Some other vulnerable communities are no longer allowing development in fire prone forests and wildlands:

    > "Identify and implement strategies for reducing residential development pressure in the wildland-urban interface. The County should discourage building in some forested areas due to increased risk of intense wildfires. The County could achieve this by proactively purchasing development rights or assisting conservation agencies and nonprofits to purchase development rights."

**5. Environment.**

In two previous comments to Planning and Development Services (PDS), the Skagit Land Trust has recommended the creation by the County Commissioners of an Environmental Advisory Board (EAB). We modeled our recommendation on the already existing policies in

the Natural Resource Element that established the Agricultural Advisory Board, the Conservation Futures Advisory Board and the Forestry Advisory Board.

As a land use planner for Skagit County, I felt that issues of environmental conservation, protection and restoration were underrepresented relative to those of commercial forestry and agriculture.

It's time the Skagit County Commissioners establish an Environmental Advisory Board to help them, the Planning Department and the Planning Commission understand the unique biodiversity and multilayered ecosystems that make up Skagit County's natural world so that they can make informed judgements, based on the best available science, about our natural lands, waterways and wildlife habitat, and make well thought-out plans for dealing with the intensification of climate change's impacts upon our county far into the future.

**7. Housing**

I appreciate and support a variety of activities the county is engaged in to increase the supply of housing generally, and affordable and farmworker housing in particular. This includes cooperative planning with the cities and towns through the Skagit Council of Governments to link the location of high employment areas and housing; and initiatives such as the North Star Project and the Skagit County HOME Consortium.

- As stated in my comments on the Rural Element, however, I do not support efforts to increase residential densities in any of the rural zones, including Rural Village Residential (RVR). If there are ways to allow more affordable housing types in RVR without increasing densities, we would support that. If there are ways, such as a TDR program, to transfer development rights from Natural Resource Lands or environmentally sensitive areas to Rural Villages to facilitate these more affordable housing types, we would also support that; provided there is no overall increase in density or development potential in the rural area.

**8. Transportation**

I strongly support revised and newly proposed policies included in the draft Transportation Element to create an Active Transportation Component "that includes collaborative efforts to identify and designate planned facility improvements for ADA, pedestrian, and bicycle travel that address and encourage enhanced community access, promotion of healthy lifestyles, and reduction of vehicle miles traveled and greenhouse gas emissions." This reflects a new GMA requirement and is also consistent with comments expressed during the preliminary public comment period.

I also support transportation policies encouraging greater use of transit vs. single-occupant vehicles, and denser urban land use patterns that will result in fewer vehicle miles traveled and lower greenhouse gas emissions.

**11. Economic Development**

In at least two instances, policy 11A-1.5 (p. 376) and 11D-1.9 (p. 382), the draft erroneously refers to the Economic Development Association of Skagit County. Several years ago, the organization changed its name to the Economic Development **Alliance** of Skagit County. The entire document should be searched to make this correction.

I oppose proposed changes to Goal 11D (p. 381), specifically the removal of the words "sustainable natural resource industry," "valued open space" and "environmental quality" from the goal relating to Skagit County's quality of life. These are extremely valuable aspects of Skagit County's quality of life that the public emphasized in the County's own public opinion surveys related to the Comprehensive Plan update.

Thank you again for the opportunity to comment on this version of the plan as it goes before the Planning Commission. I also appreciate that there will be another public hearing opportunity before the Board of County Commissioners. On a matter as significant as the 20-year update of the Comprehensive Plan, it is important that they too have the opportunity to hear directly from the public.

Sincerely,

Kirk Johnson

1718 Lindsay Loop

Mount Vernon, WA 98274

Sent from my iPad

**Tara Satushek** Comment # 60

**From:** ellenwgray@frontier.com
**Sent:** Thursday, March 13, 2025 2:30 PM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan

Ellen Gray
1303 South 11th Stree
Mount Vernon WA 98274

ellenwgray@frontier.com

March 13, 2025

Comments on the Skagit County Comprehensive Plan

To Whom It May Concern:

Skagit County is a wonderful place to live because of the incredibly rich wildlife and amazingly diverse natural resources that we are so lucky to have. We have to do a better job protecting our rural areas, our critical areas and directing growth into the urban growth areas. Our comprehensive plan must comply with the Growth Management Act.

**BETTER ENFORCE 20/80 RURAL/URBAN SPLIT:** The urge to County to take stronger policies to ensure that the new growth meets the 20 % rural/ 80% urban split as established in our countywide planning policies. According to the Rural Element draft on p. 76 (redlines version) of the draft Comp Plan, the Skagit Council of Governments Growth Monitoring Report shows that the rural area accepted 24.6% of the County's growth from 2017-2022, compared to 75.4% for the urban areas. This is an increase in rural densities from what was achieved from 2000 to 2010. During that decade Skagit County had 21% rural growth and 79% urban growth. The County needs to better direct growth into the urban areas!!! For example, Rural policy 3C-1.6(b) states that the Rural Village Residential land density may be up to "4 dwelling per acres" (sic) for certain housing types which may be more affordable. Four dwelling units per acre is not allowable in the rural area under the Growth Management Act (GMA). It is a clear violation of the GMA.

**ADOPT CLIMATE POLICIES**: I support the new Climate policies that are a required element of the Comprehensive Plan. It is definitely time to accept and plan for climate change. We need to plan for sea level rise and climate change by updating the Shoreline Master Program and conduct a sea level rise vulnerability assessment.

**ESTABLISH AN ENVIRONMENTAL ADVISORY BOARD:** I support establishing an Environmental Advisory Board that would operate similarly to the Forestry and Agricultural Advisory Boards. Our resources are complex, the science is complex and the multiple demands on our environment are complex. Time to have an advisory board that can help sift through the science, the laws and the demands. These issues will only become more complex as climate change intensifies.

Please make me a party of record to these proceedings.

Thank you for the opportunity to comment.

Sincerely,

Ellen Gray

**Tara Satushek** Comment # 61

**From:** Jenna Friebel <jfriebel@skagitdidc.org>
**Sent:** Thursday, March 13, 2025 2:35 PM
**To:** PDS comments
**Cc:** Allen Rozema
**Subject:** RE: Comments on the 2025 Comp Plan
**Attachments:** 2025 Draft Comp Plan_03132025_Consortium Comments-amended.pdf

Hi Planning Department,

Please accept the attached amended comments. There is some confusion / inconsistency between the table and redline document both dated February 14, 2025.

Thanks,

Jenna

Jenna Friebel, Executive Director

Skagit Drainage and Irrigation Districts Consortium LLC
2017 Continental Place Suite 4
Mount Vernon, WA 98273
360-708-0344

---

**From:** Jenna Friebel
**Sent:** Wednesday, March 12, 2025 2:41 PM
**To:** pdscomments@co.skagit.wa.us
**Cc:** Allen Rozema <allenr@skagitonians.org>
**Subject:** Comments on the 2025 Comp Plan

Thanks so much!!

Jenna Friebel, Executive Director

Skagit Drainage and Irrigation Districts Consortium LLC
2017 Continental Place Suite 4
Mount Vernon, WA 98273
360-708-0344

Skagit Drainage and Irrigation Districts Consortium LLC
2017 Continental Place Suite 4
Mount Vernon, WA 98273
360.708.0344

March 13, 2025 - amended

Skagit County Planning & Development Services
1800 Continental Place
Mount Vernon, WA 98273

**RE: Comments 2025 Draft Comprehensive Plan**

Dear Planning Department,

The Skagit Drainage and Irrigation Districts Consortium LLC (Consortium) submits the following comments on the Draft 2025 Comprehensive.

## Policy 4A-1.1 (e) and 4A-3.1

> ~~(d)~~ (e) Site-specific proposals to de-designate natural resource lands must be deferred until a comprehensive countywide analysis is conducted

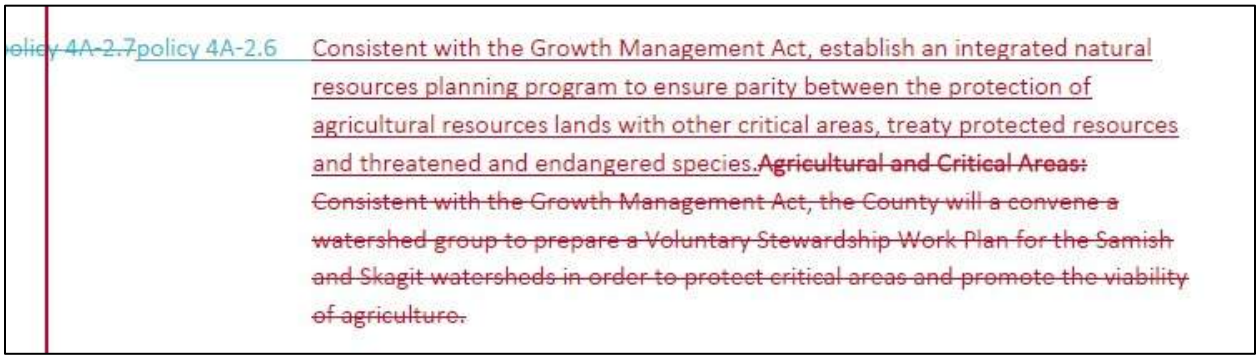
> policy 4A-3.1 ~~**Long-Term Designation of Agricultural Lands:** Designation of Agricultural Lands is intended to be long-term.~~ Designate agricultural lands of long-term commercial significance. De-designation is discouraged, but may be considered only when compelled by changes in public policy, errors in designation, new information on resource lands or critical areas, circumstances beyond the control of the landowner, or an overriding benefit to the agricultural industry. Evaluate de-designation requests with the same criteria under policy 4A-1.1 used for designation of Agricultural-Natural Resource Lands.

Comments:

Please revise Policy 4A-1.1 (e.) to include "countywide analysis is conducted **by Skagit County**"

Please revise Policy 4A-3.1 to remove de-designation language. At a minimum revised this section to only include the same text as 4A-1.1 (e)– de-designation must be deferred until a comprehensive countywide analysis is conducted by Skagit County.

## Policy 4A-2.6




Comment: Proposed Text:

Consistent with the Growth Management Act, the County will implement a Voluntary Stewardship Work Plan in order to protect critical areas, appropriately recognizes the value of agricultural land, and promotes the viability of agriculture. The County will coordinate elements of the Voluntary Stewardship Work Plan with an adopted Integrated Natural Resources Plan.

## Policy 4A-4.6




Comment: Proposed Text:

**Prohibit** habitat restoration projects on agricultural lands except through a special use / hearing examiner permit process to ensure restoration projects do not have an adverse impact on hydrology functions, drainage infrastructure or the ongoing agricultural use of adjacent properties.

## Policy 4A-5.5

policy 4A-5.5 ~~Skagit Drainage and Fish Initiative:~~ Within the Drainage Districts, identified in the Skagit Drainage and Fish Initiative, apply the agreements for maintenance, fish protection, and habitat restoration outlined in the Memorandum of Understanding (MOU), which will predominate over local regulations. The MOU, developed by the Western Washington Agricultural Association (WWAA) and Washington Department of Fish and Wildlife (WDFW) is designed to reduce conflicts between different users in the Skagit and Samish River Deltas. ~~The Skagit River Systems Cooperative (SRSC) participated in meetings and this Initiative represents movement toward overall reduced conflicts. This policy supports this movement.~~

Comment: Proposed Text:

Within the Drainage Districts apply the Skagit Drainage Fish Initiative Drainage Maintenance Agreements between WDFW and individual Districts for fish protection and habitat restoration. The DFI Maintenance Agreements will predominate over local regulations. These Drainage Maintenance agreements are designed to reduce conflicts between different users in the Skagit and Samish River Deltas.

## Policy 4A5.6

policy 4A-5.6 ~~Drainage Plans:~~ Minimize and mitigate flooding and drainage impacts on agricultural lands. Implement enhanced drainage management practices designed to mitigate the projected impacts of extreme precipitation intensity on agricultural lands. These practices could include the installation of adaptive drainage infrastructure such as improved culverts, ditches, and water retention systems to prevent flooding and waterlogging of crops. Skagit County Public Works shall develop criteria to review development proposals for drainage impacts on agricultural lands. Drainage plans for minimizing impacts of development shall be circulated to the affected Drainage District for comment prior to issuance of permits by Public Works.



Comment: Please go back to the original language

Explanation: This Policy is intended to mitigation impacts associated with stormwater runoff from impervious surfaces and land-clearing activities associated with, but not limited to re-development and or development to ensure downstream agriculture drainage systems are not impacted by increase rates and/or volumes of runoff.

## Policy 9A-8.9

| | |
|---|---|
| policy 9A-8.9 | The Coordinated Water Systems Plan should be reviewed to ensure consistency with the adopted Comprehensive Plan. |

Comment: Proposed Text

The Coordinated Water Systems Plan should be reviewed **and updated to address irrigation water needs and** ensure consistency with the adopted Comprehensive Plan.

## Policy 9B-1.6

| | |
|---|---|
| policy 9B-1.6 | **Structural Flood Protection:** Dikes, levees, and other structural flood protection facilities should be designed to allow fish passage, protect flows in riparian zones, and complement or enhance the surrounding landscape. |

Comment: Proposed Text

**New** Structural Flood Protection: Dikes, levees, and other structural flood protection facilities should be designed to allow fish passage, protect flows in riparian zones, and complement or enhance the surrounding landscape were feasible. Any design modifications such as improvements to existing structural flood protection facilities or setbacks of existing structural flood protection facilities should be consistent with flood protection and drainage functions as defined by the diking, drainage and irrigation improvement special purpose districts.

## Policy 9B-1.7

| | |
|---|---|
| policy 9B-1.7 | **Habitat:** Flood protection measures should not result in a long-term net loss of-, or damage to, fish and wildlife resources, and wherever possible, should result in increased diversity of habitat. |

Comment: Delete this policy.

Explanation: This is an opinion of some entities, but is not a public policy. Existing flood protection measures were constructed legally. Maintenance and improvements are permitted by federal, state, and local agencies; this permitting process defines the requirements for the protection and enhancement of habitat. Diking and Drainage Districts and the Corps of Engineers responsible for the operation, maintenance and repair of flood protection measures have limited duties and authorities.

**Tara Satushek** Comment # 62

**From:** melinda randles <mbrandles1120@gmail.com>
**Sent:** Thursday, March 13, 2025 2:36 PM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan Draft Policies

Thank you for the work you have done on the Skagit Country 2025 Comprehensive Plan. I am again happy to give my feedback for the completion of this endeavor.

As a Skagit County resident of five decades, I am primarily interested in preserving the natural environments we still enjoy and preserving the rural, agricultural areas of our county.

*My first recommendation is that the County establish an Environmental Advisory Board consisting of a diverse citizen base of citizens who may not have been included on any such boards. This would include, but not be limited to, cyclists and walkers, disabled citizens, tribal members, immigrant groups, families and their children, ecologists and environmentalists whose specialties would include conservation, climate science, habitat restoration, urban open space planning for bike and walking paths and connected wildlife corridors. It is my understanding that our neighboring counties all have EAB's so this is hardly a rogue concept.

* My second recommendation is to oppose increased density in rural villages. Some old timers may remember the Kent-Auburn Valley in south King County which once looked similar to our Skagit Valley, with acres of productive farms. In the late 1940's-1950's developers bought up this fertile land to build commercial endeavors and housing developments. Flat land near urban centers is pretty attractive for building. I would hate to see our precious Skagit Valley fall to the same fate through greed and lack of foresight. Once the agricultural lands are gone, they're gone forever. I believe the County should encourage residential development in cities and towns and keep rural areas agricultural.

Thank you for your consideration.

Melinda Brown Randles
205 South 5th Street
Mount Vernon, WA 98274

Sent from my iPad

**Tara Satushek**

Comment # 63

**From:** Anne Sidbury <asidbury@gmail.com>
**Sent:** Thursday, March 13, 2025 2:45 PM
**To:** PDS comments
**Subject:** Skagit county's 2025 comprehensive plan draft policies

Good afternoon commissioners.
I am writing once again about the skagit county comprehensive plan. I understand that you are close to finalizing this important document. I would like to urge you once again to consider creating the an environmental advisory board to help guide our county to sound environmental decisions in the future. With the systematic dismantling of the federal environmental departments, it is more important than ever to protect our county's invaluable natural resources. Just as Whatcom and Snohomish counties have this board of experts, we need strong leadership and expertise to help guide us.

The growth of our population and pressure from business and industry are undoubtedly going to put intense emphasis pressure on Skagit county. Please hold firm in your resolve and promise to protect it for the present and future generations. Thank you

Anne Sidbury
610 Longview Ave
Anacortes, WA 98221
360-708-6652

Comments re: 2025 Comprehensive Plan Periodic Update
March 13, 2025

TO: Skagit County Planning Commissioners
FROM: Ellen Bynum, Executive Director, Friends of Skagit County

Thank you for the opportunity to comment on the proposed changes to the 2025 Periodic Update to the Skagit County Comprehensive Plan (CP).

We are providing comments concerning the proposed Periodic CP update as well as on the Land Use Element and a Mapping Error Correction needed concerning Big Lake Rural Village at the end of this document for your consideration.

Two resources you may want to use in your review of the proposed CP update are the MRSC's page on Comprehensive Planning and WA State DOC - Department of Commerce's webpage on Periodic Update. DOC has also produced a Periodic Update Checklist for Fully-Planning Counties which you may want to review as you look at the proposed CP update. We have no information on whether the consultants or staff utilized Department of Commerce checklists or other planning tools at any point in their work.

The proposed Periodic CP Update needs much more work before adoption. It appears some changes were made arbitrarily, with little understanding of how the goal or policy was originally adopted and why. Deleting goals which did not have policies in the last update, may overlook the reason the goal was included. We trust that staff and the consultants operate in good faith to make changes that represent the values put forth in the original visioning process. Among these values are conserving Skagit's rural economy and character by making development choices appropriate for rural lands and working with cities to increase housing, transportation and other services to accommodate 80% of new development. Suggesting urban development policies and practices on rural and resource lands is inappropriate and not acceptable to Skagit citizens.

Goals and policies are not interchangeable, nor do they serve the same function. As we understand it goals are general statements of how the community wants to be in the future. Ideally goals include objectives to measure whether progress has been made in achieving the goal(s). Policies are general rules for actions to be taken on a specific issue addressed in or related to the respective goals.

While citizen comments can suggest changes or reversions to the 2016 Periodic Update Document, the Planning Commission bears the ultimate responsibility of providing sound, accurate and legally defensible changes for the Board of County Commissioners to review and adopt. We urge you to ask for additional staff and/or consultant assistance on the element chapters where you have questions.

**Staff Report**
Under Policy Revision Methodology, we appreciate that the consultants cite the Growth Management Act: Consistency with the Growth Management Act and other changes in state law at the top of the list of guidelines they followed in making revisions to the 2025 Skagit County Comprehensive Plan Periodic Update. That said, it appears some of **the proposed CP language shifts the plan language and emphasis from rural to urban**.

Since the 1970s, well before GMA in 1990, Skagitonians have planned to conserve natural resource lands as the basis for our rural economy. We do not approve of proposed changes that do not reflect and support Skagit County's past planning choices or worse, if adopted, may threaten the rural economy.

Skagit County's natural resource lands remain the largest economic drivers in the county. A reader unfamiliar with Skagit County might assume from the proposed plan language that the natural resource industries and rural lands are being targeted for development in the near future. Whether intended or not, this is the result of suggesting changes that do not mean what the 2016 goals and policies stated.

The consultants state that aim of the proposed policy changes are to "make sure we follow state laws, simplify the language, improve accessibility, and remove unnecessary details...". There is no mention of the

criteria or standards used to "...simplify the language, improving accessibility and remove unnecessary details...".

Are the changes proposed a judgement call by the individual consultants or are there legal decisions or policy recommendations backing the proposed changes? Without citations the readers have no way to know where the authority for the proposed changes comes from. And without "details" readers have no way to check if the proposed changes comply with the law and/or have been modified and in so doing have changed the intent of the policies.

There appears to be a lack of understanding of how the Growth Management Act (GMA) is incorporated into the County CP, including maps and codes. For example, infill in rural and natural resource lands is sprawl and is not allowed under GMA. Urban Growth Areas (UGAs) are sized to keep 80% of new residents in urban areas. Additional examples like these help clarify policies and help readers understand the reasons for some of the policies, planning language and codes.

When in doubt, consider that the previous two periodic updates were found to be in compliance under GMA and reverting to the 2016 or 2007 plan language is a safer choice than presenting new language that may change the intent and outcome of the plan. Restoring the 2016 language is a safer option when there is uncertainty about the proposed language, not adequate detail supporting the hand and if it changes the original intent of the goal or policy.

**General comments** (no priority order)
The proposed reconstruction of sentences for the purpose of easier reading cannot take priority over the function of the words and concepts in conveying the requirements and enforcement of rules under GMA and the CP. The example of removing "shall" is only one instance where the meaning of the policy has changed in the re-write.

We urge you to restore edited language and create new concise explanatory language throughout the chapters if the proposed language is in question or unsupported by required RCWs, WACs, new legislation or legal decisions.

We are concerned that when more than one definition from either an RCW or a WAC is used that the use follows the way the RCW or WAC context and is not applied to another concept or section.

In the Skagit County CP Periodic Update Final Policy Recommendations document when the historic goal or policy has been eliminated, please verify the policy number(s) and name of these changes in the final document. Renumbering the policies to add new policies is confusing. The reader must also guess at which periodic CP update the change occurred. Looking at previous CP periodic updates here may be multiple policies with the same numbers due to not "retiring" the number or providing some indication that it was no longer needed or included.

We did not see any consideration of rulings by the Western WA Growth Management Hearings Board (now GMHB) in the guidelines. In Skagit County, these rulings directed and shaped many of the subsequent updates of the annual and periodic CPs, planning policies and codes.

When citing the Revised Code of Washington (RCWs), please add either the title or an explanation of the subject, rather than just the numbers, so readers do not have to look up the RCWs to understand the sentence.

It appears that recently passed State Legislation is proposed to be added to the Comprehensive Plan in much more detail than the other chapters of the Plan. Either the consultants did not apply the same standards of "... simplify the language, improve accessibility, and remove unnecessary details..", or they have inadvertently put more importance on these topics by using legislative language and allowing more details, not less.

**We ask that the same standard be applied to the recent State Legislation as to the other elements of the Plan.** If the consultants wish to retain the details and language that they add to these Legislation driven additions, then please add similar details to the other elements in the CP.

Please consider a better balance of the amount of information, data, maps, RCWs, WACs for each Chapter by editing lengthy sections, removing duplicate language (especially if the content was taken from an existing publication that can be referenced) and adding RCW and WAC references and/or URLs when possible.

Additional documents and/or programs to add under Statewide and Regional Planning include:
Skagit Council of Governments' (SCOG) Regional Transportation Improvement Program (TIP).
Skagit County Growth Management Act Steering Committee (SCOG).
Growth Management Act Technical Advisory Committee (SCOG).

**Comments on the Skagit County CP Periodic Update Final Policy Recommendations.**
This document is very difficult to read and use. The numbers in it do not correspond to numbers in the "clean draft" update document. Some edits without plausible explanations appear arbitrary. Wholesale removal of some goals and some policies points to a lack of understanding of what the element was intended to reflect, over an above the legal requirements of the planning process. Some of the reordering of policies appears unnecessary.

In the Skagit County CP Periodic Update Final Policy Recommendations document when the historic goal or policy has been eliminated, please verify the policy number(s) and name of these changes in the final document. Renumbering the policies to add new policies is confusing. The reader must also guess at which periodic CP update the change occurred. Looking at previous CP periodic updates here may be multiple policies with the same numbers due to not "retiring" the number or providing some indication that it was no longer needed or included.

**Some comments and concerns about the Plan Elements.**
**Urban, Open Space and Land Use Element**
"Along with state compliance, policies have been updated to prevent the subdivision of resource lands for residential use, ensuring their preservation, while removing duplicates to align with SCC 14.18.310 for consistency."

All residential uses in Skagit's Ag-NRL zoned lands are only allowed as accessory uses. Subdivisions of resource lands for residential use are only allowed using the CaRD which includes an open space easement. In Ag-NRLs the minimum size that can be developed using a CaRD is 80 acres.

The codes, not the planning policies, prevent the unwanted uses and ensure preservation. Please revise the language in the report as well as in the suggested changes to the CP to clarify these points.

**Rural Element**
Please add the restrictions in the RVR zones and related citations.
Please see comments under Natural Resource lands below on de-designation.

**Natural Resource Lands**
**Resource Lands - Agricultural Resource Lands.** We concur with the comments of the Western WA Agricultural Association in their recommendation to restore the 2016 language in this element.

The revised language does not mention the Farmland Legacy Program as managed by the Conservation Futures Citizen Advisory Committee (CFCAC). Please add in the definitions or in at least one place in the plan so that readers know the relationship between the two entities and the purpose and function of each.
Under GMA the order for conserving "prime agricultural soils" is identification, designation, conservation, protection and preservation. Please change the order in the proposed changes to reflect the RCWs

requirements. Please cite the appropriate RCWs as references so the public can read the processes counties are to take for each required action.

Examples:
RCW 36.70A.050 Guidelines to classify agricultural, forest, mineral and critical areas.
RCW 36.70A.170 Natural resource lands and critical areas -- Designations.

RCW 36.70A. 210 Countywide planning policies.
(3) A countywide planning policy shall at a minimum, address the following:
(a) Policies to implement RCW 36.70A.110 (Comprehensive Plans -- Urban Growth Areas);
(b) Policies for promotion of contiguous and orderly development and provision of urban services to such development;
(c) Policies for siting public capital facilities of a countywide or statewide nature, including transportation facilities of statewide significance as defined in RCW 47.06.140;
(d) Policies for countywide transportation facilities and strategies;
(e) Policies that consider the need for affordable housing, such as housing for all economic segments of the population and parameters for its distribution;
(f) Policies for joint county and city planning within urban growth areas;
(g) Policies for countywide economic development and employment, which must include consideration of the future development of commercial and industrial facilities;
(h) An analysis of the fiscal impact; and
(i) Policies that address the protection of tribal cultural resources in collaboration with federally recognized Indian tribes that are invited pursuant to subsection (4) of this section, provided that a tribe, or more than one tribe, chooses to participate in the process.

Page 93-94 Policy 4A-1.1. (e)
The language on de-designation of Ag-NRL needs to be stronger. The GMA requirements meant that the planning counties got the identification, designation and protection right, early on or through appeals decisions and state law changes. De-designation should be difficult and only used as an emergency or a public health and safety need. How many acres have been de-designated in Skagit county?

Section (e): Please clarify and explain what a comprehensive countywide analysis is and what it would show. How would the decision to de-designate happen? Who has authority to de-designate? Did you mean a land use analysis in general or an Ag-NRL lands analysis or something else?

We appreciate the effort to use WAC standards, RCWs and State guidance to make the suggested changes; however, we ask that references be restored and/or supplied so that readers can affirm for themselves that the proposed changes comply with GMA requirements.

**Economic Development Element Chapter,** Policy 11E, New 320 the 2016 text states:
"Encourage economic development that supports sustainable natural resource industry, protects valued open space and environmental quality and enhances Skagit County's overall quality of life." has been changed to "Encourage economic development that supports all aspects of qualify of life including, living waters, education, human services, housing, and transportation."

The reasoning from the consultant is that the original goal focused on the resource industry which is already covered in the industry policies. This was revised to "...incorporate the other goals around support services, access to services and human service opportunities."

We think the consultant does not understand the intent and focus of the original goal which we read as "...supporting a sustainable natural resource industry, protecting valued open space and environmental quality...". The rewrite has shifted away from "...supports sustainable NR industry.." to "all aspects of quality of life".

It appears that the goal was eliminated even if some of the ideas are "already covered in the industry policies".

**Housing Element Chapter**
The proposed Housing element chapter is 48 pages and again presents detail that addresses urban development which, in Skagit County, occurs inside cities, towns and Urban Growth areas (UGAs). We understand that the changes in state law require updates to this chapter to create goals and detail methods for addressing all aspects of housing. The proposed language and methods need to be appropriate for rural development, NOT urban development.

**Transportation**
The Transportation element chapter including its data and maps is 73 pages. Much of the information, maps and data appear to be duplicates of the Skagit Council of Governments (SCOG) Transportation Improvement Program (TIP) and other publications. Rather than include these details, please provide links and reduce the amount of information. If this is information required by a new state law, please provide equal emphasis, explanation, data and maps for the other chapters -- NRLs, Rural, Environment and Shorelines, etc. -- to clearly represent and emphasize the importance of Skagit County's rural landscape and its economy.

**Economic Development**
Agriculture occupies less than 1/2 page in this plan while agriculture continues as the largest economic driver in the county. Leaving the language from the 2016 CP update is inappropriate because much of the data cited is 10-15 years old. Skagit's crop rotation and sharing of land between producers changes annually and a more accurate database is needed. Please do not use different numbers referencing the same zone in the CP. It is confusing to the reader and means the CP cannot be relied upon for accuracy.

Using the Skagit County Conservation Districts estimates of whether farmland is in production or not is misleading. Land in rotation for 2 - 3 crops per year, including grazing for replacement heifers for dairy or hay/haylage production, may not be included in the SCCD estimates. Please verify the statement in the SCCD 5 Year Plan (2009-2014) with more current data from WSU and Skagit County's Ag GIS data and any other that has updated information.

**Additional comments:**
Page 310 County Weaknesses
Proposed addition: 5. Failure to address cumulative impacts and losses such as the incremental loss of farmland, wetlands, critical areas, shorelines, etc. and that effect on the economy.

Page 311 External Threats
Please add under 2. Urban Sprawl or conversion of natural resource lands to any other uses.

Please include updates in Appendix B: Historical Context and CP Background, Comprehensive Planning Timeline and significant milestones in planning from 1997 to 2025.

Please include a reference list with a brief summary of the Growth Management Hearings Board (GMHB) rulings for all decisions in Skagit County and significant Superior Court rulings that affected the CP, policies and codes.

Page 360.
Please add the dates of the other previous CP Periodic updates (1997, 2007) in the second sentence.

The Envision Skagit 2060 was not part of the county's regular planning schedule, but was a grant funded separate study using the University of Oregon's computer modeling, academic and planning experts and an appointed citizen committee to produce a final report on a 50-year plan for Skagit County.

Please add blogs and digital communications for meeting participation (Zoom, Go To Meeting, etc.) as new ways to reach the community.

Page 54
Rural Business. The planning for the first Comprehensive Plan began in 1990 and established at that time the criteria for Rural Business designations. The date of existence likely is from 1990, not as of June 1,1997 the adoption date of the 1997 Comprehensive Plan.

Please clarify the last sentence. What is the definition of "consistent" as used here and where is the RCW that would allow "... the continuing operation under a special use permit..." or "if the granting of a commercial designation might jeopardize the appropriate use of surrounding Natural Resource Lands.".
Please add a reference to the 2024 Supreme Court decision in *King County v. Friends of Sammamish Valley, Futurewise, et. al.* and how the ruling prohibits commercial ventures on farms and rural lands.

Master Planned Resorts
Please add language that tells readers how many, if any, of these types of developments exist in Skagit County.

Page 54-55.
Rural Water.
The history and explanation of rural water contains the kind of information readers need to read, understand and use the Comprehensive Plan. Please apply this standard to all sections.

Page 55
Goals and Policies
Rural Area Characteristics
Goal 3A-1 (a)
Please change "Defining and identifying...." to "Identifying and designating..." per RCWs.
Please add "sustainability" before "resilience".

Consider repeating the analysis of whether Skagit County has actually met the 80% of new development going to cities, towns or UGAs. The last update was at least 20 years ago.

**Land Use Element and Mapping Error, Big Lake Village**

Comments from Friends of Skagit County regarding Land Use Element: Big Lake Rural Village zoning and special Overlook Golf Course sub-zone.

## Amend Land Use Map to show the boundaries of the land subject to the Overlook Golf Course "special provision" as provided in 14.16.310(7)(b)(iv).

**BACKGROUND**: 1997 challenge leads to establishment of Big Lake Rural Village and Overlook Golf Course special sub-zone in 1999, boundaries ratified in 2003 and 2007.

Following a challenge in 1997 by Friends of Skagit County (FOSC) to the Western Washington Growth Management Hearings Board (WWGMHB), Skagit County adopted Interim Ordinance No. 17523 (1999). This ordinance adopted an amendment to the Comprehensive Plan Map designating Big Lake Rural Village and depicting the Overlook Golf Course property subject to Special Provisions.

The challenge continued beyond the Interim Ordinance, and another attempt to resolve the dispute[1] resulted in Ordinance No. O20030012 "Addressing Big Lake Rural Village Growth Management Act Compliance Issues" which reiterated the 1999 boundaries of the Overlook Golf Course property and made it subject to Special Provisions:

> "This Ordinance shall generally apply to all lands and to all land use and development and to all structures and facilities within the boundaries of the Big Lake Rural Village, and more specifically, the Overlook Golf Course property which is located within a portion of the SE ¼ of Section 36, T34N, R4E, and also within a portion of the SW ¼ TE4N, R5E, W.M. situated in Skagit County, WA.

For a map of the boundaries described above, and a detailed description of the litigation and legislative history up to March 26, 2003, please see "Skagit County Planning and Permit Center Remand-Staff Report, GMHB Nos. 00-2-0046c and 00-2-0049c", pages 4, 11, last page for Land Use Map depicting the Overlook Golf Course property.

Thereafter, in 2007, by Ordinance No. O20070009 , as part of the 2005 Comprehensive Plan update, Skagit County again amended the Comprehensive plan regarding the Overlook Golf Course property "to fulfill the terms of a settlement agreement pertaining to WWGMHB Case No. 00-2-0046(c)" stating:

> "This revised policy direction and code will ensure the protection of Big Lake water quality while permitting appropriate rural development."

---

[1] See also *WWGMHB Compliance Order No. 00-2-0046c* reporting on General Issues. The Order describes the County's summary of current status of issues of noncompliance in the case. Regarding "Big Lake Rural Village (RV)" it says "… Further, Neil Hansen, owner of the Overlook Golf Course, entered into a settlement agreement with Friends of Skagit County (FOSC) and Gerald Steel, regarding development of the Golf Course. The Ordinance implements the provisions of that agreement by amending the RV development regulations and CP." Pg. 2.

This Ordinance is 628 pages long. On page 3 it refers the reader to Schedule F for the proposed land use/zoning map to be adopted. Public Records Requests made by others did not return a copy of this map, although the Overlook Golf Course area was found on a 2005 GIS Map.

FOSC can provide more documentation regarding the history of litigation and settlement discussions if needed.

**REQUEST: Amend the Land Use Map to show the Overlook Golf Course special district.**

Inexplicably, the Big Lake Rural Village/Overlook special subzone does not appear on the GIS Land Use Map provided through the Skagit County Website. Presumably, this resulted in the current Planning and Development Services' staff not unreasonable assumption that SCC 14.16.310 (7)(b)(iv) applies only to that land which is actually used as the Overlook Golf Course.

Nevertheless, the conditions that warranted the creation of the Overlook Golf Course special provisions persist. That is:

> "Big Lake is located in a fragile watershed" with various characteristics which "has created the potential for an environmental and public health hazard regarding the Lake's water quality," while proposing "to balance the need to protect the environment while attempting to retain the long-standing development investment expectations envisioned by the Overlook Golf Course property owner." (PDS Staff Report, March 26, 2003).

Please correct the Comprehensive Land Use Plan and Zoning Map.

**Tara Satushek** Comment # 65

**From:** Kathy Malley <kathy@snowmesa.com>
**Sent:** Thursday, March 13, 2025 5:29 PM
**To:** PDS comments
**Subject:** FW: Skagit County 2025 Comprehensive Plan

Hello – I submitted this earlier this afternoon and just realized that I forgot to include GIPAC address which is Mailbox 829, 1004 Commercial Ave. Anacortes. 98221; my personal address: 6469 Edens Rd Anacortes, WA 98221

I hope this isn't a problem and out comments will still be considered. Thank you ~ Kathy Malley

---

**From:** Kathy Malley
**Sent:** Thursday, March 13, 2025 3:17 PM
**To:** pdscomments@co.skagit.wa.us
**Subject:** Skagit County 2025 Comprehensive Plan

To: Skagit County Planning & Development Services

From: Guemes Island Planning Advisory Committee (GIPAC)

Re: Skagit County's 2025 Comprehensive Plan Draft Policies

Date: March 13, 2025

The Guemes Island Planning Advisory Committee (GIPAC) would like to thank Skagit County for embarking on a timely and thorough update of its comprehensive plan, incorporating the need for more affordable housing and addressing climate change and its impacts.

It is an ambitious plan, setting out goals and policies. However, we share the concerns that were mentioned by many others at the March 11, 2025 public hearing regarding the lack of specificity and enforceability. As the plan is implemented and new rules developed, it will be important to seek regular input from stakeholders and the public.

We also agree with the need for an Environmental Advisory Board that operates in a similar fashion as the Agriculture and Forestry advisory boards. With the new climate resilience plan and an updated Shorelines Management Plan, drawing on the expertise of local business, organizations and citizens would provide helpful guidance to the Board of Commissioners and the Planning Department staff as the county works to protect the long-term sustainability of our natural resources.

Finally, with the Shoreline Management Plan update on a different timeline, it will be important to ensure that these two plans are aligned and that they reinforce, and not undermine, the goals and policies in each.

At this time, GIPAC would like to provide some comments specific to the concerns of Guemes Island.

**Rural Element - Small-Scale Recreation and Tourism (SRT) – Policy 3C-4.4.** This section needs to account for water availability and the impact on neighbors. For example, the Guemes Island Resort is located in an area of known seawater intrusion and where wells have gone dry. The resort currently has 13 cabins/houses and 5 Yurts that share 3 bathrooms.

The comp plan would allow the resort to potentially double in size and offer unlimited camping and recreational hook-ups. This would certainly have a detrimental impact on nearby wells. We suggest the change below:

"(b) The maximum number of units of overnight lodging permitted within a SRT area is 35. This limit does not apply to the number of camping sites or recreational vehicle hook-ups within a campground or resort. Development is dependent on, in part, water availability which does not impact the water rights of existing users."

**Natural Resource Lands - Policy 4B-2.12**. Wildfire and wildfire resilience appears throughout the plan, but we did not see anything specific to developing evacuation routes and strategies. As a forested island with limited evacuation options, this is of concern. There may be other or better places to include this language, but we suggest adding it below:

"Develop a county-wide comprehensive wildfire resilience strategy planning program to increase public safety and awareness regarding forest fire dangers, and establish the means of managing reducing and suppressing catastrophic wildfires. This includes developing evacuation plans and routes."

**Environment - Policy 5A-5.1 (b) vi.** Aquifer recharge areas. Thank you for the inclusion of section (vi) "Develop a centralized data collection, storage, retrieval, and analysis system for ground water data on Guemes Island." We greatly appreciate this and that it appears on the implementation plan to be completed by 2030. That is a reasonable timeline.

**Housing - Policy 7 – ADU's.** We applaud the county for pursuing more affordable housing options through the use of ADU's for long-term housing. However, the rules around the expansion of ADU's into rural areas will be have to be carefully crafted to take into account the impact on water availability, septic and other infrastructure needs.

**Transportation – Ferry Service; Policy 8F- 1.4**. "In making all decisions related to the Guemes Island Ferry, balance the needs of the Island residents, the non-resident property owners, and the County citizenry as a whole. Decisions that would have significant service or financial impacts should be made after providing ample opportunities for public review and comment."

As the only ferry system in the state that currently does not have a formal citizen advisory committee, GIPAC requests the re-establishment of formal meetings between ferry management, public works and the Guemes Island Ferry Committee.

**Climate – Policy 12 -** GIPAC provided comments on the climate portion of the plan in November 2024; those comments are still relevant to this most current draft. Rather than going through each, I'd like to call attention to the following:

**12I- 1.2** – "Assess and implement resilience strategies to reduce the vulnerability of Skagit's aquifers, wastewater systems, and septic systems to saltwater intrusion, flooding from rising sea levels, and changing groundwater tables."

The BoCC recently adopted rules specific to well drilling in a sole-source aquifer and we suggest adding the following language to this section: In sole source aquifers, prior to drilling any well, a hydro-geologic assessment must be conducted to understand potential impacts on existing water rights.

**12I- 1.3** "Support water conservation practices such as rainwater catchment, onsite retention, water reuse, and gray water treatment to conserve water resources."

We applaud the county for including rainwater catchment as a water conservation practice, however to make it a viable option for potable water uses, the county should create a template or system that makes it easier and less expensive to design and implement home-based rain catchment systems.

**12J 1.4** "Require that proposals for shoreline stabilization demonstrate a need, and require the use of soft shore stabilization methods to the extent practicable to protect sites from wave-driven erosion or flooding exacerbated by sea level rise."

New development needs to be situated far-enough from the shoreline so that stabilization is not needed. Importantly, boulders should not be considered as soft armoring.

Again, we appreciate all the work County staff and consultants have done to produce a thorough review and update of the Comprehensive Plan. Thanks you for considering these comments and we look forward to working with the County to implement the plan on Guemes Island.

Sincerely,

Kathy Malley

President, GIPAC

**Tara Satushek**

Comment # 66

**From:** Leahe Swayze <leaheswayze@gmail.com>
**Sent:** Thursday, March 13, 2025 3:28 PM
**To:** PDS comments
**Subject:** Possible Spam: Skagit County's 2025 Comprehensive Plan Draft Policies

Thank you for the good efforts that you are making to to improve Skagit County's comprehensive plan. I would like to support a couple of changes to that effort.
1. To assist decision makers in responding to complex environmental issues in a scientifically sound manner, Skagit County would benefit from an Environmental Advisory Board (EAB), as has been previously recommended. The EAB would be made up of people who have lived experience and those with professional expertise on a variety of environmental issues and would help the County Commissioners and the Planning Department look at environmental issues holistically and make decisions based on the best available science. In addition to researchers, scientists, and educators, the EAB could include younger people and underserved people so the commissioners could hear from people who do not usually have the opportunity to contribute to environmental policy planning.

2. I support eliminating the new provision of policy 3C-1.6(b) that the Rural Village Residential land density may be up to 4 dwelling per acre for certain housing types which may be more affordable. Four dwelling units per acre has never been an allowable density in the rural area under the Growth Management Act (GMA). Encouragement of residential development in cities and towns is a much better way to promote affordable housing in Skagit County.
Thank you,
Leahe Swayze
27877 W. Gilligan Creek Rd.
Sedro-Woolley, WA 98284

**Tara Satushek**

Comment # 67

**From:** Sarah Roberts <saraharoberts@gmail.com>
**Sent:** Thursday, March 13, 2025 3:54 PM
**To:** PDS comments
**Subject:** "Skagit County's 2025 Comprehensive Plan

Comments from:
Sarah Roberts
1303 26th St.
Anacortes, WA 98221

Dear Skagit County commissioners and Planning Committee.
I appreciate the work you are doing here. I feel strongly that this task is extremely challenging, and even impossible, in the face of climate change which brings with it so many unknowns. We have to rely on those that understand what is solid and what is not in terms of projections and the new data. Please include a Climate Advisory Board going forward. Such a group would provide essential support in the planning and decision making process.

My comments below are specifics and I did not quite manage to get through the whole document, but essentially my feedback is consistent throughout from what I have read so far. We need to manage growth in a way that does not increase the likelihood of property damage, loss of livelihood and life due to flooding and wildfire risk. We need to make our communities safer and more inviting for bikers and pedestrians, for residents and tourists alike. We need to encourage fisheries, farmers and foresters to manage their resources in ways that build resilience and sustainability. We need to educate the public about the realities of flooding, wildfires and need for reduction in greenhouse gas emissions. We need to control the housing and rental market so that properties are not used for short term rentals or out of area private equity investors.We need to accept that flooding, drought and fires are part of the future, and to do what we can to mitigate the harm.

The table of contents does not match the reality in terms of page numbering, at least in the version I am seeing.

Who is on the GMA steering committee? It is not defined in this document.

The shoreline master plan should include a requirement to plan for sea level rise even if this is in the climate element as well. I believe sea level rise will cause hugely impactful and damaging flooding and shoreline erosion that will impact agriculture, transport, industry and housing.

Urban growth areas should include required additional city parks to accommodate the increased leisure and safe door recreation needs of the increased populations
i.e. urban services policy 2A 3.1

Growth into rural areas should include policies to exclude/outright prohimbit self contained developments
Policy 2A-3.5 The process of siting new fully self-contained communities in the rural area with associated provision of urban facilities and services shall be in conformance with RCW 36.70A.350 and

the Countywide Planning Policies.), ie do they contain schools, fire and EMS services, pay for roads, libraries. or maybe this is addressed in policy 2G 1.2.

If this means discourage strip malls I'm all for it - strip malls are ugly, discourage non-automobile active transportation and prioritize cars in the landscape - Prohibit new zoning that furthers the continuation of strip commercial development.

Quality of life GOAL 2A 6, I would like inclusion of landscaping including trees specifically. Trees are known to improve quality of life, mood and allow for shade, reducing temperatures and results reduction of GGE

Development process Goal 28A, annexation of Rural to urban growth, part of the planning in this process should include parks and recreational spaces so that the existing parks are not required to absorb all the increased density. (I have in mind Storvik park which is very heavily used already and density is increasing rapidly around it. Other such parks need to be incorporated in annexation plans. Or development plans should include new park additions.)
Alternatively policy 2B1-1 should include a line item to add city parks along with urban growth, increased density, and annexation.

NOTE That lower income housing has to be incentivised or subsidized by the county and/or city.

I like land use approval goal 2-C - land use approvals expire if not acted upon.

Goal 2-H
Need for transportation should not be based on projected growth after the facilities have been built. because if you build it they will come. It does not solve our current housing shortage. Fast transit on a train or lightrail will encourage folks to move here from where they already live because the like the rural quiet character, which they will then destroy. This may solve housing shortages in other counties but not in Skagit

Rural growth and development:
Development of housing inside of forest land, and urbanization of our forests should. be considered carefully, in light of fire risk. We can project climate change 20 years forward and we may be having some of the same problems CA is having due to sprawl into the rural landscape and difficulty managing the fire risks there in the face of drought and drying forests.

Battery storage facilities - somewhere these should be allowed for and included as electrification is a reality going forward and building storage capacity builds resilience. It seems impossible to manage our growing energy needs without some sort of plan for energy storage for use in outages and peak times.

Page 53 - Master planned resorts - I am supportive of: "Designation of Master Planned Resorts requires amending the Comprehensive Plan and Zoning Maps, prior to, or concurrent with an application for master plan review. The comprehensive plan amendment process should evaluate all the probable significant adverse environmental impacts f**rom the entire proposal**, even if the proposal is to be developed in phases, and these impacts shall be considered in determining whether any particular location is suitable for a Master Planned Resortz"

Page 54: I approve the requirement there has to be adequate water supply for any planned development. Potential drought and saltwater intrusion effects must be part of the evaluation.

Pages 56-63 There is no mention of consideration for flooding or sea level rise in rural growth planning. Further growth in flood prone areas, and in shorelines that are at risk for erosion and damage due to storms and sea level rise should be prevented. Sewage system development planning should be done with consideration of climate change and heavy flooding in mind.

Page 60- Goal 3B -should include the requirement to include landscaping and planting of trees in urban and rural development where possible. This is in policy 12F-1.4, but should be here as well. Trees and other plantings in landscapes are useful for reducing heat, slowing rainfall effects, contributing to beneficial mental health and reducing greenhouse gas emissions effects and so should be required as part of any development.

Page 131 - Aquifer recharge areas - can these be expanded and incorporated into our flooding management plan, through diversion or water storage in high rainfall periods?
Page 138 - Frequently flooded areas - further development should be outright prohibited. (the word "discouraged" seems meaningless and has no teeth)
Page 140 policy 5A-5.3, what does "adequate buffer" mean? This is vague and open to interpretation. It should be attached to some other legal requirement.
Page 141, Frequently flooded areas, again, what measure of 100 year flood are we using? All development should be prohibited, even single family homes in frequently flooded areas.
Page 145 - I like the enforcement plan, what if it is not followed? Where is the accountability?
Page 145 - policy 5B-1.1 urban trees - can this be included in the housing, infrastructure and other areas as part of a requirement of new development?

Page 150 - Housing - Pushing the development of smaller houses and accessory dwellings (that are not part of the short term rental system) is necessary going forward. In Anacortes we have a ridiculous number of 2K-3+K homes with just one or two people living in them.
Page 162- The role of ADU's - if the goal of these is to provide stable housing in the county short term rentals need to be prohibited. My own dau. got turned out of a long term rental due to conversion of the unit to the short term rental market. Prioritize long term housing over tourism. There are hotels for that.

Climate and resilience
Page 295 assets vulnerable to shoreline hazards should include shorelines. Shorelines are part of our assets, important for recreation, land stabilization, fisheries. Shoreline erosion leads to salt water intrusion and flooding and loss of other assets such as roads, bridges, parks, homes. There is some mention on page 137 b. iii, please incorporate it in other parts of housing and development policies.
Page 297 I support these policies particularly buildings must be more resiliently built and energy infrastructure, power lines should be build to be resilient going forward, eg buried.
Page 298 12C-1.2 the statement facilities should reduce carbon pollution seems wrong worded and vague, if it means just built to be "Green" I think that's covered already on page 297
Page 302, 12J-1.4 my understanding is that hard armoring of shore lines has been proven to be detrimental overall to shoreline stability so it ought to be prohibited countywide.
12J-1.6. New Development in floodplains should be prohibited as should development sprawl in forests or forest adjacent areas at risk for wildfires.
12J1.8 My understanding is that 100 year floods are anticipated to occur every 22 years by 2040, so this term might need to be reevaluated

Page 309 - Implementation: the emphasis on accountability and tracking is essential for all of this to mean anything. The emphasis on attracting industry and jobs is questionable. Are we just chasing our own tail. The continued growth and development model is unsustainable and means we will never be able to provide enough housing and infrastructure as it is a self perpetuating upward spiral. This model will continue to mean natural resources, and climate change challenges through sprawl into sensitive areas will be exacerbated.

Page 311 - "Providing some new opportunities for affordable housing in LAMIRDs." Please keep these developments out of floodplains and flood prone areas. This is somewhat included in the Incentives section in page 134 but should be part of all new development considerations.
"Providing a variety of transportation options." Design has to make walking and biking safer and more enjoyable. For e.g. who wants to walk down Burlington Blvd.? Planted trees, benches, and less car forward sorts of urban planning would make more people walk.

Page 312 -315 - I see no mention of sea level rise and flooding being factors in determining where growth is concentrated. Increased flooding and increased sea level rise is a reality for our future. I do see it referred to on page 130 of the Environment section in the Hazards Mitigation plan, but feel it should be here as well and throughout relevant sections as are other key elements. And should this be now a 50 year flood plain, or even a 30 year flood plain based on most up to date flood risk forecasting.

Page 317 - Periodic review is vital, I would like to see when the next review might be put in instead of leaving it vague. e.g. "within 5 years"

Page 320 - Amendment process - Do we need a big "stick" such as a fine for developers that do not follow the petition for amendment process? What is the consequence of not following the regulations? It needs to be more than a slap on the wrist. What is the accountability and enforcement process?

Thank you for the work you do.
Sarah Roberts

**Tara Satushek** Comment # 68

**From:** Jon Riedel <riedeljon7@gmail.com>
**Sent:** Thursday, March 13, 2025 3:54 PM
**To:** PDS comments; Carol MacIlroy
**Subject:** Comp Plan

Please accept these comments on the draft Comp. Plan- and specifically the Climate Vulnerability and Risk assessment on behalf of the Skagit Climate Science Consortium. Please contact c.macilroy@gmail.com if you have any questions.

We appreciate the effort that Skagit County staff have put into developing this Draft Comprehensive Plan Update. It is an important step forward, and we'd like to suggest some ways to improve the Climate and Resiliency part of the plan.

Skagit Climate Science Consortium is a non-profit representing 15 research scientists who are working on climate-impact related issues in Skagit Watershed. We formed in 2010 and have developed several climate change understanding and resiliency tools that are available on our website. We have assisted LaConner in developing a design charrette to manage rising sea levels and storm surge, and Anacortes with planning for stormwater management.

The Vulnerability Risk Assessment's *Appendix B: Sources and References* fails to mention some important local and regional resources and impacts:

- -In 2016 we published a landmark Special Issue of Northwest Science Journal focused on climate impacts in Skagit Valley. The issue contains several important papers that might inform your plan. For example, this issue details how Skagit's glaciers provide a substantial (6-12%) portion of total summer runoff, and as much as twice that fraction in late summer months. The vulnerability and risk assessment doesn't mention the loss of this resource.
- -The Special Issue also addresses the impact of rising sea levels on flooding in the lower Skagit Valley. We did not see this impact pathway mentioned in the Risk Assessment, but the Special Issue has a paper that directly addresses this important issue.
- -The Mount Baker-Snoqualmie National Forest climate adaptation plan. Much of Skagit watershed is federally managed land, and fires in the forests will directly impact air quality, recreation, and socioeconomics.
- -In the Risk matrix, no threat is listed to fisheries from reduced snowpack (and glaciers) because the CRMW tools offered no approach. We suggest that it should be listed as red (high), and not ignored because this one resource had no data.

Our mission is to serve the Skagit community as it adapts to a changing climate, and we stand ready to assist Skagit County and others in planning for climate adaptation and resilience. If you'd like to discuss these comments,, or are interested in our assistance on related matters, please contact Carol MacIlroy (at cmacilory@gmail.com) or at the address below.

Sincerely,

Jon Riedel
Chair- Skagit Climate Science Consortium
PO Box 474
Anacortes, WA 98221

Comment # 69

**Tara Satushek**

**From:** VJ Rose <gardeningvaleriejean@gmail.com>
**Sent:** Thursday, March 13, 2025 4:01 PM
**To:** PDS comments
**Subject:** "Skagit County's 2025 Comprehensive Plan Draft Policies"

Valerie Rose gardeningvaleriejean@gmail.com 1434 S. 12th St. Mt. Vernon, WA 98274

To the Board of the Skagit County Commissioners/Skagit County Planning Commissioner 1800 Continental Pl, Mount Vernon, WA 98273

March 12, 2025

Thank you for the opportunity to comment on the Comp. Plan. First, the plan needs to change city zoning and building codes to allow for Middle Housing, multi-family dwellings that make good use of available land, without overwhelming neighborhoods with 5+ story buildings.

Please change Policy 3C-1.6(b) which increases allowed density of housing in rural villages. Skagit Co. is

already falling behind in placing new housing developments in the urban areas and protecting the rural areas of the county. This new policy would result in more housing in areas with few services, resulting in more driving and fewer rural acres protected. It does not solve the affordable housing crisis to put people in remote areas.

In addition, we need to change city zoning and building codes to allow for garages to be converted to ADUs without requiring homeowners to pave additional parking places. These ADUs should be used for workforce housing, not short-term rentals like Air BnBs.

Zoning should encourage vegetable and fruit gardens, in yards and "display gardens" or "horticultural gardens open to the public, including ornamental plants." To quote my friend and fellow Master Gardener Brad Brown: "these display gardens can inhabit various spaces in a community -- commercial and residential as well as public. These display gardens can inhabit various spaces in a community -- commercial and residential as well as public. It is my belief that many of these spaces could contain vegetables and fruit plantings that would be not only attractive and serve the purposes of display gardens as specified in the codes, but also would provide plants that produce food for community members."

Finally, over the comment period, the majority of comments have called for the creation of an Environmental Advisory Board, made up of citizens. We already have Ag, Forestry and Parks

Advisory Boards. The Final draft update does not include this important element, please add an Environmental Advisory Board.

Thank you for including preparations to deal with Climate Chaos/Climate Change in the updated Comp. Plan. Integrating food gardens into landscapes is an important part of this process.

Thank you for considering my comments.

Sincerely, Valerie Rose

1434 S. 12th St., Mt. Vernon WA 98274

***"The most precious gift we can offer others is our presence. When mindfulness embraces those we love, they will bloom like flowers."*** Thich Nhat Hanh

Comment # 70

Comments from Annie Lohman, 15283 Sunset Road, Bow, WA 98232 march 13, 2025

Several observations of the new update to the Skagit County Comprehensive Plan- draft dated February, 14, 2025:

- The Planning Commission should
- Should know that the matrix (table version) and the redline version of the Comprehensive plan dated February 14, 2025 ARE NOT THE SAME and somewhat confusing. Some additional observation about some of the proposed re-wording are listed below:
    - The numbering between the 2 versions dated same date are NOT the same
    - Stricken language and re-wording completely changes the meaning of the text and is NOT simply edits for clarity or updates for obsolete content
    - Incorrect verb used in an effort to "change to an Active verb" completely changes the content and misconstrues the content of the section
    - Some stricken language demonstrates a lack of knowledge of Skagit County's programs
        - Example- striking Farmland Lecagcy program and Voluntary Stewardship Program language as well as several other sections pertinent to the agriculture community
- The 2016 Comprehensive Plan WAS compliant with GMA and un-challenged

## Section by section comments:

Goal 4A Preserve, protect, and designate Agricultural Resource Lands.

Preserve, protect, and designate Agricultural Resource Lands ~~are those lands~~ with consideration to soils, climate, topography, parcel size, and location characteristics that have long-term commercial significance for farming. Skagit County is committed to preserving and enhancing the agricultural land base and promoting economic activities and marketing support for a strong agricultural industry. The agricultural community faces significant challenges in preserving the agricultural land base and a viable agricultural industry, including: conversion of agricultural lands to development and inappropriate habitat restoration; conflict with neighboring residential uses; drainage impacts; and other disruption of agricultural lands functions and values. The following policies are intended to ensure the long-term viability ~~stability~~ and productivity of agriculture in Skagit County.

Accept changes

---

---

### 4A-1.1

**Agricultural Resource Lands Designation Criteria:** ~~T~~Consider the following criteria, together with the Washington Department of Commerce Minimum Guidelines to Classify Agricultural Lands in WAC 365-190-050, ~~shall be considered~~ when designating Agricultural Resource Lands:

Restore the original language

(a) Generally, all lands in unincorporated Skagit County which are parcels 5 acres or greater, and that contain "prime farmland soils" as determined by the USDA Natural Resource Conservation Service, shall be identified (see the narrative for a description of prime farmland soils). The County may also consider unique farmlands soils and farmlands of statewide importance.

4A-1.1 (a)

Accept changes

(iv) The area includes special purpose districts (such as diking and drainage districts) that are oriented to enhancing agricultural operations, including drainage improvement and flood control.

4A-1.1( c) (iv)

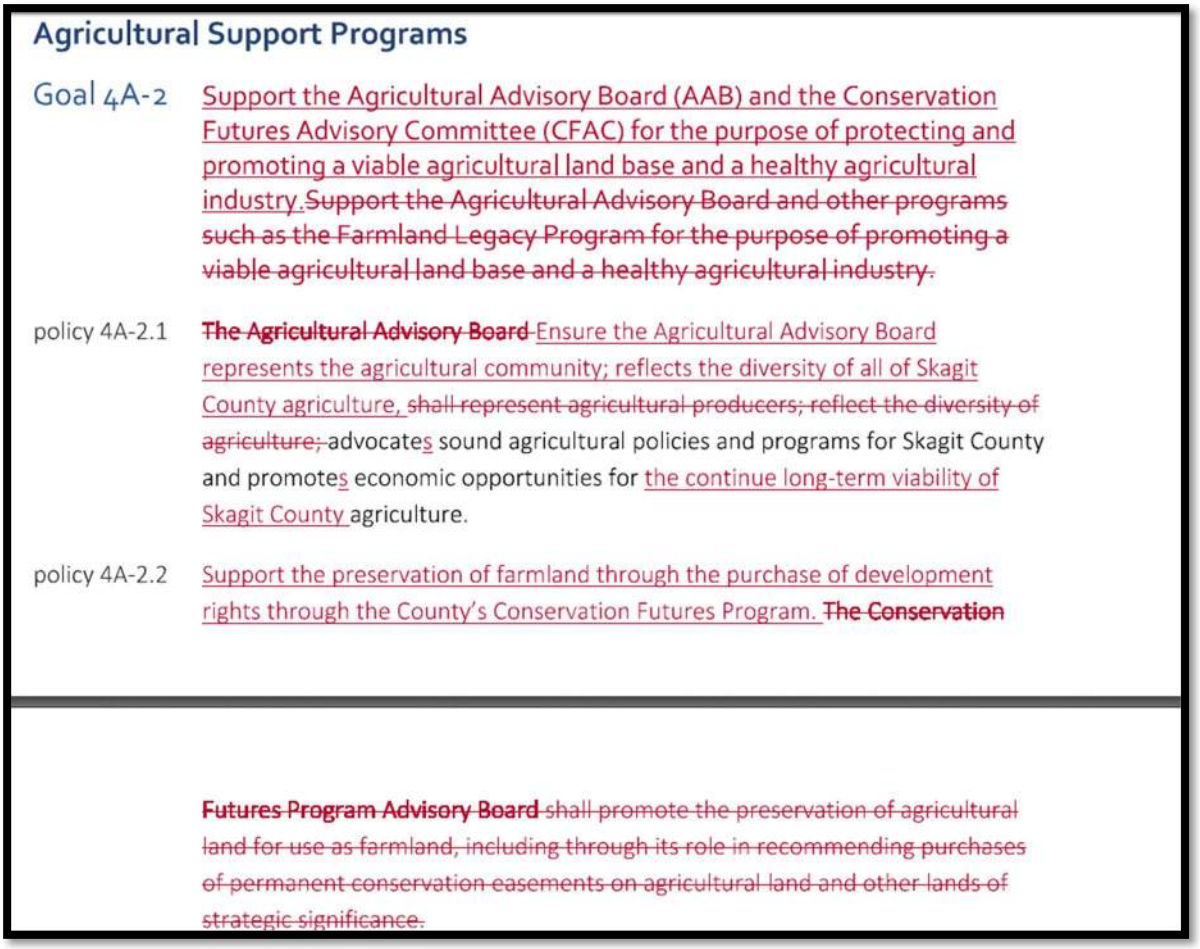
Revise to include Irrigation districts: Drainage & Irrigation Districts

~~(d)~~ (e) Site-specific proposals to de-designate natural resource lands must be deferred until a comprehensive countywide analysis is conducted

4A 1.1 (e)

Strike and move to section 4A 3.1

## 4A-2



**Agricultural Support Programs**

Goal 4A-2 Support the Agricultural Advisory Board (AAB) and the Conservation Futures Advisory Committee (CFAC) for the purpose of protecting and promoting a viable agricultural land base and a healthy agricultural industry. ~~Support the Agricultural Advisory Board and other programs such as the Farmland Legacy Program for the purpose of promoting a viable agricultural land base and a healthy agricultural industry.~~

policy 4A-2.1 ~~The Agricultural Advisory Board~~ Ensure the Agricultural Advisory Board represents the agricultural community; reflects the diversity of all of Skagit County agriculture, ~~shall represent agricultural producers; reflect the diversity of agriculture;~~ advocates sound agricultural policies and programs for Skagit County and promotes economic opportunities for the continue long-term viability of Skagit County agriculture.

policy 4A-2.2 Support the preservation of farmland through the purchase of development rights through the County's Conservation Futures Program. ~~The Conservation Futures Program Advisory Board shall promote the preservation of agricultural land for use as farmland, including through its role in recommending purchases of permanent conservation easements on agricultural land and other lands of strategic significance.~~

4A 2, 4A-2.1, 4A-2.2

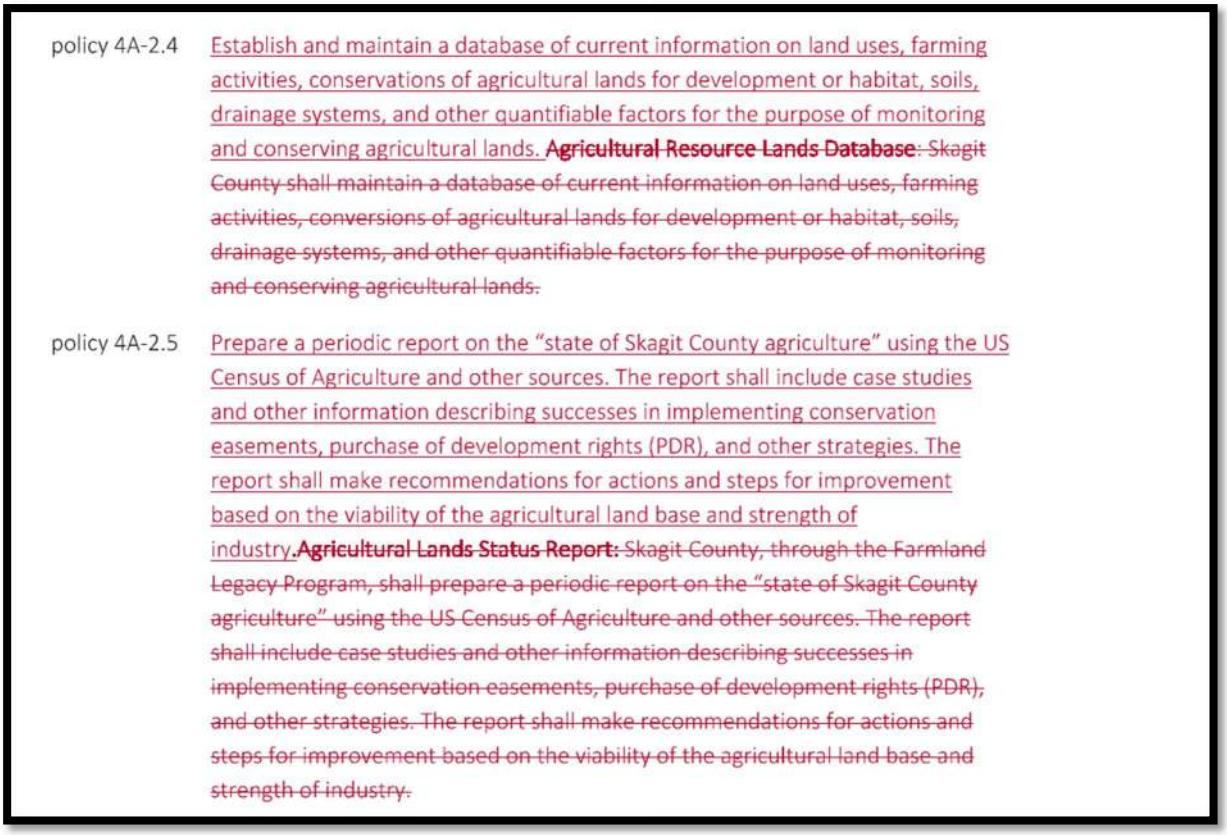
Restore original language **and change the name** of the Farmland Legacy Committee to "Board" so it's properly named; original language prioritizes the diverse agriculture producers as representatives of Skagit Agriculture



policy 4A-2.3 Lead and coordinate policy efforts to support the long-term viability of Skagit agriculture through the Agricultural Advisory Board (AAB) and Conservation Futures Advisory Committee (CFAC). ~~The Farmland Legacy Program shall continue to lead and coordinate agricultural policy efforts and farmland protection. The Farmland Legacy Program shall coordinate both the Agricultural Advisory Board and the Conservation Futures Advisory Committee.~~

4A-2.3

Restore original language **and change the name** of the Farmland Legacy Committee to "Board" so it's properly named



policy 4A-2.4 Establish and maintain a database of current information on land uses, farming activities, conservations of agricultural lands for development or habitat, soils, drainage systems, and other quantifiable factors for the purpose of monitoring and conserving agricultural lands. **Agricultural Resource Lands Database**: Skagit County shall maintain a database of current information on land uses, farming activities, conversions of agricultural lands for development or habitat, soils, drainage systems, and other quantifiable factors for the purpose of monitoring and conserving agricultural lands.

policy 4A-2.5 Prepare a periodic report on the "state of Skagit County agriculture" using the US Census of Agriculture and other sources. The report shall include case studies and other information describing successes in implementing conservation easements, purchase of development rights (PDR), and other strategies. The report shall make recommendations for actions and steps for improvement based on the viability of the agricultural land base and strength of industry.**Agricultural Lands Status Report:** Skagit County, through the Farmland Legacy Program, shall prepare a periodic report on the "state of Skagit County agriculture" using the US Census of Agriculture and other sources. The report shall include case studies and other information describing successes in implementing conservation easements, purchase of development rights (PDR), and other strategies. The report shall make recommendations for actions and steps for improvement based on the viability of the agricultural land base and strength of industry.

4A 2.4 and 4A-2.5

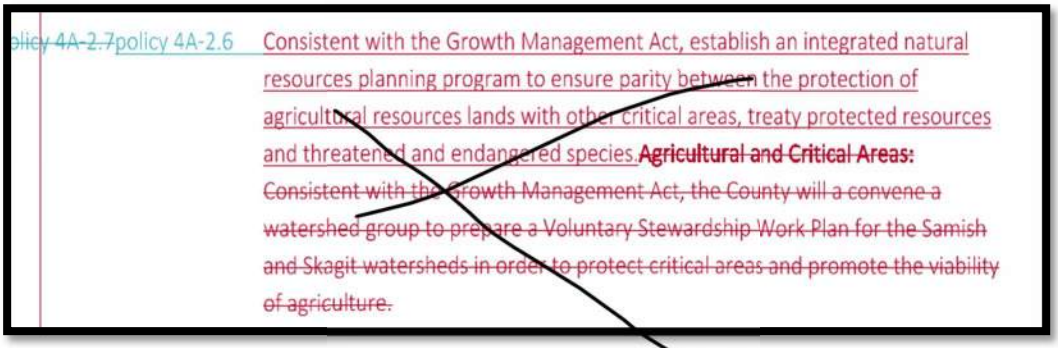
Restore original language- original is MORE accurate of what Skagit County actually does



policy 4A-2.6 **Farmland Preservation Incentives:** The Agricultural Advisory Board, Conservation Futures Advisory Committee and Farmland Legacy Program shall work to formulate strategies for improvements to agricultural production, marketing, processing, and farm labor practices and to develop and maintain programs which offer financial and other incentives to farm owners to preserve farmland for agricultural uses and to reduce their reliance on subdivision of land to raise operating capital.

OLD (Original) 4A-2.6

Restore original language

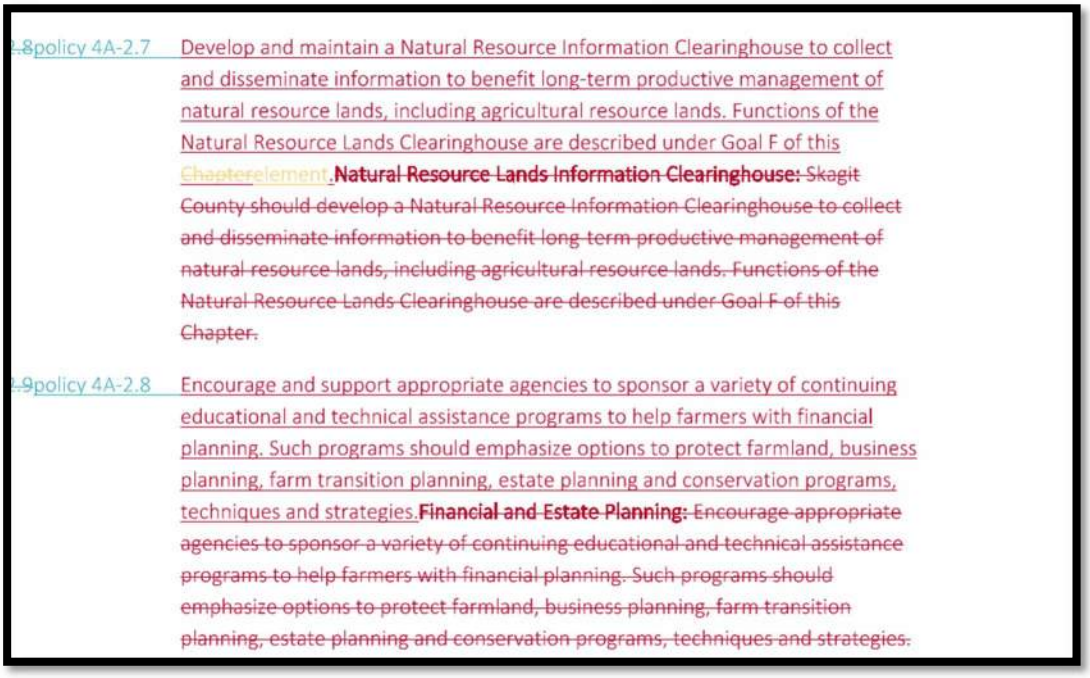


olicy 4A-2.7policy 4A-2.6 Consistent with the Growth Management Act, establish an integrated natural resources planning program to ensure parity between the protection of agricultural resources lands with other critical areas, treaty protected resources and threatened and endangered species.**Agricultural and Critical Areas:** Consistent with the Growth Management Act, the County will a convene a watershed group to prepare a Voluntary Stewardship Work Plan for the Samish and Skagit watersheds in order to protect critical areas and promote the viability of agriculture.

4A NEW 2.6

Revise and renumber to 2.7

**New wording and RENUMBER 4A2.7**: Consistent with the Growth Management Act, the County will implement a Voluntary Stewardship Work Plan in order to protect critical areas, appropriately recognizes the value of agricultural land, and promotes the viability of agriculture. The County will coordinate elements of the Voluntary Stewardship Work Plan with an adopted Integrated Natural Resources Plan.



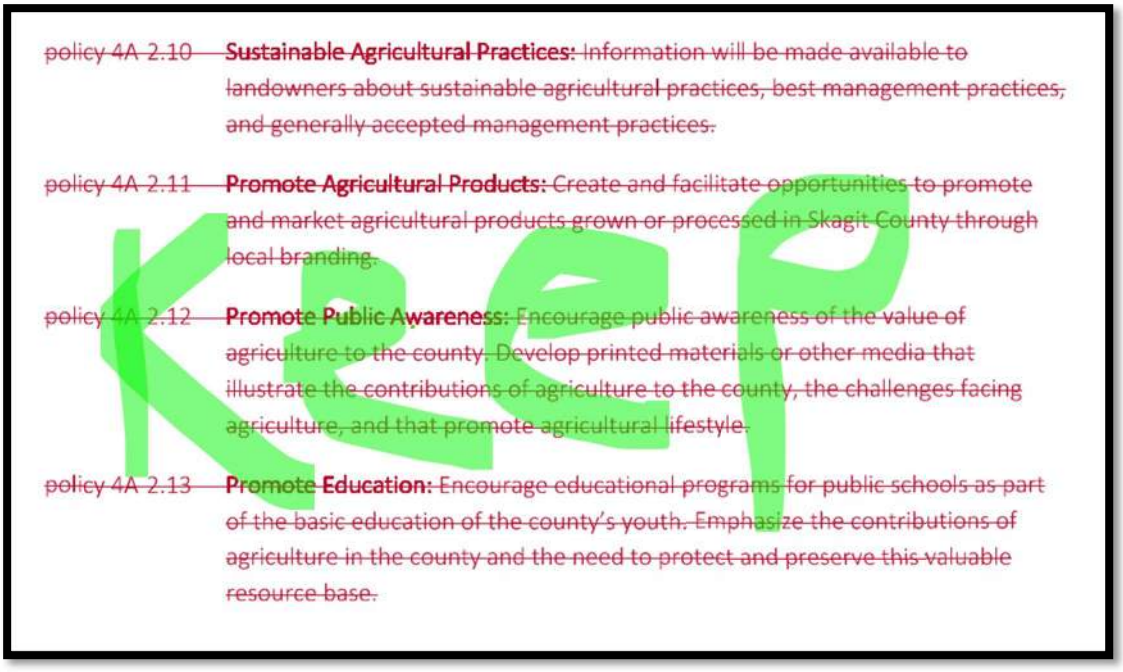
2.8policy 4A-2.7 Develop and maintain a Natural Resource Information Clearinghouse to collect and disseminate information to benefit long-term productive management of natural resource lands, including agricultural resource lands. Functions of the Natural Resource Lands Clearinghouse are described under Goal F of this Chapterelement. **Natural Resource Lands Information Clearinghouse:** Skagit County should develop a Natural Resource Information Clearinghouse to collect and disseminate information to benefit long-term productive management of natural resource lands, including agricultural resource lands. Functions of the Natural Resource Lands Clearinghouse are described under Goal F of this Chapter.

2.9policy 4A-2.8 Encourage and support appropriate agencies to sponsor a variety of continuing educational and technical assistance programs to help farmers with financial planning. Such programs should emphasize options to protect farmland, business planning, farm transition planning, estate planning and conservation programs, techniques and strategies. **Financial and Estate Planning:** Encourage appropriate agencies to sponsor a variety of continuing educational and technical assistance programs to help farmers with financial planning. Such programs should emphasize options to protect farmland, business planning, farm transition planning, estate planning and conservation programs, techniques and strategies.

4A2.7

Renumber as 4A2.8 and 4A-2.9 respectively

Accept revisions



policy 4A-2.10 **Sustainable Agricultural Practices:** Information will be made available to landowners about sustainable agricultural practices, best management practices, and generally accepted management practices.

policy 4A-2.11 **Promote Agricultural Products:** Create and facilitate opportunities to promote and market agricultural products grown or processed in Skagit County through local branding.

policy 4A-2.12 **Promote Public Awareness:** Encourage public awareness of the value of agriculture to the county. Develop printed materials or other media that illustrate the contributions of agriculture to the county, the challenges facing agriculture, and that promote agricultural lifestyle.

policy 4A-2.13 **Promote Education:** Encourage educational programs for public schools as part of the basic education of the county's youth. Emphasize the contributions of agriculture in the county and the need to protect and preserve this valuable resource base.

Keep

4A 2.10, 2.11,2.12,2.13

**Retain** original language and sections.

## 4A-3

| | |
|---|---|
| policy 4A-3.1 | ~~**Long-Term Designation of Agricultural Lands:** Designation of Agricultural Lands is intended to be long-term.~~ Designate agricultural lands of long-term commercial significance. De-designation is discouraged, but may be considered only when compelled by changes in public policy, errors in designation, new information on resource lands or critical areas, circumstances beyond the control of the landowner, or an overriding benefit to the agricultural industry. Evaluate de-designation requests with the same criteria under policy 4A-1.1 used for designation of Agricultural-Natural Resource Lands. |

4A-3.1 Retain original language- already address Ag land of long-term commercial significance in section 4A-1

| | |
|---|---|
| policy 4A-3.2 | ~~**Development Rights Program:**~~ Maintain and continue to fund the voluntary purchase of development rights through the ~~Farmland Legacy Program~~ County's Conservation Futures Program to limit potential conversions or development in agricultural lands. |
| policy 4A-3.3 | ~~**Conservation Easements**: Where legally subdivided land would promote incompatible residential development,~~ Eencourage the voluntary donation of conservation easements where legally subdivided land would promote incompatible residential development, ~~-~~or other development restrictions to Skagit County or to a qualified private nonprofit organization for the purpose of preserving the perpetual agricultural use of the land. |

4A3.2 Restore original language- original properly refers to the Farmland Legacy Program

4A-3.3 Restore original language

## 4A-4




4A-4 Revise language:

**Revise language 4A-4** Allowed land uses on designated agricultural lands shall prioritize soil dependent agriculture.




**4A-4.1**

**Revise language**

**4A-4.1**

**Revision**: Agriculture production is the primary and highest priority use of designated Agricultural Resource Lands. Policies and regulations shall be adopted, implemented, and upheld to ensure its protection and viability.




4A-4.2

revise and strike references to nuisances

These are definitions from county code that are pertinent to these sections and very important:

**Chapter 14.04**
**DEFINITIONS**

**Agricultural processing facility:** a facility which adds value to, refines, or processes raw agricultural goods, including, but not limited to, washing, grading, sizing, drying, extracting, icing, producing ornamental agricultural products, sorting, cutting, pressing, bagging, freezing, canning, packaging, milling, crushing, brining, fermenting, aging, pasteurizing, preserving storage, and bottling. Storage, warehousing, and distributing products in conjunction with the agricultural processing activity occurring on that site shall be allowed.

**Agricultural support services:** any nonagricultural use which *is directly related to agriculture and directly dependent upon agriculture for its existence.* These support services generally exist off-site and within districts that are intended to facilitate the production, marketing and distribution of agricultural products. Agricultural support services are separate and distinct from farm-based business.

**Farm-based business:** an on-farm commercial enterprise devoted to the direct marketing of unprocessed and/or value-added and soil-dependent agricultural products that are produced, processed, and sold on-site. Farm-based businesses are intended to supplement farm income, improve the efficiency of farming, and provide employment to farm family members. Farm-based businesses are separate and distinct from agriculture support services

| | | |
|---|---|---|
| policy 4A-4.3 | **~~Farm-Based Business:~~** ~~Farm-based businesses shall be allowed~~ Support farm based businesses as an agriculture accessory use~~. in Agricultural Resource Land~~. Farm-based businesses are an accessory use, secondary to the primary agricultural use of a farm property, and shall not interfere with adjacent farming operations, cause nuisances for nearby residences or generate large amounts of traffic. | 4A-4.3<br>Restore original language- more accurately reflects definitions and is less confusing |
| policy 4A-4.4 | **~~Residential Uses~~**~~: Residential uses shall be allowed~~ Allow residential uses only as an accessory use in Agricultural Resource Land per Policy 4A-1.2 Agricultural Resource Land Density Policy. | 4a-4.4<br>Restore original language |
| policy 4A-4.5 | **~~Special Events and Activities~~**~~: S~~Conduct special events and activities on agricultural lands ~~shall be conducted~~ in ways that reduce potential impacts resulting from the activity. Those impacts include but are not limited to traffic, litter, trespass, and sanitation. | -4.5<br>Revise |

**Revised language 4A-4.5** Special events on agricultural lands shall be conducted in ways that reduce and minimize potential impacts resulting from the activity. Special events may not interfere with the normal on-going neighboring agricultural production activities.

**Agriculture or agricultural activity:** the use of land for commercial production of horticultural, viticultural, floricultural, dairy, apiary, vegetable, or animal products, or of berries, grain, hay, straw, turf, seed, cottonwood trees, Christmas trees (not subject to excise tax imposed by RCW 84.33.140), or livestock, including those activities directly pertaining to the production of crops or livestock including, but not limited to, cultivation, harvest, grazing, on-site animal waste storage and disposal, fertilization, the operation and maintenance of farm and stock ponds, drainage ditches, irrigation systems, and canals, and normal maintenance, operation and repair of existing serviceable structures, facilities, or improved areas.

| | | |
|---|---|---|
| policy 4A-4.6 | **~~Habitat Restoration Projects:~~** ~~H~~Permit habitat restoration projects ~~are a permitted use~~ on agricultural lands so long as it is shown through project review that the proposed restoration project does not have an adverse impact on hydrologic functions, drainage infrastructure or the ongoing agricultural use of adjacent properties. | 4A-4.6<br>Revise |

**Revised language 4A-4.6** Prohibit habitat restoration projects on agricultural lands except through a Hearing Examiner Special Use permit process to ensure restorations projects do not have an adverse impact on hydrology functions, drainage infrastructure or on-going agricultural use of adjacent properties**.**

## 4A-5

policy 4A-5.1 ~~**Right to Manage Agricultural Resource Lands**: Apply~~ Goal E, Right to Manage Natural Resource Lands, ~~applies~~ to all lands designated Agricultural Resource Lands to protect agricultural landowner rights to manage their lands for agricultural uses.

4A-5

Restore original; possibly clarify where **Goal E** comes from

policy 4A-5.2 ~~**Deed Restrictions**: All real estate transactions involving residential development on or within one mile of agricultural resource lands shall contain~~ Require recorded documentation of the residential owners' acknowledgment of the potential farming activities and receipt of the Right-to-Manage Natural Resource Lands information for all real estate transactions involving residential development on or within one mile of agricultural resource lands.

4A-5.2

Restore original language.

policy 4A-5.3 ~~**Cluster Development**: Clustered lots within or adjacent to an NRL designation shall be placed~~ Place clustered lots to minimize potential impacts to natural resource land production on both the subject property and any adjacent resource lands.

4A-5.3

Restore original language

policy 4A-5.4 ~~**Residential Setbacks**: A~~Setback all residential development adjacent to agricultural resource lands ~~shall be set back~~ from common property lines in order to protect agriculture from the impacts of incompatible development and to mitigate against the effects of agricultural operations on the residential developments.

4A-5.4

Restore original language

| | | |
|---|---|---|
| policy 4A-5.5 | ~~Skagit Drainage and Fish Initiative:~~ Within the Drainage Districts, identified in the Skagit Drainage and Fish Initiative, apply the agreements for maintenance, fish protection, and habitat restoration outlined in the Memorandum of Understanding (MOU), which will predominate over local regulations. The MOU, developed by the Western Washington Agricultural Association (WWAA) and Washington Department of Fish and Wildlife (WDFW) is designed to reduce conflicts between different users in the Skagit and Samish River Deltas. ~~The Skagit River Systems Cooperative (SRSC) participated in meetings and this Initiative represents movement toward overall reduced conflicts. This policy supports this movement.~~ | 4A-5.5<br>Revise to update |

**Revised language 4A-5.5:** Within the Drainage Districts apply the Skagit Drainage Fish Initiative Drainage Maintenance Agreements between WDFW and individual Districts for fish protection and habitat restoration. The DFI Maintenance Agreements will predominate over local regulations. These Drainage Maintenance agreements are designed to reduce conflicts between different users in the Skagit and Samish River Deltas.

| | | |
|---|---|---|
| policy 4A-5.6 | ~~Drainage Plans:~~ Minimize and mitigate flooding and drainage impacts on agricultural lands. Implement enhanced drainage management practices designed to mitigate the projected impacts of extreme precipitation intensity on agricultural lands. These practices could include the installation of adaptive drainage infrastructure such as improved culverts, ditches, and water retention systems to prevent flooding and waterlogging of crops. Skagit County Public Works shall develop criteria to review development proposals for drainage impacts on agricultural lands. Drainage plans for minimizing impacts of development shall be circulated to the affected Drainage District for comment prior to issuance of permits by Public Works. | 4A-5.6<br>Restore original language.<br>This is a NOT at ALL what original was about. |

4A-5.6 is intended to mitigate impacts associated with stormwater runoff from impervious surfaces and land-clearing activities associated with, but not limited to re-development and or development to ensure downstream agriculture drainage systems are not impacted by increase rates and/or volumes of runo

**Tara Satushek** Comment # 71

**From:** Lora Claus <lorac@skagitonians.org>
**Sent:** Thursday, March 13, 2025 4:23 PM
**To:** PDS comments
**Cc:** Kim Rubenstein; 'John Roozen' (john@wabulb.com); John (hayman0405@me.com); Audrey Gravley; Tim Knue
**Subject:** Skagit County's 2025 Comprehensive Plan
**Attachments:** 2025 0313 SPF_Comp Plan Comments.pdf

Dear Planning Department Commissioners and Staff,

Skagitonians to Preserve Farmland is submitting the attached comments on the 2025 proposed revision to the Comprehensive Plan.

We appreciate the review and integration of many of our earlier comments to this important document. Our current comments include further suggestions to strengthen the economic viability of agriculture for the long term. The 2024 survey found the preservation of farmland was the #1 priority of Skagit County respondents. Should you have any questions or wish discussion on our comments, please reach out to me.

Thank you for your continued effort to put in place a Comprehensive Plan that supports agriculture, now and into the future.
Pavement is Forever.

Best regards,

**Lora Claus**
Executive Director
LoraC@skagitonians.org
360-336-3974 office
603-703-2247 cell

**Skagitonians to Preserve Farmland**
*Pavement is Forever*

March 13, 2025

Skagit County Planning & Development Services
1800 Continental Place
Mount Vernon, WA 98273

RE: Comments to Draft Skagit County 2025 Comprehensive Plan Update

Dear Planning Department:

Thank you for the opportunity to comment on the full draft of the Comprehensive Plan. We appreciate the hard work of the planning department in incorporating these and prior comments into the Comprehensive Plan for the good of Skagit County and its citizens. Our suggested changes are in support of the long-term economic viability of agriculture in Skagit County. Skagit County's citizens made clear that farmland preservation is the top priority, as found by the survey conducted in 2024 as part of this process. These comments are submitted on behalf of Skagitonians to Preserve Farmland.

Policy 2A-8.3
Thank you for reinstating this important policy. Skagitonians supports the County maintaining accurate and publicly available records of its zoning and land use plans. We do not understand how the elimination of this policy would support transparency and evidence-based decision making.

Policy 2G-1.1
Skagitonians supports the addition of language here that might encourage protection of agricultural land. However, as currently phrased, the addition is toothless. Skagit County's Farmland Legacy Program provides a vehicle for establishing conservation easements on such land to protect them in perpetuity. This policy should be rephrased to be establish a conditional relationship: "Allow the separation of an existing house from the larger parcel. . . .*where a conservation easement has been established on the separated resource land to protect it in perpetuity*."

Suggested language:
*"On lands designated Agricultural-Natural Resource Land and Rural Resource-Natural Resource Land, allow the separation of an existing house from the larger parcel where it is located when a conservation easement has been established on the separated resource land to protect it in perpetuity."*

Goal 4A-1
The term "commercially significant" leaves open the possibility that ag land not currently earning a commercially significant revenue be vulnerable to land use designation change.

Suggested language:
*Maintain land use designation criteria and densities for agricultural natural resource lands to ensure the long term economic viability of agriculture and the protection of farmland.*

Policy 4A-1.1
Please leave the original wording unaltered, "shall be considered", to ensure that consideration is not optional.

Policy 4A-1.1 (e)
Suggested language:
*"(e) Site-specific proposals to de-designate natural resource lands must be deferred until a comprehensive countywide analysis is conducted* ***by Skagit County****."*

Goal 4A-2
Please restore the reference to the Farmland Legacy Program.

Suggested language:
*"Support the Agricultural Advisory Board (AAB) and the Conservation Futures Advisory Board (CFAB) and the Farmland Legacy Program (FLP) for the purpose of protecting and promoting a viable agricultural land base and a healthy agricultural industry."*

Policy 4A-2.2
Please restore agricultural producers as the make-up of the Agricultural Advisory Board (AAB). There are many advocacy groups, and the AAB represents the opportunity to directly and consistently hear from agricultural producers of Skagit County.

Suggested language:
*"The Agricultural Advisory Board (AAB) shall represent Skagit County agricultural producers and reflect the diversity of Skagit County agriculture. The AAB shall advocate for sound agricultural policies and programs for Skagit County and promote economic opportunities for the continued long-term viability of Skagit County agriculture."*

Policy 4A-2.2
Please restore the language indicating the broader mission of the Farmland Legacy Program and Conservation Futures Advisory Board (CFAB). The work performed is more than the purchase of development rights. The agricultural economy is dependent on viable farmland and many other factors that contribute to a functioning system.

Suggested language:
*"The Farmland Legacy Program and Conservation Futures Advisory Board (CFAB) shall promote the preservation of agricultural land for use as farmland, including through the purchase of permanent conservation easements on agricultural land and other lands of strategic significance."*

Policy 4A-2.4 - Maintain a database of current information on land uses, farming activities
Thank you for adopting and strengthening this important section. Skagitonians appreciates the commitment the County has made to preserving agricultural lands. Given this, it is imperative that the County maintain accurate information about these lands in order measure progress against the goals listed in the Comprehensive Plan. A database as described has the benefit of establishing a solid baseline of information for use in evidence-based decision making.

Policy 4A-2.6 (currently struck)

We respectfully requested that this section be restored. The need to keep the FLP and CFAB focused on viable and evolving means to encourage farmland preservation is increasing. Pressure from non-agricultural uses continue to grow in increasing variety (solar panels covering acres of prime farmland, etc.)

Suggested language:

*"The Farmland Legacy Program and Conservation Futures Advisory Committee shall develop and maintain programs which offer financial and other incentives to farm owners to preserve farmland for agricultural uses and to reduce their reliance on non-agricultural uses of land."*

Policy listed in draft as 4A-2.6

We appreciate the inclusion of an integrated natural resources plan. We have concerns about the implications inferred from the use of the word parity. According to the survey conducted in 2024 through the comprehensive plan process, preservation of farmland was the number one priority for residents and that should be reflected in this section.

Suggested language:

*"Consistent with the Growth Management Act, establish an integrated natural resources planning program in consideration of the protection of agricultural resource lands, and continued viability of agricultural, with other competing needs for resources."*

Struck Policies 4A-2.10 through 4A-2.13

We believe the content from struck policies 4A-2.10 through 4A 2.13 is extremely important and respectfully request that it be reinstated. As the last remaining viable agricultural economy in the Puget Sound region these policies are important to maintain support of and engagement in agriculture, which is necessary to its long-term viability in Skagit County.

Policy 4A-3.1

As the plan is currently written, it is clear that some landowners and developers would choose to interpret the designating criteria of Policy 4A-1.1 as a roadmap to de-designation. For example, a landowner may cease active farming, whether due to economic hardship, personal circumstances or other. This period of inactivity does not in itself then make that property less suitable for Ag-NRL designation, and it should not be used as an argument to abandon Ag-NRL designation.

Skagitonians to Preserve farmland does not support language in the Comprehensive Plan that suggests the same criteria used to designate Ag-NRL land should be used for de-designation. This language should be removed and replaced with guidance for a comprehensive analysis that takes into account the commitment Skagit County has made to supporting local agriculture. A comprehensive analysis of agricultural natural resource lands should be required prior to the consideration of de-designation, and weigh the full force and efficacy of Agricultural Support Programs identified in Goal 4A-2 before determining that an Ag-NRL designation should be abandoned. The County should first ask itself if more can be done to support farmland, and if acreage is removed from the Ag-NRL, what are the cumulative impacts to the County's agricultural infrastructure and economy?

Suggested language:
*"Designation of agricultural lands for the long term supports the long-term viability of agriculture in Skagit County. Skagit County shall conduct a countywide comprehensive analysis, that additionally considers all goals in 4A-2, prior to consideration of de-designation of agricultural natural resource lands."*

Goal 4A-4
We respectfully request removal of the term "farm-based business" to eliminate confusion and opportunistic interpretation.

Suggested language:
"Allowed land uses on designated agricultural land shall support agricultural production as the highest priority, and agricultural support services and residential uses as accessory."

policy 4A-4.3
The first sentence is redundant to the second and there is no need to support this accessory use as a policy.

Suggested language:
*"Accessory uses are secondary to the primary agricultural use of agricultural land, and shall not interfere with adjacent farming operations or otherwise cause nuisances."*

Policy 4A-4.5
The new language can be interpreted as a directive to conduct special events and activities on agricultural lands, and those should not be encouraged.

Suggested language:
*"Special events and activities on agricultural lands are secondary to the use of agricultural production. Impacts related to traffic, litter, trespass, and sanitation shall be minimized."*

Policy 4A-4.6 – Habitat Restoration Projects
Habitat Restoration Projects: Habitat restoration projects should not be perceived as an inherit permitted use on agricultural lands. Proposed restoration projects should be reviewed by the county and should not have an adverse impact on hydrologic functions, drainage infrastructure or the ongoing agricultural use of adjacent properties.

As stated previously in this comment letter, Skagitonians supports the development of an Integrated Plan to provide guidance on habitat restoration projects in the context of drainage infrastructure, hydrologic function and agricultural activity. Policy 4A-4.6 should be restated.

Suggested language:
*"Proposed habitat restoration projects on agricultural land shall utilize the special use permit process to ensure hydrology functions, drainage infrastructure, and use of adjacent properties are not adversely*

*impacted and that said projects are in accordance with a County-adopted Integrated Natural Resources Plan."*

Policy previously listed as 7C – 1.2 , now struck

Skagitonians does not object to the reduction of minimum lot sizes OUTSIDE of Agricultural-Natural Resource Lands. This policy is reasonable where density may be desirable to meet affordability, walkability, or other community needs. However, if there are requests to include this policy again in the comprehensive plan, it should be clarified to exclude the Ag-NRL, where 40-acre lots sizes have been instrumental in the preservation of viable, working farmland.

Policy 7E – 1.1

Skagitonians supports this amendment. The right solution to a lack of appropriate zoning and density in UGAs to support farmworker housing in urban areas is to change zoning to better meet the needs of farmworkers in existing urban areas. Using farmland to meet current needs for farmwork housing undermines the agricultural economy these workers—and the county--depend upon.

Policy 9A-8.9

Addressing irrigation needs for agriculture is a critical factor ensuring the long-term economic viability of agriculture in Skagit Count.

Suggested language:

*The Coordinated Water Systems Plan shall be reviewed and updated, addressing irrigation water needs, to ensure consistency with the adopted Comprehensive Plan.*

Policy 9B-1.6

It is important to differentiate existing infrastructure from new infrastructure in this policy.

Suggested language:

*"New structural flood protection: Dikes, levees, and other structural flood protection facilities should be designed to allow fish passage, protect flows in riparian zones, and complement or enhance the surrounding landscape where feasible. Any design modifications such as improvements to existing structural flood protection facilities or setbacks of existing structural flood protection facilities shall be consistent with flood protection and drainage functions as defined by the diking and drainage districts."*

Policy 9B-1.7

Flood protection and resource management should be reflected in a Integrated Natural Resource Plan along with preservation of agricultural lands, as found to be a priority of respondents to the comprehensive plan survey in 2024.

Suggested language:

*"Flood protection measures should be considered in accordance with the Skagit County Integrated Natural Resource Plan."*

Goal 11A-1 Establish a land use framework in Skagit County that supports diverse businesses, enhances natural resource industries

As this policy is written, it is impossible to determine, at face value, whether this goal seeks to expand businesses independent of existing natural resource industries, thus proclaiming a "best of both worlds" ambition that often results in the sacrifice of one over the other. Skagitonians would support a policy that explicitly calls for the development infrastructure and processing support for natural resource industries that does not detract or diminish existing natural resource industries.

Suggested language:
*"Establish a land use framework in Skagit County that supports natural resource industries, enhances diverse businesses, and does not detract or diminish existing natural resource industries."*

11-A. Encourage a mix of diverse non-resource-based industries that complement and enhance resource-based industries as a major part of Skagit County's economy.

Previously, this goal was written to include only resource-based economies. Skagitonians does not object to the development of non-resourced based industries, but the new goals cited above, with their direct reference to zoning and regulations, give us great pause. It is not enough to stipulate that non-resourced-based industries should "complement and enhance resource-based industries." Any non-resource-based industry should not impinge, in any way, on the resource lands and related industry of Skagit County.

Suggested language:
*"Encourage a mix of diverse non-resource-based industries that complement and enhance resource-based industries as a major part of Skagit County's economy without impinging upon or diminishing the resource lands and related industry of Skagit County."*

Thank you for the opportunity to comment on the 2025 Comprehensive Plan Update. We look forward to reviewing the next draft of the plan and working with the County to ensure the long-term viability of Skagit agriculture.

Sincerely,

Lora H. Claus
Executive Director
Skagitonians to Preserve Farmland
414A Snoqualmie Street
Mount Vernon, WA 98273

## Tara Satushek

**From:** Lora Claus <lorac@skagitonians.org>
**Sent:** Thursday, March 13, 2025 4:25 PM
**To:** PDS comments
**Cc:** Kim Rubenstein; 'John Roozen' (john@wabulb.com); John (hayman0405@me.com); Audrey Gravley; Tim Knue
**Subject:** Skagit County's 2025 Comprehensive Plan

**Comments included in body of email below**

March 13, 2025

Skagit County Planning & Development Services
1800 Continental Place
Mount Vernon, WA 98273

RE: Comments to Draft Skagit County 2025 Comprehensive Plan Update

Dear Planning Department:

Thank you for the opportunity to comment on the full draft of the Comprehensive Plan. We appreciate the hard work of the planning department in incorporating these and prior comments into the Comprehensive Plan for the good of Skagit County and its citizens. Our suggested changes are in support of the long-term economic viability of agriculture in Skagit County. Skagit County's citizens made clear that farmland preservation is the top priority, as found by the survey conducted in 2024 as part of this process. These comments are submitted on behalf of Skagitonians to Preserve Farmland.

Policy 2A-8.3
Thank you for reinstating this important policy. Skagitonians supports the County maintaining accurate and publicly available records of its zoning and land use plans. We do not understand how the elimination of this policy would support transparency and evidence-based decision making.

Policy 2G-1.1
Skagitonians supports the addition of language here that might encourage protection of agricultural land. However, as currently phrased, the addition is toothless. Skagit County's Farmland Legacy Program provides a vehicle for establishing conservation easements on such land to protect them in perpetuity. This policy should be rephrased to be establish a conditional relationship: "Allow the separation of an existing house from the larger parcel. . . .*where a conservation easement has been established on the separated resource land to protect it in perpetuity*."

Suggested language:
*"On lands designated Agricultural-Natural Resource Land and Rural Resource-Natural Resource Land, allow the separation of an existing house from the larger parcel where it is located when a conservation easement has been established on the separated resource land to protect it in perpetuity."*

Goal 4A-1
The term "commercially significant" leaves open the possibility that ag land not currently earning a commercially significant revenue be vulnerable to land use designation change.

Suggested language:
*Maintain land use designation criteria and densities for agricultural natural resource lands to ensure the long term economic viability of agriculture and the protection of farmland.*

Policy 4A-1.1
Please leave the original wording unaltered, "shall be considered", to ensure that consideration is not optional.

Policy 4A-1.1 (e)
Suggested language:
*"(e) Site-specific proposals to de-designate natural resource lands must be deferred until a comprehensive countywide analysis is conducted* ***by Skagit County****."*

Goal 4A-2
Please restore the reference to the Farmland Legacy Program.

Suggested language:
*"Support the Agricultural Advisory Board (AAB) and the Conservation Futures Advisory Board (CFAB) and the Farmland Legacy Program (FLP) for the purpose of protecting and promoting a viable agricultural land base and a healthy agricultural industry."*

Policy 4A-2.2
Please restore agricultural producers as the make-up of the Agricultural Advisory Board (AAB). There are many advocacy groups, and the AAB represents the opportunity to directly and consistently hear from agricultural producers of Skagit County.

Suggested language:
*"The Agricultural Advisory Board (AAB) shall represent Skagit County agricultural producers and reflect the diversity of Skagit County agriculture. The AAB shall advocate for sound agricultural policies and programs for Skagit County and promote economic opportunities for the continued long-term viability of Skagit County agriculture."*

Policy 4A-2.2
Please restore the language indicating the broader mission of the Farmland Legacy Program and Conservation Futures Advisory Board (CFAB). The work performed is more than the purchase of development rights. The agricultural economy is dependent on viable farmland and many other factors that contribute to a functioning system.

Suggested language:
*"The Farmland Legacy Program and Conservation Futures Advisory Board (CFAB) shall promote the preservation of agricultural land for use as farmland, including through the purchase of permanent conservation easements on agricultural land and other lands of strategic significance."*

Policy 4A-2.4 - Maintain a database of current information on land uses, farming activities
Thank you for adopting and strengthening this important section. Skagitonians appreciates the commitment the County has made to preserving agricultural lands. Given this, it is imperative that the County maintain accurate information about these lands in order measure progress against the goals listed in the Comprehensive Plan. A database as described has the benefit of establishing a solid baseline of information for use in evidence-based decision making.

Policy 4A-2.6 (currently struck)
We respectfully requested that this section be restored. The need to keep the FLP and CFAB focused on viable and evolving means to encourage farmland preservation is increasing. Pressure from non-agricultural uses continue to grow in increasing variety (solar panels covering acres of prime farmland, etc.)

Suggested language:
*"The Farmland Legacy Program and Conservation Futures Advisory Committee shall develop and maintain programs which offer financial and other incentives to farm owners to preserve farmland for agricultural uses and to reduce their reliance on non-agricultural uses of land."*

Policy listed in draft as 4A-2.6
We appreciate the inclusion of an integrated natural resources plan. We have concerns about the implications inferred from the use of the word parity. According to the survey conducted in 2024 through the comprehensive plan process, preservation of farmland was the number one priority for residents and that should be reflected in this section.

Suggested language:
*"Consistent with the Growth Management Act, establish an integrated natural resources planning program in consideration of the protection of agricultural resource lands, and continued viability of agricultural, with other competing needs for resources."*

Struck Policies 4A-2.10 through 4A-2.13
We believe the content from struck policies 4A-2.10 through 4A 2.13 is extremely important and respectfully request that it be reinstated. As the last remaining viable agricultural economy in the Puget Sound region these policies are important to maintain support of and engagement in agriculture, which is necessary to its long-term viability in Skagit County.

Policy 4A-3.1
As the plan is currently written, it is clear that some landowners and developers would choose to interpret the designating criteria of Policy 4A-1.1 as a roadmap to de-designation. For example, a landowner may cease active farming, whether due to economic hardship, personal circumstances or other. This period of inactivity does not in itself then make that property less suitable for Ag-NRL designation, and it should not be used as an argument to abandon Ag-NRL designation.

Skagitonians to Preserve farmland does not support language in the Comprehensive Plan that suggests the same criteria used to designate Ag-NRL land should be used for de-designation. This language should be removed and replaced with guidance for a comprehensive analysis that takes into account the commitment Skagit County has made to supporting local agriculture. A comprehensive analysis of agricultural natural resource lands should be required prior to the consideration of de-designation, and weigh the full force and efficacy of Agricultural Support Programs identified in Goal 4A-2 before determining that an Ag-NRL designation should be abandoned. The County should first ask itself if more can be done to support farmland, and if acreage is removed from the Ag-NRL, what are the cumulative impacts to the County's agricultural infrastructure and economy?

Suggested language:
*"Designation of agricultural lands for the long term supports the long-term viability of agriculture in Skagit County. Skagit County shall conduct a countywide comprehensive analysis, that additionally considers all goals in 4A-2, prior to consideration of de-designation of agricultural natural resource lands."*

Goal 4A-4
We respectfully request removal of the term "farm-based business" to eliminate confusion and opportunistic interpretation.

Suggested language:
"Allowed land uses on designated agricultural land shall support agricultural production as the highest priority, and agricultural support services and residential uses as accessory."

policy 4A-4.3
The first sentence is redundant to the second and there is no need to support this accessory use as a policy.

Suggested language:
*"Accessory uses are secondary to the primary agricultural use of agricultural land, and shall not interfere with adjacent farming operations or otherwise cause nuisances."*

Policy 4A-4.5
The new language can be interpreted as a directive to conduct special events and activities on agricultural lands, and those should not be encouraged.

Suggested language:
*"Special events and activities on agricultural lands are secondary to the use of agricultural production. Impacts related to traffic, litter, trespass, and sanitation shall be minimized."*

Policy 4A-4.6 – Habitat Restoration Projects
Habitat Restoration Projects: Habitat restoration projects should not be perceived as an inherit permitted use on agricultural lands. Proposed restoration projects should be reviewed by the county and should not have an adverse impact on hydrologic functions, drainage infrastructure or the ongoing agricultural use of adjacent properties.

As stated previously in this comment letter, Skagitonians supports the development of an Integrated Plan to provide guidance on habitat restoration projects in the context of drainage infrastructure, hydrologic function and agricultural activity. Policy 4A-4.6 should be restated.

Suggested language:
*"Proposed habitat restoration projects on agricultural land shall utilize the special use permit process to ensure hydrology functions, drainage infrastructure, and use of adjacent properties are not adversely impacted and that said projects are in accordance with a County-adopted Integrated Natural Resources Plan."*

Policy previously listed as 7C – 1.2 , now struck
Skagitonians does not object to the reduction of minimum lot sizes OUTSIDE of Agricultural-Natural Resource Lands. This policy is reasonable where density may be desirable to meet affordability, walkability, or other community needs. However, if there are requests to include this policy again in the comprehensive plan, it should be clarified to exclude the Ag-NRL, where 40-acre lots sizes have been instrumental in the preservation of viable, working farmland.

Policy 7E – 1.1
Skagitonians supports this amendment. The right solution to a lack of appropriate zoning and density in UGAs to support farmworker housing in urban areas is to change zoning to better meet the needs of farmworkers in existing urban areas. Using farmland to meet current needs for farmwork housing undermines the agricultural economy these workers—and the county--depend upon.

Policy 9A-8.9
Addressing irrigation needs for agriculture is a critical factor ensuring the long-term economic viability of agriculture in Skagit Count.

Suggested language:
*The Coordinated Water Systems Plan shall be reviewed and updated, addressing irrigation water needs, to ensure consistency with the adopted Comprehensive Plan.*

Policy 9B-1.6
It is important to differentiate existing infrastructure from new infrastructure in this policy.

Suggested language:

*"New structural flood protection: Dikes, levees, and other structural flood protection facilities should be designed to allow fish passage, protect flows in riparian zones, and complement or enhance the surrounding landscape where feasible. Any design modifications such as improvements to existing structural flood protection facilities or setbacks of existing structural flood protection facilities shall be consistent with flood protection and drainage functions as defined by the diking and drainage districts."*

Policy 9B-1.7
Flood protection and resource management should be reflected in a Integrated Natural Resource Plan along with preservation of agricultural lands, as found to be a priority of respondents to the comprehensive plan survey in 2024.

Suggested language:
*"Flood protection measures should be considered in accordance with the Skagit County Integrated Natural Resource Plan."*

Goal 11A-1 Establish a land use framework in Skagit County that supports diverse businesses, enhances natural resource industries
As this policy is written, it is impossible to determine, at face value, whether this goal seeks to expand businesses independent of existing natural resource industries, thus proclaiming a "best of both worlds" ambition that often results in the sacrifice of one over the other. Skagitonians would support a policy that explicitly calls for the development infrastructure and processing support for natural resource industries that does not detract or diminish existing natural resource industries.

Suggested language:
*"Establish a land use framework in Skagit County that supports natural resource industries, enhances diverse businesses, and does not detract or diminish existing natural resource industries."*

11-A. Encourage a mix of diverse non-resource-based industries that complement and enhance resource-based industries as a major part of Skagit County's economy.
Previously, this goal was written to include only resource-based economies. Skagitonians does not object to the development of non-resourced based industries, but the new goals cited above, with their direct reference to zoning and regulations, give us great pause. It is not enough to stipulate that non-resourced-based industries should "complement and enhance resource-based industries." Any non-resource-based industry should not impinge, in any way, on the resource lands and related industry of Skagit County.

Suggested language:
*"Encourage a mix of diverse non-resource-based industries that complement and enhance resource-based industries as a major part of Skagit County's economy without impinging upon or diminishing the resource lands and related industry of Skagit County."*

Thank you for the opportunity to comment on the 2025 Comprehensive Plan Update. We look forward to reviewing the next draft of the plan and working with the County to ensure the long-term viability of Skagit agriculture.

**Lora Claus**
Executive Director
LoraC@skagitonians.org
360-336-3974 office
603-703-2247 cell

**Skagitonians to Preserve Farmland**

**Tara Satushek**

Comment # 72

**From:** Benjamin Bryant <bpbryant@gmail.com>
**Sent:** Thursday, March 13, 2025 5:09 PM
**To:** PDS comments
**Subject:** Skagit County's 2025 Comprehensive Plan

Thank you for the opportunity to review the Comprehensive Plan. I have several specific comments regarding the Climate and Resiliency section, and a few general comments:

Policy 12A-1.6 does not describe how trade-offs would be assessed when it comes to "an adequate water right necessary to sustain Skagit Agriculture." I support agriculture but it needs to be done within ecological limits.

Policy 12E-1.2 Did not say what impact was to be taken frontline communities were "defined and identified" - presumably some sort of support should be provided, beyond what is in policy 12E-1.2

Policy 12F-1.2 Suggest timeline and reference to the modeling studies being commissioned or undertaken.

Policy 12F-1.4 Strongly support urban greenery and suggest this be further enhanced with milestones, and also connect to frontline communities.

Policy 12G-1.5 Bio-blend fuels are neither better for the climate nor for land or water use. Strongly encourage striking the inclusion of bio-blend fuels as a call-out.

Policy 12I-1.2 What are the means of assessing the resilience strategies and on what timeline?"

P398: What is the role of "the County's ability to reduce overtime" in terms of net-zero targets. Is that a typo?

488 and nearby: The non-motorized transport section is full of out of date information and should be updated. In general I strongly support much greater infrastructure for non-motorized users, including non-motorized bridge crossings.

Best regards,
Benjamin Bryant
1614 S. 14th St
Mount Vernon, WA 98274

**Tara Satushek** Comment # 73

**From:** Eddy Ury <eddyu@re-sources.org>
**Sent:** Friday, March 14, 2025 12:08 AM
**To:** PDS comments
**Subject:** Re: 2025 Comprehensive Plan Draft Policies
**Attachments:** Forest-Carbon Science Synthesis (Law, et al. 2020).pdf

P.S. Here attached is the research synthesis referred to above, mistakenly omitted. I'd be happy to answer any follow-up questions or provide further documentation regarding my comments on energy development as well, at the request of Commissioners and/or staff.

Best Regards,

--
**Eddy Ury**
Climate & Energy Policy Manager
RE Sources
(360) 733 8307 x 215
RE-Sources.org | Facebook | Blog | E-News

On Thu, Mar 13, 2025 at 11:59 PM Eddy Ury <eddyu@re-sources.org> wrote:

> Honorable Planning Commissioners,
>
> Expanding on my prior letter from November and spoken comment at Tuesday's hearing, here I will offer comments on selected subjects of policies related to climate impact mitigation & adaptation, and to industrial growth & development.
>
> **Energy Facilities:**
>
> Recently we saw community uproar and swiftly-enacted land use code changes, in response to proposed Battery Energy Storage Systems in Skagit's agricultural zone. Going forward, we can anticipate other emerging forms of utility facilities may be proposed here in the near-future, for which we are lacking specific provisions on. Rather than legislating reactively, we have the opportunity now to set rules now that clarify what is or is not acceptable to our communities.
>
> Opportunities abound for industrial development in Skagit County to secure a resilient local economy. No matter the direction of the energy sector, Skagit is uniquely positioned to attract investments, given its geographic position, zoning, and existing infrastructure - including high-volume marine shipping and industrial utilities services at March Point. The designated Industrial & Heavy Manufacturing area of March Point currently falls within the planning Urban Growth Area of Anacortes, though remaining outside city limits, Skagit County holds authorities for processing permits.
>
> March Point could potentially become a node for the Pacific Northwest Hydrogen Hub (PNWH2 Hub), a federal infrastructure plan that was developed in the first Trump administration then was funded

through the Bipartisan Infrastructure Act and Inflation Reduction Act. We can anticipate proposals to produce green hydrogen through water electrolysis, alongside the fossil-fuel-based gray hydrogen currently produced at March Point for both oil refineries processes. In addition to expanded production, we may see proposals to develop hydrogen fueling facilities to fuel marine vessels. March Point could also plausibly site Liquified Natural Gas (LNG) storage, distribution, and/or transshipment facilities.

Any such development of alternative fuels could induce vessel traffic through Usual & Accustomed tribal fishing areas and critical habitat for endangered Southern Resident Orca pods. Such projects could face many challenges in the environmental review process, moreover because the current rules governing development at March Point are vague and broadly construed. Consequently, the complex set of risks and impacts for alternative fuel projects at Anacortes spells uncertainty for permitting outcomes that burden us all.

Several municipalities in our region, including Whatcom County, have enacted laws that prohibit new fossil fuel industries outright and set conditions for permitting modifications to existing oil refineries and terminals. Whatcom County's Cherry Point Amendments were adopted in 2021 by unanimous vote of the County Council, ultimately being supported by all major Cherry Point Industry stakeholders (bp, Phillips66, and Petrogas). Since then, hundreds of millions of dollars have been invested in permitted facility improvements that boost production efficiency and decrease overall pollution. Conversely, no major projects have occurred at March Point in this timeframe, perhaps in part due to the uncertainty of permitting outcomes resulting from the lack of any meaningful parameters in the municipal code.

Skagit County and its Cities can be proactive by enacting policies and regulations in 2025 that determine specific conditions for industrial growth. With clearer statutes defining parameters for development, concerned parties (i.e. tribes, environmental groups, neighbors) could be better assured of conditions upfront, while project applicants would gain more predictable and expeditious outcomes. All involved — businesses, government administrators and concerned stakeholders alike — should benefit from transparent rules and guidelines that clarify expectations. Skagit County can preserve farmland and protect public health & safety while allowing beneficial infrastructure, such as clean power generation and storage – but only with growth management choices that delineate appropriate siting locations, clear boundaries and conditions for development.

**Forest Carbon:**

Planning Commissioners have raised important questions around the significance of forest lands in relation to atmospheric greenhouse gases. Complementary to the study cited by the Forest Advisory Board in their comments, we'll submit the attached research synthesis on the subject. In the study cited by FAB, there are some pieces missing from the calculations when declaring forestry sector to be a net carbon sink– namely that reporting errors that potentially undersell product emissions by 25-55%, and the loss of an average of 21% of our carbon sink potential annually due to our current product use patterns (Hudiberg 2019).

Many studies are conclusive that the best forestry-related carbon mitigation strategy is to protect old-growth and legacy forests. This can well be achieved while continuing to allow the harvest of timber. There are ways to improve the carbon footprint for timber economy and to leverage wood (in innovative forms like cross-laminated timber) as a carbon-storing building material in lieu of

emissions-intensive steel and concrete, and this can and should be applied to working forest lands. However, clearcuts and tree farms further heighten the risks and hazards of natural disasters – wildfires, floods, landslides, and droughts. Evaluating for cumulative climate resilience, watershed, and carbon storage values, there are undeniable benefits to preserving mature, structurally complex forests.

**Land Use:**

I would like to also express our general support for the critical recommendations from the Swinomish Tribe, as well those you've received from numerous Skagit residents in recent public comments calling for stricter limits on residential development outside of UGA's to preserve agricultural, natural resource lands and critical areas while protecting residents from the heightened risks of flooding and wildfires in certain areas. The challenging, ongoing work of climate adaptation could be supported by an Environmental Advisory Board, as many have called for.

With forward-thinking approaches – to land use, climate resilience, and energy transition – local governments can ensure a sustainable future for Skagit communities, businesses and ecosystems. If invited, I would be happy to further serve as an informational resource in the coming months, or perhaps engage in collaborative problem-solving, to directly assist Commissioners, planners, consultants and stakeholders in policymaking choices that best serve your communities' interests and goals. Finally, I commend your diligent service of the public and thoughtful consideration of our comments.

Sincerely,

--
**Eddy Ury**
Climate & Energy Policy Manager
RE Sources
(360) 733 8307 x 215
RE-Sources.org | Facebook | Blog | E-News

**The Status of Science on Forest Carbon Management to Mitigate Climate Change (June 1, 2020)**

**Beverly Law**, Emeritus Professor of Global Change Biology & Terrestrial Systems Sci., College of Forestry, Oregon State University (bev.law@oregonstate.edu); **William Moomaw**, Emeritus Professor, The Fletcher School and Co-Director Global Development and Environment Inst. (william.moomaw@tufts.edu); **William Schlesinger**, James B. Duke Professor of Biogeochemistry, Dean (Em.) the School of Env.., Duke Univ., President (Em.) the Cary Inst. of Eco. Studies (schlesingerw@caryinstitute.org); **Tara Hudiburg**, Associate Professor, Dept. of Forest, Rangeland, and Fire Sciences, University of Idaho (thudiburg@uidaho.edu); Stewart Pimm, Ph.D., Doris Duke Chair of Conservation, Duke University (stuartpimm@me.com); **Dominick DellaSala**, Chief Scientist, Geos Institute (dominick@geosinstitute.org); **Chad Hanson**, Forest Ecologist, Earth Island Inst. (cthanson1@gmail.com).

**Forest Carbon and Climate Change**

1. To keep climate and temperatures within a safe range, it is necessary to simultaneously **reduce emissions** of greenhouse gases from all sources, including fossil fuels and bioenergy, and **accelerate storage** of atmospheric carbon in forests, soils and other plant-based systems. To prevent the most serious consequences of climate change, removals of atmospheric carbon dioxide must equal additions no later than 2050, and must not exceed emissions after that (IPCC 2018, 2019).

2. *Increasing cumulative carbon in forests is essential for keeping carbon dioxide out of the atmosphere.* It has been found world-wide that forests hold half of the carbon in the largest 1% diameter trees (Lutz et al, 2018), and can store twice the carbon they do now (Erb et al. 2018). Increasing forest reserves and allowing forests to meet their ecological carbon storage potential (proforestation) are the most effective climate mitigation strategies (Law et al. 2018; Moomaw et al 2019). Letting forests grow and halting land conversions would bring carbon dioxide removal rates closer to current emission rates globally (Houghton and Nassikas, 2018).

3. *Increased harvesting of forests for wood products and burning wood for bioenergy adds more carbon dioxide to the atmosphere than growing secondary forests and protecting older forests.* It takes at least 100 to 350+ years to restore carbon in forests degraded by logging (Law et al. 2018, Hudiburg et al. 2009). If we are to prevent the most serious consequences of climate change, we need to keep carbon in the forests because we don't have time to regain it once the forest is logged (IPCC, 2018).

4. *We have to get the Carbon accounting right*:
   a. It is essential that independent carbon cycle experts provide analysis for federal policy decisions. *65% of the forest carbon removed by logging Oregon's forests in the past 115 years has been returned to the atmosphere,* just 19% is stored in long-lived products and 16% is in landfills (Hudiburg et al. 2019). Half of harvested carbon is emitted to the atmosphere almost immediately after logging (Harmon, 2019). Increased harvesting of forests does not provide climate change mitigation.
   b. *Context of forest carbon emission sources* - Harvest is the major source of forest emissions in the US. Across the lower 48 states, direct harvest-related emissions are 7.6 times higher than all-natural disturbances (e.g., fire, insects) combined (Harris et al. 2016). In the West Coast states (OR, CA, WA), harvest-related emissions average 5 times fire emissions for the three states combined (Hudiburg et al. 2019).
   c. *There is absolutely no evidence that thinning forests increases biomass stored (Zhou et al. 2013).* It takes decades to centuries for carbon to accumulate in forest vegetation and soils (Sun et al. 2004, Hudiburg et al. 2009, Schlesinger 2018), and it takes decades to centuries for dead wood to decompose. We must preserve medium to high biomass (carbon-dense) forest not only because of their carbon potential but also because they have the greatest biodiversity of forest species (Krankina et al. 2014, Buotte et al. 2019, 2020).
   d. Burning wood for energy produces as much or more emissions as burning coal, so it is not an effective climate mitigation solution (Law et al. 2018, Hudiburg et al. 2011, 2019, Sterman et al. 2018). It always takes

longer for the forest to regrow and recover all of the carbon released than the age of the forest that was harvested (Schlesinger 2018). It is incorrect to describe burning of wood for energy as *carbon neutral*, because it increases carbon emissions now, when we can least afford such increases to the atmosphere. Alternatively, if the original trees continued to grow, without logging, there would be more than twice as much carbon in the trees and that much less in the atmosphere.

e. Especially troubling is the export of woodchips from deciduous forests in the Southeastern USA to Europe. These forests are rich in biodiversity. They have taken many decades to grow, constitute a large standing crop of carbon, and one that will also take many decades to recover.
f. Building or converting a power facility to use beetle and fire-killed trees ("salvage logging") immediately releases $CO_2$ to the atmosphere while causing severe damage to wildlife habitat (DellaSala and Hanson 2015) and soils. Once the dead trees have been burned, harvesting live trees would be required to sustain the supply needed to run the facility. This will not keep carbon out of the atmosphere.

**Proposed Solutions**

To address climate, biodiversity and additional ecosystem service needs, we propose designating carbon reserves on both public and private lands, and concentrating forest product production on specified timberlands - a two-track solution.

The current system where most *forestlands* are available for logging keeps too many trees at a smaller size that do not store much carbon. Providing incentives to lengthen rotation harvest cycles will increase carbon storage in production forests, and reduce atmospheric carbon dioxide.

Forest carbon accounting and verification should be done as part of climate and forest policy implementation and in Environmental Impact Analysis by independent groups of scientists with carbon accounting expertise following life cycle assessment protocols (Hudiburg et al. 2019).

Aligning policies with climate goals is essential. Rescind the requirement that all federal agencies treat forest bioenergy as carbon neutral if it comes from sustainably managed forests and remove subsidies for bioenergy facilities. ‘Sustainable forest management’ refers only to maintaining harvested biomass at or below the rate of annual growth. It does not maximize accumulated forest carbon storage or maintain full biodiversity and other ecosystem services.. The US government should re-engage in the Paris Climate Agreement by enhancing and maintaining natural carbon sinks.

***Proposals for Federal Forest Lands***

How can public lands policy be improved to help meet climate goals?

1. Establish Federal Forest Carbon Reserves on public forestlands with moderate to high carbon density potential. Old growth forests and roadless areas on public lands should be included in a federal carbon reserve. For example, the Tongass National Forest in Alaska contains approximately 10% of all carbon stored in US forests (USFS, 2020). The carbon stored in 9.2 million acres of at-risk roadless areas on the Tongass has a potential value of at least $234 million in future carbon markets, which exceeds the one-time timber value by orders of magnitude (DellaSala and Burma, 2020). Protecting more public lands from logging benefits private landowners by reducing competition for lower cost timber on public lands.
2. Redirect the billions of dollars currently being spent annually on harvesting public forestlands into a green jobs program to help communities become more fire-safe. Enhance the Youth Conservation Corps and/or establish a CCC. For example, the corps could work with independent expert groups to quantify and verify forest carbon on federal and private lands, help with fire-planning in communities via defensible space and home hardening, monitor forest usage and roadside idling during peak fire season, and remove old timber roadbeds that are impacting watersheds.

***Proposals for Private Lands***

How do we help communities that have become reliant on forests while reaching the goal of successful climate mitigation?

1. Rural counties with higher proportions of protected public lands that emphasize tourism and recreation have higher per capita incomes and more jobs than those that rely on logging (Rasker 2017). Enhance eco-friendly tourism and recreation in the vicinity of national forests and parks.
2. The USFS found in a survey that most private non-industrial land owners do not really want to cut their timber, but have to for financial reasons (USFS 2016). Forest Carbon Reserves on non-industrial private lands could be encouraged by providing incentives (subsidies, health care or tax abatements) to private land owners to manage for increased carbon storage.
3. Carbon offsets programs for landowners. A carbon offsets program has been demonstrated in California using private lands across the country (Anderson et al. 2017), and a California-type offsets program has been demonstrated to be feasible and sustainable for forest lands within Oregon (Law et al. 2018) and Alaska (e.g., Sealaska Native Corporation carbon transaction).

**Citations**


Anderson CM, CB Field, KJ Mach. 2017. Forest offsets partner climate-change mitigation with conservation. Front Ecol Environ 15:359–365. https://esajournals.onlinelibrary.wiley.com/doi/abs/10.1002/fee.1515

Buotte, PC, S Levis, BE Law, TW Hudiburg, DE Rupp, JJ Kent. 2019. Near-future vulnerability to drought and fire varies across the western United States. Global Change Biology 25:290-303. https://doi.org/10.1111/gcb.14490

Buotte, PC, BE Law, WJ Ripple, LT Berner. 2020. Carbon sequestration and biodiversity co-benefits of preserving forests in the western United States. Ecological Applications 30(2):e02039. https://doi.org/10.1002/eap.2039

DellaSala, DA, CT Hanson (Editors). 2015. The ecological importance of mixed- severity fires: nature's phoenix. Elsevier Inc., Waltham, MA, USA. https://www.elsevier.com/books/the-ecological-importance-of-mixed-severity-fires/dellasala/978-0-12-802749-3

DellaSala and Burma. 2020 Information submitted to the Tongass National Forest

Erb, K.-H. et al. 2018. Unexpectedly large impact of forest management and grazing on global vegetation biomass. *Nature* 553, 73–76. https://doi:10.1038/nature25138

Harris, NL et al. 2016. Attribution of net carbon change by disturbance type across forest lands of the conterminous United States. Carbon Balance Manage 11:24. https://cbmjournal.biomedcentral.com/articles/10.1186/s13021-016-0066-5

Harmon, ME. 2019. Have product substitution carbon benefits been overestimated? A sensitivity analysis of key assumptions**.** *Environ. Res. Lett.* **14** 065008. https://iopscience.iop.org/article/10.1088/1748-9326/ab1e95

Houghton, RA, AA Nassikas. 2018. Negative emissions from stopping deforestation and forest degradation, globally. *Glob. Change Biol.* 24, 350–359. https://doi:10.1111/gcb.13876

Hudiburg, TW, BE Law, DP Turner, J Campbell, D Donato, M Duane. 2009. Carbon dynamics of Oregon and Northern California forests and potential land-based carbon storage. Ecol Applic 19:163-180. https://esajournals.onlinelibrary.wiley.com/doi/10.1890/07-2006.1

Hudiburg, TW, BE Law, C Wirth, S Luyssaert. 2011. Regional $CO_2$ implications of forest bioenergy production. Nature Climate Change 1:419-423. https://doi.org/10.1038/nclimate1264

Hudiburg, TW, BE Law, WR Moomaw, ME Harmon, JE Stenzel. 2019. Meeting GHG reduction targets requires accounting for all forest sector emissions. *Environ. Res. Lett.* **14**: 095005. https://iopscience.iop.org/article/10.1088/1748-9326/ab28bb

IPCC 2018 Intergovernmental panel on Climate Change "Summary for Policymakers, "*Global warming of 1.5°C"* https://www.ipcc.ch/sr15/.

IPCC 2019 Intergovernmental panel on Climate Change "Summary for Policymakers," Land Report https://www.ipcc.ch/srccl/chapter/summary-for-policymakers/

Law, BE, TW Hudiburg, LT Berner, JJ Kent, PC Buotte, ME Harmon. 2018. Land use strategies to mitigate climate change in carbon dense temperate forests. Proc. Nat. Acad. Sci. 115(14):3663-3668. https://doi.org/10.1073/pnas.1720064115

Lutz, JA, TJ Furniss, DJ Johnson, SJ Davies, D Allen et al. 2018. Global importance of large-diameter trees. *Glob. Ecol. Biogeogr.* 27, 849–864. https://doi.10.1111/geb.12747

Moomaw, WR, SA Masino, EK Faison. 2019. Intact Forests in the United States: Proforestation Mitigates Climate Change and Serves the Greatest Good. Front. For. Glob. Change https://doi.org/10.3389/ffgc.2019.00027

Rasker, R. 2017. Today's economy and the role of federal lands. Headwaters Economics, Bozeman, MT. https://headwaterseconomics.org/wp-content/uploads/Todays_Economy_Federal_Public_Lands.pdf

Schlesinger, WH. 2018. Are wood pellets a green fuel? Science 359: 1328-1329. https://science.sciencemag.org/content/359/6382/1328

Sterman, JD, L Siegel, JN Rooney-Varga. 2018. Does replacing coal with wood lower $CO_2$ emissions? Dynamic life cycle analysis of wood bioenergy. Env Res Lett 13: 015007. https://iopscience.iop.org/article/10.1088/1748-9326/aaa512/pdf

Sun, O, J Campbell, BE Law, V Wolf. 2004. Dynamics of carbon stocks in soils and detritus across chronosequences of different forest types in the Pacific Northwest, USA. Global Change Biology 10:1470-1481. https://doi.org/10.1111/j.1365-2486.2004.00829.x

USFS 2016. Butler, Brett J. et al. 2016. USDA Forest Service National Woodland Owner Survey: national, regional, and state statistics for family forest and woodland ownerships with 10+ acres, 2011-2013. Res. Bull. NRS-99. 39 p. https://doi.org/10.2737/NRS-RB-99.

USFS 2020. PNW Research Station. 2020. Forestry as a natural climate solution: the positive outcome of negative carbon emissions. Science Findings Issue 225. USDA Forest Service. https://www.fs.usda.gov/treesearch/pubs/59435

Zhou, D, SQ Zhau, S Liu, J Oeding. 2013. A meta-analysis on the impacts of partial cutting on forest structure and carbon storage. Biogeosciences 10, 3691-3703. https://www.nature.com/articles/srep03547

**Tara Satushek**

Comment # 74

| | |
|---|---|
| **From:** | Commissioners |
| **Sent:** | Friday, March 14, 2025 9:17 AM |
| **To:** | PDS comments |
| **Subject:** | FW: Skagit County's 2025 Comprehensive Plan-- Western Washington Agriculture Association |
| **Attachments:** | WWAA Public Comments on Comp Plan Update.pdf |

**From:** Mikala Staples Hughes <mikalas@sakumabros.com>
**Sent:** Friday, March 14, 2025 9:12 AM
**To:** Peter Browning <pbrowning@co.skagit.wa.us>; Lisa Janicki <ljanicki@co.skagit.wa.us>; Ron Wesen <ronw@co.skagit.wa.us>
**Cc:** Commissioners <commissioners@co.skagit.wa.us>
**Subject:** FW: Skagit County's 2025 Comprehensive Plan-- Western Washington Agriculture Association

Hi Commissioners Janicki, Wesen, and Browning,

I hope this email finds you well—on a sunny Friday morning, no less! On behalf of the Western Washington Agricultural Association, I wanted to share our concerns regarding the 2025 Comprehensive Plan Update. We were alarmed to see that nearly the entire NRL Ag-Lands section has been modified, with many changes appearing to weaken enforceability on agricultural lands and remove key policies supporting agricultural education, promotion, and public awareness.

Additionally, references to the Farmland Legacy program were removed, and language now suggests special events and habitat restoration on farmland could be broadly permitted without special use permits. These changes raise serious concerns about the future management and protection of agricultural lands and farm viability. Similar concerns have been echoed in written comments from Skagitonians to Preserve Farmland, Friends of Skagit County, the Agricultural Advisory Board, and the Drainage and Irrigation Districts Consortium.

While I understand the Planning Commission's role in this process, these revisions are concerning. I hope they stem from an attempt to align with other county plans rather than a shift away from Skagit County's uniquely strong farmland protections. Given the complexity of this process, I was surprised these changes were published without being flagged by the Planning Department before release.

Given your commitment to preserving farmland, I wanted to highlight this issue early. We trust you will continue to advocate for agricultural viability and appreciate your efforts to support our farming community.

Please reach out if I can provide further context or information.

Warmly,

Mikala

*"Honoring our past, growing our future."*

**Mikala Staples Hughes**
VP, Processing Operations + Human Resources
Sakuma Bros. Farms and Processing

**M:** 360-770-7268 **P:** 360-639-6172
**E:** mikalas@sakumabros.com
PO Box 427 - 17400 Cook Road

Burlington, WA 98233
www.sakumabros.com

The content of this email is confidential and intended for the recipient specified in message only. It is strictly forbidden to share any part of this message with any third party, without a written consent of the sender. If you received this message by mistake, please reply to this message and follow with its deletion, so that we can ensure such a mistake does not occur in the future.

---

**From:** Mikala Staples Hughes
**Sent:** Thursday, March 13, 2025 12:33 PM
**To:** pdscomments@co.skagit.wa.us; vhenley@skagitgov.net; angelad@skagitgov.net; ahughes@skagitgov.net; jwoodmansee@skagitgov.net; timr@skagitgov.net; tcandler@skagitgov.net
**Subject:** Skagit County's 2025 Comprehensive Plan-- Western Washington Agriculture Association

Dear Planning Commissioners and Department Staff:

On behalf of the **Western Washington Agricultural Association (WWAA)**, please find attached our comments regarding the proposed revisions to Skagit County's 2025 Comprehensive Plan. We appreciate the opportunity to provide feedback on these important land-use policies that will shape the future of agricultural resource lands in our region.

As outlined in the attached letter, we have **significant concerns** regarding the changes to Section 4: Natural Resource Lands, Agricultural Resource Lands. Many of the proposed revisions weaken enforceability, remove key agricultural support policies, and introduce ambiguous language that could undermine farmland protections. Given that only 7.44% of Skagit County's land base is currently in agricultural use, it is critical that the Comprehensive Plan maintains strong, clear policies that prioritize and protect agriculture.

The enclosed attachment outlines our specific recommendations, including restoring original language where necessary, refining certain provisions for clarity, and ensuring consistency with the Growth Management Act. We urge the Planning Commission to carefully review these recommendations and make the necessary adjustments to safeguard the future of agriculture in Skagit County.

We welcome further discussion and would be happy to answer any questions staff or individual commissioners may have. You can contact me directly at my cell phone by calling (360) 770-7268.

Best regards,

**Mikala Staples Hughes**
VP, Processing Operations + Human Resources
Sakuma Bros. Farms and Processing

**M:** 360-770-7268 **P:** 360-639-6172
**E:** mikalas@sakumabros.com
PO Box 427 - 17400 Cook Road
Burlington, WA 98233
www.sakumabros.com

*"Honoring our past, growing our future."*

The content of this email is confidential and intended for the recipient specified in message only. It is strictly forbidden to share any part of this message with any third party, without a written consent of the sender. If you received this message by mistake, please reply to this message and follow with its deletion, so that we can ensure such a mistake does not occur in the future.

March 13, 2025

Skagit County Planning and Development Services
1800 Continental Place
Mount Vernon WA 98273

Re: Skagit County's 2025 Comprehensive Plan

Dear Planning Commissioners and Department Staff:

The Western Washington Agricultural Association (WWAA) has been a steadfast advocate for agriculture in Western Washington for 80 years, particularly in Skagit County. Our region's farms—producing essential products such as berries, potatoes, seeds, livestock and row crops—are vital to local communities and the global food supply. We appreciate the opportunity to review the proposed Comprehensive Plan revisions and provide feedback on behalf of our membership.

We are concerned that nearly every policy in Section 4: Natural Resource Lands, Agricultural Resource Lands (beginning on Page 130 of the redlined version) of the Comprehensive Plan has been modified. While we acknowledge that a periodic review is required by law, it does not mandate the rewriting or removal of existing policies without clear justification. Policy changes should strengthen protections for agricultural lands, not weaken them. The consultant stated that many of the revisions to Agricultural-NRL policies were made to "be more concise." However, consolidation should not come at the expense of critical protection. Simplifying language must not diminish enforceability or weaken longstanding policies that safeguard farmland.

According to 2025 Assessor data, only 7.44% of Skagit County's land base is currently designated as agricultural land in use. With agricultural land already diminishing due to development pressures, rising operational costs, and competing land-use priorities, reducing protection is a direct threat to the long-term sustainability of farming in our region. Weakening policies designed to protect and promote this industry contradicts the county's long-standing planning principles and commitment to farmland preservation.

**We have included Attachment 1 in this document, which contains the Agricultural Resource Lands section along with our recommendations to either restore the original language, make slight modifications to the revisions, or accept the proposed changes.**

Below is an outline of our specific concerns with the revisions, detailing why we believe the proposed changes should not be adopted.

**Removal of Policies Supporting Agriculture**

Several key policies that directly support youth education, sustainable agriculture, public awareness, and local farm viability have been entirely removed from the comprehensive plan, signaling a troubling shift away from proactive agricultural support. These include:

- Policy 4A-2.10 Sustainable Agriculture Practices
- Policy 4A-2.11 Promote Agricultural Products
- Policy 4A-2.12 Promote Public Awareness
- Policy 4A-2.13 Promote Education

The removal of these policies represents a significant step backward in the county's commitment to agricultural sustainability, economic vitality, and public engagement. Without policies that promote best management practices, local product branding, and agricultural education, the county risks undermining the long-term viability of its farming sector.

According to the Natural Resource Lands Element Policy Database file, these policies were removed for conciseness and administrative cleanup. However, streamlining language should not come at the expense of essential protections.

If the county is truly committed to preserving farmland and supporting agriculture, these policies must be reinstated. We urge decision-makers to prioritize agricultural viability by maintaining strong, proactive policies that safeguard Skagit County's farming legacy for future generations.

**Weakening Enforcement on Farmland**

The proposed changes weaken farmland protections by introducing ambiguous language where clear, enforceable policies are essential. A primary concern is the systematic replacement of "shall" with weaker, non-binding language, stripping critical policies of their enforceability. If allowed to stand, these changes could undermine farmland protections, increase conflicts between agricultural and non-agricultural land uses, and erode the county's commitment to preserving and building its agricultural economy.

***Specific Examples of Weakened Protections***

**These are some of the most concerning examples, though they are not exhaustive. Any instance where a directive has been weakened should be carefully reviewed and restored to maintain clarity and enforceability.**

**Policy 4A-2.1 (Agricultural Advisory Board Representation)**

- **Current:** *"The Agricultural Advisory Board shall represent agricultural producers."*
- **Revised:** *"Ensure the Agricultural Advisory Board represents the agricultural community."*

The revised language weakens specificity by broadening representation from agricultural producers to the agricultural community, potentially including non-farming interests. This dilutes the board's primary function—ensuring those directly engaged in production agriculture have a voice in land-use decisions.

Additionally, replacing "shall" with "ensure" makes the policy less prescriptive and enforceable. The board was established to advocate for farmers, who represent just 1% of the population, ensuring their perspectives are prioritized over those who live in rural areas but are not actively engaged in agriculture.

To preserve its intended role, the policy should retain clear, directive language that keeps the focus on agricultural producers.

**Goal 4A-4 (Allowable Land Uses)**

- **Current:** *"Land uses allowed on designated agricultural land shall promote agriculture, agricultural support services, and promote diverse agricultural industries."*
- **Revised:** *"Allow land uses on designated agricultural land that support agricultural production as the highest priority and establish Agricultural Support Services, Farm-Based Businesses, and residential uses as accessory uses."*

The revised language weakens the explicit prioritization of agriculture by shifting from a clear mandate to a more permissive structure. The original policy clearly required that all land uses promote agriculture, whereas the revised version dilutes this priority by introducing additional uses, such as residential development, as "accessory uses." This could open the door for competing land uses that may gradually erode farmland protections.

**Policy 4A-2.5 (Farmland Reporting)**

- **Current:** *"Skagit County, through the Farmland Legacy Program, shall prepare a periodic report on the 'state of Skagit County agriculture' using the US Census of Agriculture and other sources."*
- **Revised:** *"Prepare a periodic report on the 'state of Skagit County agriculture' using the US Census of Agriculture and other sources."*

By removing *"Skagit County, through the Farmland Legacy Program, **shall**"*, the revised policy reduces accountability and the guarantee of regular reporting. This reporting is critical to the continued support for the Farmland Legacy Program and to fulfil the county's obligations stated in other areas of the plan.

**Policy 4A-4.5 (Special Events and Activities)**

- **Current:** *"Special events and activities on agricultural lands shall be conducted in ways that reduce potential impacts resulting from the activity."*
- **Revised:** *"Conduct special events and activities on agricultural lands in ways that reduce potential impacts resulting from the activity."*

The removal of "shall" diminishes the policy's strength and enforceability, making compliance less assured.

**Policy 4A-5.2 (Deed Restrictions)**

- **Current:** *"All real estate transactions involving residential development on or within one mile of agricultural resource lands shall contain recorded documentation of the residential owners' acknowledgment of the potential farming activities and receipt of the Right-to-Manage Natural Resource Lands information."*

- **Revised:** *"Require recorded documentation of the residential owners' acknowledgment of the potential farming activities and receipt of the Right-to-Manage Natural Resource Lands information for all real estate transactions involving residential development on or within one mile of agricultural resource lands."*

The revised wording weakens enforceability by introducing ambiguity where the original language was clear and direct. The original mandate for recorded documentation in all real estate transactions is now less prescriptive, creating inconsistency in application.

Conflicts between residential and agricultural land typically arise at zoning transitions, making strong disclosure requirements essential to prevent disputes. RCW 64.06.022 already mandates that sellers inform buyers of nearby farming or forestry operations, reinforcing protections under the Washington Right to Farm Act (RCW 7.48.305). Weakening Policy 4A-5.2 undermines this legal standard by adding unnecessary ambiguity to an already well-defined state requirement.

**Policy 4A-4.1 (Agricultural Production Priority)**

- **Current:** *"Agricultural production is the highest priority use in designated agricultural resource lands."*
- **Revised:** *"Support, adopt, and implement regulations and policies that support agricultural production as the highest priority use in designated agricultural resource lands."*

The revised version adds unnecessary qualifiers, making the policy less direct and more susceptible to interpretation. The original language clearly establishes agricultural production as the highest priority, while the revision introduces bureaucratic phrasing ("support, adopt, and implement") that could allow competing land uses to gain footing over time. This shift weakens the policy's enforceability and could lead to loopholes that undermine farmland protections.

**Policy 4A-4.3 (Farm Based Business)**

- **Current:** *"Farm-based businesses shall be allowed as an accessory use."*
- **Revised:** *"Support farm-based businesses as an agriculture accessory use."*

The revised language weakens the directive by replacing "shall be allowed" with "support", making the policy less enforceable and more open to interpretation. The original wording ensures farm-based businesses are permitted, while the revision introduces ambiguity about whether such businesses are guaranteed as an accessory use or merely encouraged.

**Policy 4A-4.6 (Habitat Restoration)**

- **Current:** *"Habitat restoration projects are a permitted use of agricultural lands so long as it is shown through project review that the proposed restoration project does not have an adverse impact on hydrologic functions, drainage infrastructure or the ongoing agricultural use of adjacent properties"*
- **Revised**: *"Permit habitat restoration projects on agricultural lands so long as it is shown through project review that the proposed restoration project does not have an adverse impact on hydrologic functions, drainage infrastructure or the ongoing agricultural use of adjacent properties"*

The revised language alters the intent of the policy by creating the perception that habitat restoration is an inherently permitted use on agricultural lands, rather than a conditional activity subject to review. This is misleading and could be misinterpreted as a policy shift toward prioritizing restoration over agricultural use.

To maintain clarity and ensure the policy reflects its original intent, the language should explicitly state that habitat restoration projects are only allowable when they do not negatively impact hydrology, drainage, or adjacent agricultural operations.

***Recommendations to Strengthen Farmland Protections***

Given the concerning shift toward weaker, less enforceable language in the revised Comprehensive Plan, we strongly recommend the following actions to restore the clarity, enforceability, and intent of farmland protection policies:

1. **Restore Clear, Mandatory Language**
   Reinstate the use of "shall" in all policies where it has been removed or replaced with weaker terms such as "support" or "ensure." The use of mandatory, prescriptive language is essential to uphold farmland protections and prevent unintended interpretations that could favor non-agricultural land uses.

2. **Ensure Agricultural Representation Remains Clear and Unambiguous**
   Policies governing agricultural advisory boards and land-use decision-making bodies must clearly state their responsibility to represent agricultural producers without diluting their mandate.

3. **Preserve the Prioritization of Agriculture in Land Use Policy**
   Agricultural Resource Lands must remain explicitly prioritized for agricultural production.

**Inconsistency with the Growth Management Act (GMA)**

We also note concerning **inconsistencies with the Growth Management Act (GMA)** in **Policy 4A-1.1e** regarding the de-designation of Agricultural Resource Lands:

- **Newly Added Section 4A-1.1e**: *"Site-specific proposals to de-designate natural resource lands must be deferred until a comprehensive countywide analysis is conducted."*

The GMA mandates a clear process for the designation and de-designation of resource lands (RCW 36.70A.170, WAC 365-190-050, and WAC 365-190-040). The Comprehensive Plan must reference this legal requirement and established process to compliance with state law and avoid potential conflicts with land-use policies.

**Inconsistent Terminology – Farmland Legacy Program**

There is inconsistent terminology used throughout the document when referring to the Farmland Legacy Program. The revised plan replaces references to this well-established program with "Conservation Futures Program." However, as stated on the Farmland Legacy Program website, the Skagit County Conservation Futures Advisory Board (CFAB) is responsible for administering the program. Participants, stakeholders, and community members recognize the program as the Farmland Legacy Program, not by the advisory board name.

We recommend using "Farmland Legacy Program" as the primary reference and only referencing the Conservation Futures Advisory Board where necessary. Additionally, in Policy 4A-2.3, the term "Conservative Futures Advisory Committee (CFAC)" appears instead of Conservation Futures Advisory Board (CFAB)—this inconsistency should be corrected.

**Conclusion and Recommendation**

We urge the Planning Commission to carefully evaluate the proposed revisions, as even minor grammatical changes can have significant implications for policy enforceability and the long-term protection of farmland. Clear, prescriptive, and enforceable policies are essential to safeguarding agricultural land and ensuring the continued viability of the agricultural industry.

To support this effort, we have provided a document included in **Attachment 1** outlining our specific recommendations, including which revisions should be retained, modified, or rejected.

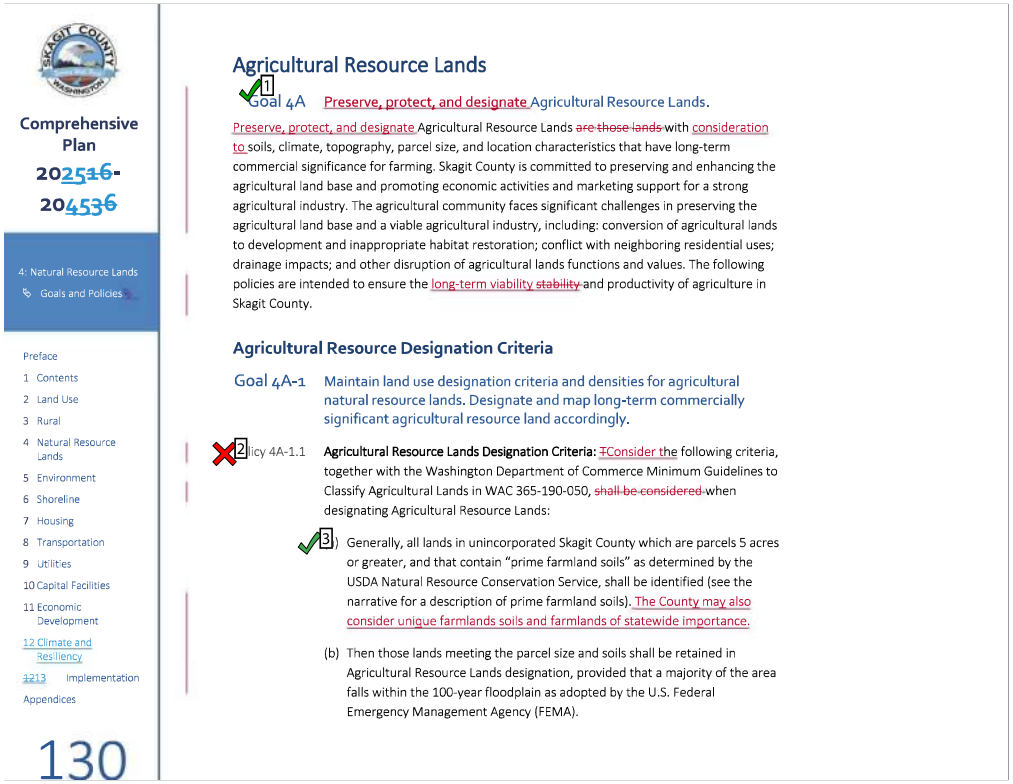
Respectfully,

Mikala Staples Hughes
*Member Board of Directors*
*Cell: (360) 770-7268*

Owen Peth, President
Jennifer Smith, Vice President
Dan Gundersen, Treasurer
Aaron Taylor, Secretary

**Board Members:**
Brandon Hansen | Tyler Breum | Jacob Slosberg | Torey Wilson | Troy Hansen

*Enclosure: Attachment 1*



Comprehensive Plan
2025~~16~~-
2045~~36~~

4: Natural Resource Lands
Goals and Policies

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
~~12~~13 Implementation
Appendices

130

## Agricultural Resource Lands

1 Goal 4A Preserve, protect, and designate Agricultural Resource Lands.

Preserve, protect, and designate Agricultural Resource Lands ~~are those lands~~ with consideration to soils, climate, topography, parcel size, and location characteristics that have long-term commercial significance for farming. Skagit County is committed to preserving and enhancing the agricultural land base and promoting economic activities and marketing support for a strong agricultural industry. The agricultural community faces significant challenges in preserving the agricultural land base and a viable agricultural industry, including: conversion of agricultural lands to development and inappropriate habitat restoration; conflict with neighboring residential uses; drainage impacts; and other disruption of agricultural lands functions and values. The following policies are intended to ensure the long-term viability ~~stability~~ and productivity of agriculture in Skagit County.

### Agricultural Resource Designation Criteria

Goal 4A-1 Maintain land use designation criteria and densities for agricultural natural resource lands. Designate and map long-term commercially significant agricultural resource land accordingly.

2 licy 4A-1.1 **Agricultural Resource Lands Designation Criteria:** ~~T~~Consider the following criteria, together with the Washington Department of Commerce Minimum Guidelines to Classify Agricultural Lands in WAC 365-190-050, ~~shall be considered~~ when designating Agricultural Resource Lands:

3 (a) Generally, all lands in unincorporated Skagit County which are parcels 5 acres or greater, and that contain "prime farmland soils" as determined by the USDA Natural Resource Conservation Service, shall be identified (see the narrative for a description of prime farmland soils). The County may also consider unique farmlands soils and farmlands of statewide importance.

(b) Then those lands meeting the parcel size and soils shall be retained in Agricultural Resource Lands designation, provided that a majority of the area falls within the 100-year floodplain as adopted by the U.S. Federal Emergency Management Agency (FEMA).

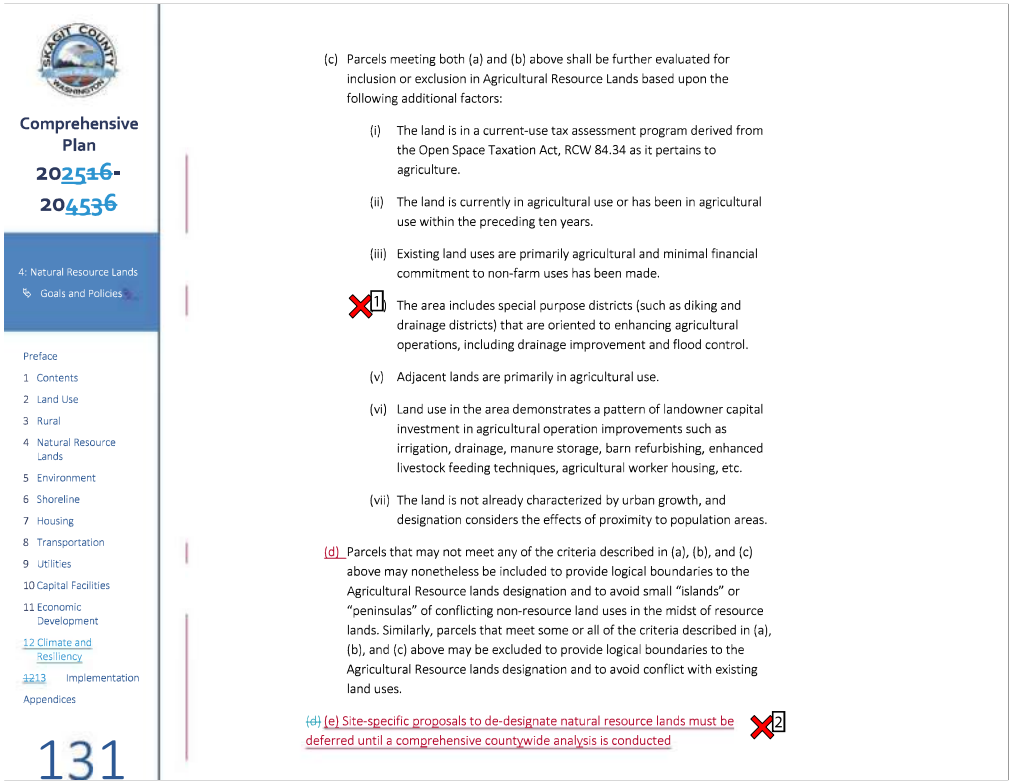
# Summary of Comments on CompPlan2025_WholeDocumentRedlines_V2.0.pdf

## Page: 1

Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:44:23 AM
Goal 4A: Accept Change.

Number: 2 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:45:38 AM
4A-1.1 Restore original language.

Number: 3 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:45:32 AM
4A1.1 (a) Accept change.



Comprehensive Plan
2025~~16~~-
2045~~36~~

4: Natural Resource Lands
Goals and Policies

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
~~12~~13 Implementation
Appendices

131

(c) Parcels meeting both (a) and (b) above shall be further evaluated for inclusion or exclusion in Agricultural Resource Lands based upon the following additional factors:

(i) The land is in a current-use tax assessment program derived from the Open Space Taxation Act, RCW 84.34 as it pertains to agriculture.

(ii) The land is currently in agricultural use or has been in agricultural use within the preceding ten years.

(iii) Existing land uses are primarily agricultural and minimal financial commitment to non-farm uses has been made.

(iv) The area includes special purpose districts (such as diking and drainage districts) that are oriented to enhancing agricultural operations, including drainage improvement and flood control. 1

(v) Adjacent lands are primarily in agricultural use.

(vi) Land use in the area demonstrates a pattern of landowner capital investment in agricultural operation improvements such as irrigation, drainage, manure storage, barn refurbishing, enhanced livestock feeding techniques, agricultural worker housing, etc.

(vii) The land is not already characterized by urban growth, and designation considers the effects of proximity to population areas.

(d) Parcels that may not meet any of the criteria described in (a), (b), and (c) above may nonetheless be included to provide logical boundaries to the Agricultural Resource lands designation and to avoid small "islands" or "peninsulas" of conflicting non-resource land uses in the midst of resource lands. Similarly, parcels that meet some or all of the criteria described in (a), (b), and (c) above may be excluded to provide logical boundaries to the Agricultural Resource lands designation and to avoid conflict with existing land uses.

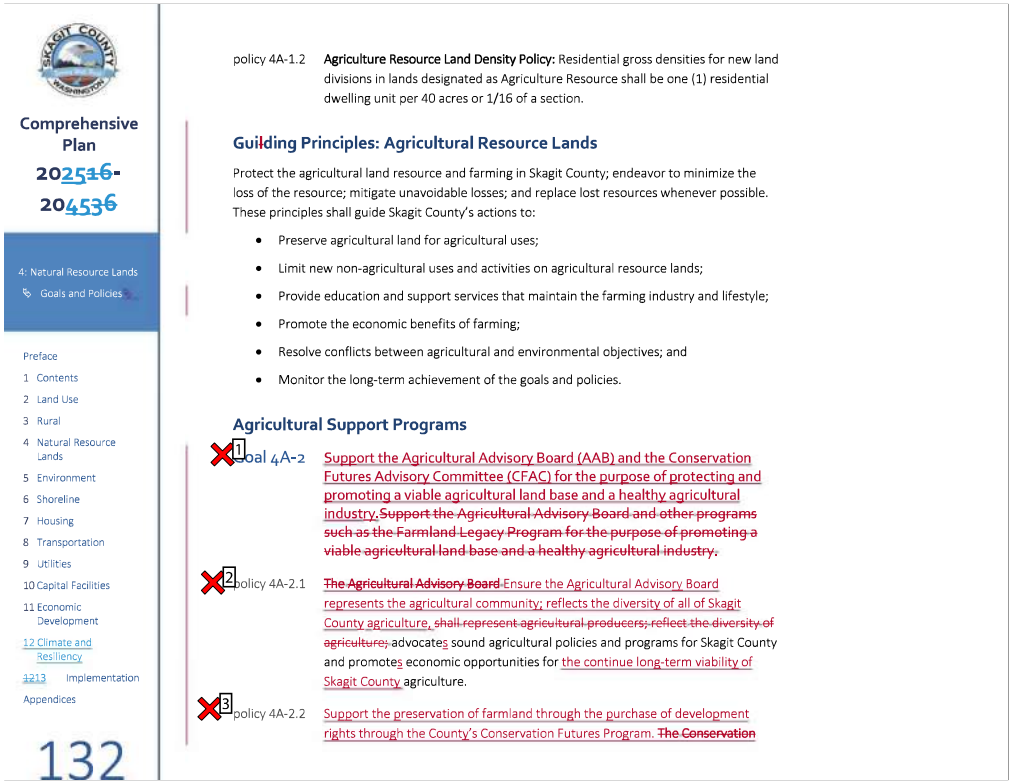
~~(d)~~ (e) Site-specific proposals to de-designate natural resource lands must be deferred until a comprehensive countywide analysis is conducted 2

## Page: 2

Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:45:17 AM
4A1.1 (c) (iv) Revise: The area includes special purpose districts (such as diking, drainage and irrigation districts) that are oriented to enhancing agricultural operations, including drainage improvement and flood control.

Number: 2 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:46:16 AM
4A1.1 (e) See WWAA comments pertaining to GMA. Ensure reference is made to process prescribed in WAC 365-190-040.

Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:25:13 AM
Move to Policy 4A-3.1 where de-designation of agricultural land is already discussed.



Comprehensive Plan
2025~~16~~-
2045~~36~~

4: Natural Resource Lands
Goals and Policies

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
~~12~~13 Implementation
Appendices



policy 4A-1.2 **Agriculture Resource Land Density Policy:** Residential gross densities for new land divisions in lands designated as Agriculture Resource shall be one (1) residential dwelling unit per 40 acres or 1/16 of a section.

### Gui~~l~~ding Principles: Agricultural Resource Lands

Protect the agricultural land resource and farming in Skagit County; endeavor to minimize the loss of the resource; mitigate unavoidable losses; and replace lost resources whenever possible. These principles shall guide Skagit County's actions to:

- Preserve agricultural land for agricultural uses;
- Limit new non-agricultural uses and activities on agricultural resource lands;
- Provide education and support services that maintain the farming industry and lifestyle;
- Promote the economic benefits of farming;
- Resolve conflicts between agricultural and environmental objectives; and
- Monitor the long-term achievement of the goals and policies.

### Agricultural Support Programs

1 Goal 4A-2 Support the Agricultural Advisory Board (AAB) and the Conservation Futures Advisory Committee (CFAC) for the purpose of protecting and promoting a viable agricultural land base and a healthy agricultural industry. ~~Support the Agricultural Advisory Board and other programs such as the Farmland Legacy Program for the purpose of promoting a viable agricultural land base and a healthy agricultural industry.~~

2 policy 4A-2.1 ~~The Agricultural Advisory Board~~ Ensure the Agricultural Advisory Board represents the agricultural community; reflects the diversity of all of Skagit County agriculture, ~~shall represent agricultural producers; reflect the diversity of agriculture;~~ advocates sound agricultural policies and programs for Skagit County and promotes economic opportunities for the continue long-term viability of Skagit County agriculture.

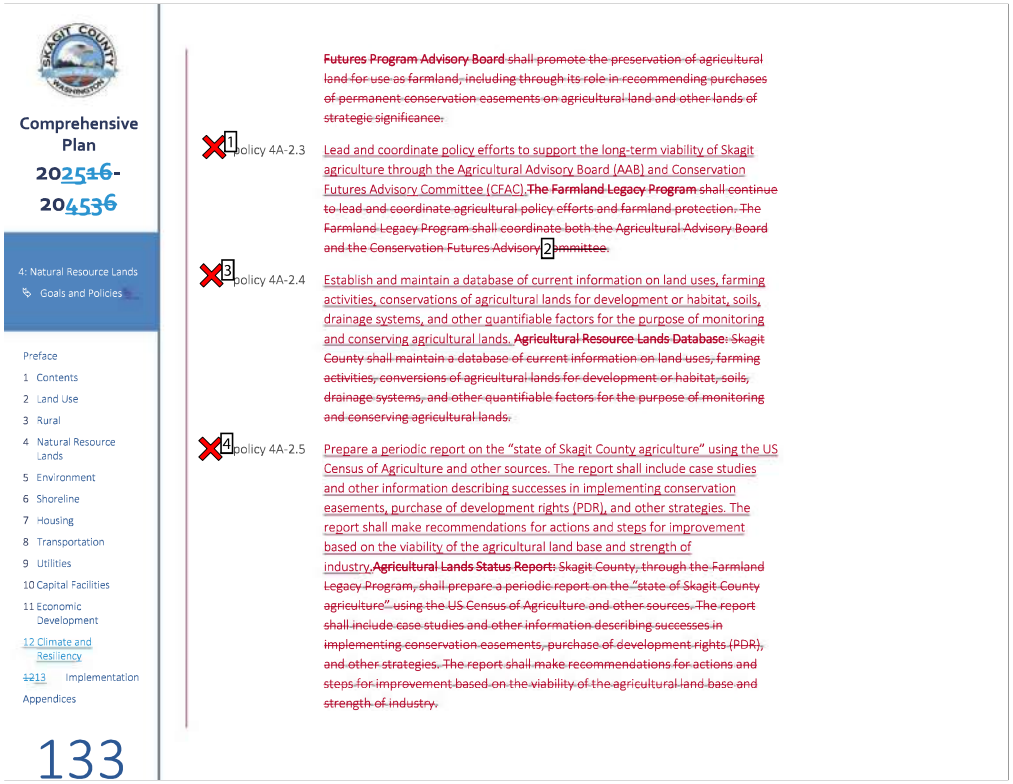
3 policy 4A-2.2 Support the preservation of farmland through the purchase of development rights through the County's Conservation Futures Program. ~~The Conservation~~

## Page: 3

Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:46:56 AM
Goal 4A-2 Restore original language.

Number: 2 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:47:09 AM
4A-2.1 Restore original language.

Number: 3 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:47:27 AM
4A-2.2 Restore original language.



Comprehensive Plan
2025~~16~~-
2045~~36~~

4: Natural Resource Lands
Goals and Policies

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
~~12~~13 Implementation
Appendices



~~Futures Program Advisory Board~~ ~~shall promote the preservation of agricultural land for use as farmland, including through its role in recommending purchases of permanent conservation easements on agricultural land and other lands of strategic significance.~~

[1] policy 4A-2.3 Lead and coordinate policy efforts to support the long-term viability of Skagit agriculture through the Agricultural Advisory Board (AAB) and Conservation Futures Advisory Committee (CFAC). ~~The Farmland Legacy Program shall continue to lead and coordinate agricultural policy efforts and farmland protection. The Farmland Legacy Program shall coordinate both the Agricultural Advisory Board and the Conservation Futures Advisory [2] ~~mmittee.~~

[3] policy 4A-2.4 Establish and maintain a database of current information on land uses, farming activities, conservations of agricultural lands for development or habitat, soils, drainage systems, and other quantifiable factors for the purpose of monitoring and conserving agricultural lands. ~~Agricultural Resource Lands Database: Skagit County shall maintain a database of current information on land uses, farming activities, conversions of agricultural lands for development or habitat, soils, drainage systems, and other quantifiable factors for the purpose of monitoring and conserving agricultural lands.~~

[4] policy 4A-2.5 Prepare a periodic report on the "state of Skagit County agriculture" using the US Census of Agriculture and other sources. The report shall include case studies and other information describing successes in implementing conservation easements, purchase of development rights (PDR), and other strategies. The report shall make recommendations for actions and steps for improvement based on the viability of the agricultural land base and strength of industry. ~~Agricultural Lands Status Report: Skagit County, through the Farmland Legacy Program, shall prepare a periodic report on the "state of Skagit County agriculture" using the US Census of Agriculture and other sources. The report shall include case studies and other information describing successes in implementing conservation easements, purchase of development rights (PDR), and other strategies. The report shall make recommendations for actions and steps for improvement based on the viability of the agricultural land base and strength of industry.~~

## Page: 4

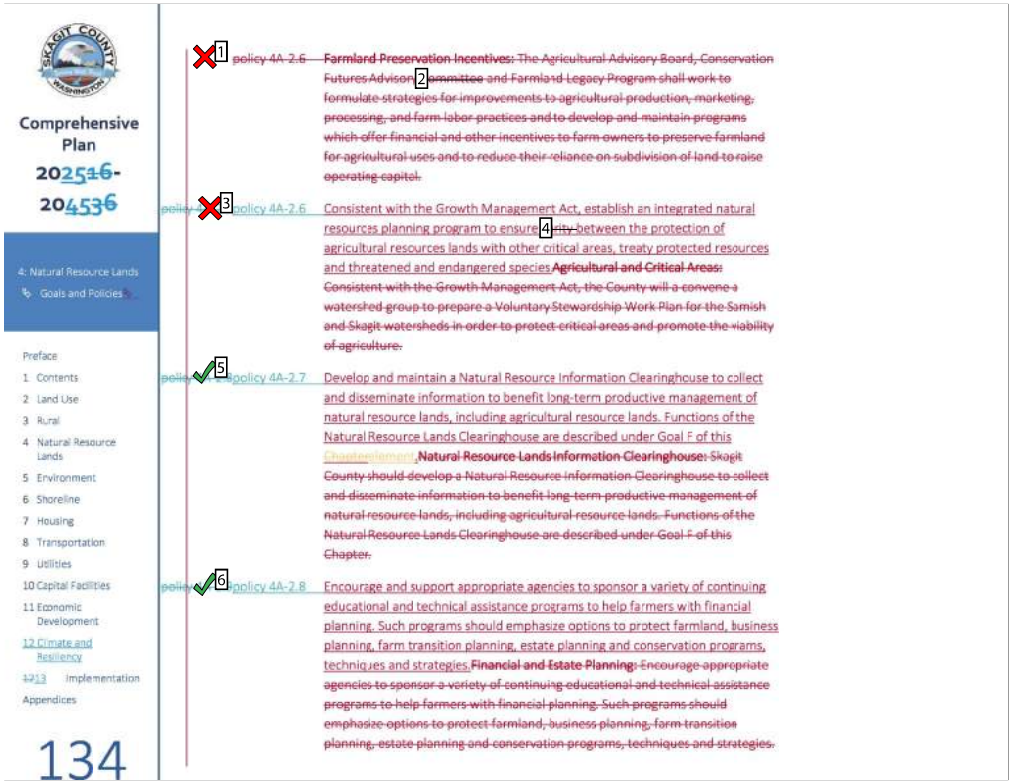
Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:47:43 AM
4A-2.3 Restore original language, replace "Conservative Futures Advisory Committee" with " Conservation Future Advisory Board"

Number: 2 Author: Mikala Staples Hughes Subject: Cross-Out Date: 3/13/2025 9:15:19 AM
4-A2.3 Replace Committee with Board.

Number: 3 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:48:03 AM
4A-2.4 Restore original language.

Number: 4 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:48:18 AM
4A-2.5 Restore original language.

# WWAA Comp Plan Comments




## Page: 5

Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:53:56 AM
4A-2.6 Restore original language.

Number: 2 Author: Mikala Staples Hughes Subject: Cross-Out Date: 3/13/2025 11:27:18 AM
Board

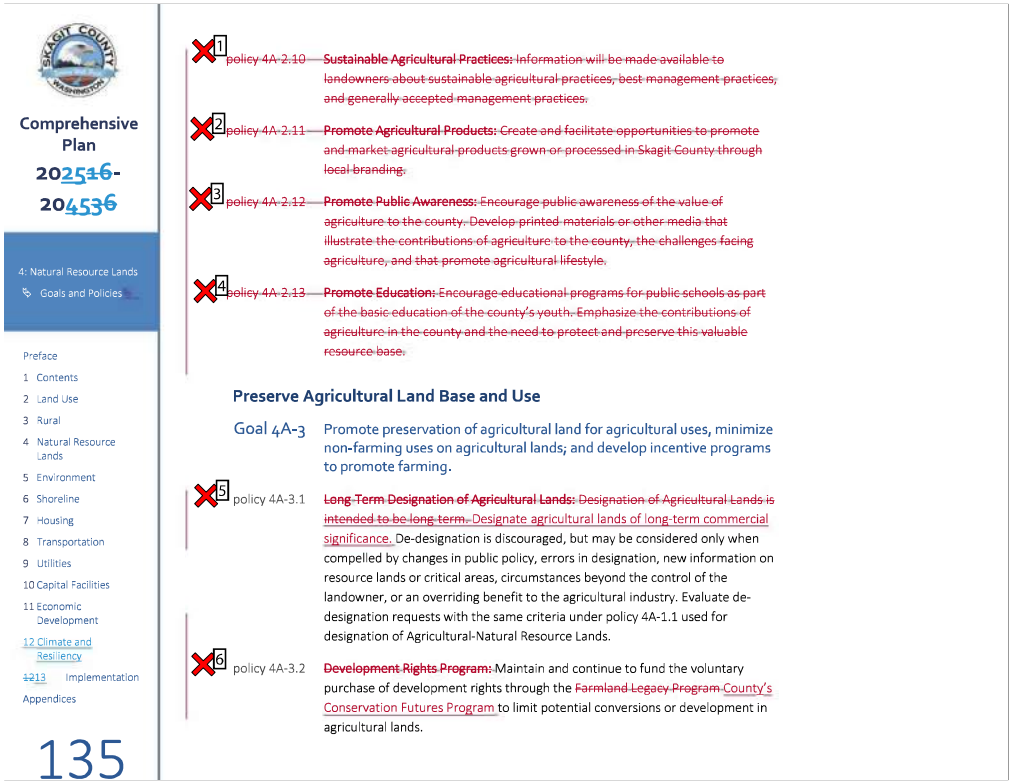
Number: 3 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:55:10 AM

Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:55:19 AM
4A-2.6 Revise: Consistent with the Growth Management Act, establish an integrated natural resources planning program that ensures balanced consideration of agricultural resource land protection alongside other critical areas, treaty-protected resources, and threatened and endangered species.

Number: 4 Author: Mikala Staples Hughes Subject: Cross-Out Date: 3/13/2025 11:54:53 AM
4A-2. 6 Revise. Parity is not the correct word.

Number: 5 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:53:13 AM
4A-2.7 Accept change.

Number: 6 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:53:13 AM
4A-2.8 Accept change.



Comprehensive Plan
2025~~16~~-
20453~~6~~

4: Natural Resource Lands
Goals and Policies

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
~~12~~13 Implementation
Appendices



1 ~~policy 4A-2.10 Sustainable Agricultural Practices: Information will be made available to landowners about sustainable agricultural practices, best management practices, and generally accepted management practices.~~

2 ~~policy 4A-2.11 Promote Agricultural Products: Create and facilitate opportunities to promote and market agricultural products grown or processed in Skagit County through local branding.~~

3 ~~policy 4A-2.12 Promote Public Awareness: Encourage public awareness of the value of agriculture to the county. Develop printed materials or other media that illustrate the contributions of agriculture to the county, the challenges facing agriculture, and that promote agricultural lifestyle.~~

4 ~~policy 4A-2.13 Promote Education: Encourage educational programs for public schools as part of the basic education of the county's youth. Emphasize the contributions of agriculture in the county and the need to protect and preserve this valuable resource base.~~

### Preserve Agricultural Land Base and Use

**Goal 4A-3** Promote preservation of agricultural land for agricultural uses, minimize non-farming uses on agricultural lands; and develop incentive programs to promote farming.

5 policy 4A-3.1 ~~Long-Term Designation of Agricultural Lands: Designation of Agricultural Lands is intended to be long-term.~~ Designate agricultural lands of long-term commercial significance. De-designation is discouraged, but may be considered only when compelled by changes in public policy, errors in designation, new information on resource lands or critical areas, circumstances beyond the control of the landowner, or an overriding benefit to the agricultural industry. Evaluate de-designation requests with the same criteria under policy 4A-1.1 used for designation of Agricultural-Natural Resource Lands.

6 policy 4A-3.2 ~~Development Rights Program:~~ Maintain and continue to fund the voluntary purchase of development rights through the ~~Farmland Legacy Program~~ County's Conservation Futures Program to limit potential conversions or development in agricultural lands.

## Page: 6

Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:48:47 AM
4A-2.10 Restore original language.

Number: 2 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:48:47 AM
4A-2.11 Restore original language.

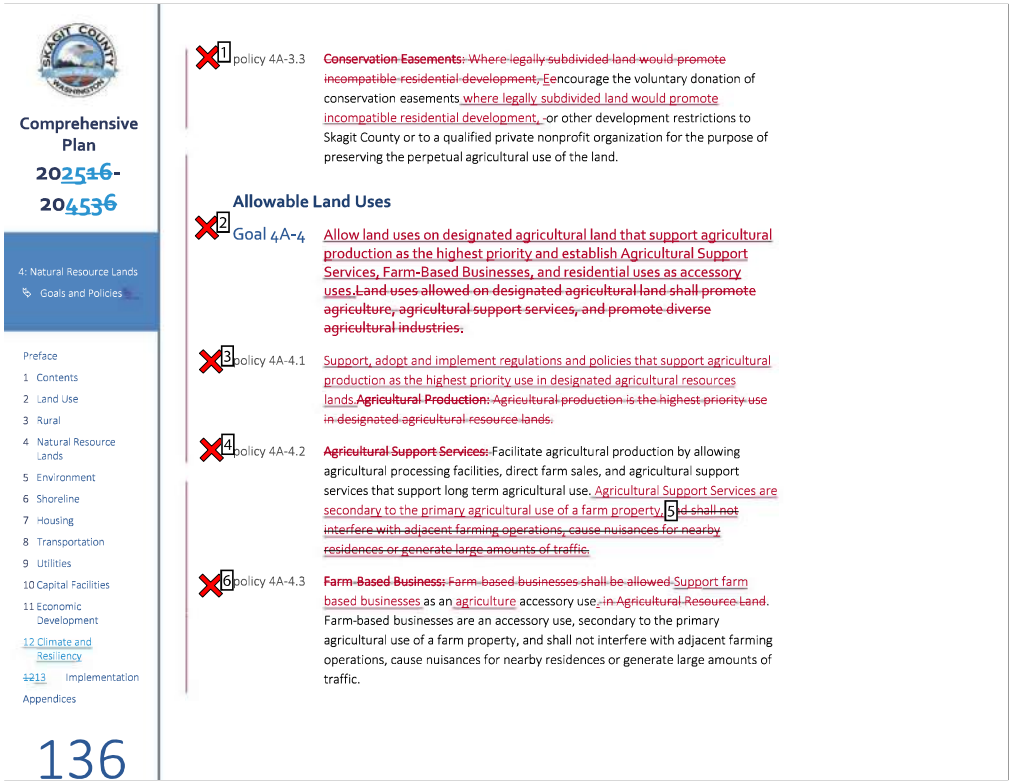
Number: 3 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:48:47 AM
4A- 2.12 Restore original language.

Number: 4 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:48:47 AM
4A-2.13 Restore original language.

Number: 5 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:49:09 AM
4A-3.1 Restore original language.

Number: 6 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:49:22 AM
4A-3.2 Restore original language and reference to the Farmland Legacy Program.

# WWAA Comp Plan Comments



Comprehensive Plan 2025~~16~~-2045~~36~~

4: Natural Resource Lands
Goals and Policies

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
~~12~~13 Implementation
Appendices

136

1 policy 4A-3.3 ~~Conservation Easements: Where legally subdivided land would promote incompatible residential development,~~ Eencourage the voluntary donation of conservation easements where legally subdivided land would promote incompatible residential development, or other development restrictions to Skagit County or to a qualified private nonprofit organization for the purpose of preserving the perpetual agricultural use of the land.

## Allowable Land Uses

2 Goal 4A-4 Allow land uses on designated agricultural land that support agricultural production as the highest priority and establish Agricultural Support Services, Farm-Based Businesses, and residential uses as accessory uses.~~Land uses allowed on designated agricultural land shall promote agriculture, agricultural support services, and promote diverse agricultural industries~~.

3 policy 4A-4.1 Support, adopt and implement regulations and policies that support agricultural production as the highest priority use in designated agricultural resources lands. ~~Agricultural Production: Agricultural production is the highest priority use in designated agricultural resource lands.~~

4 policy 4A-4.2 ~~Agricultural Support Services:~~ Facilitate agricultural production by allowing agricultural processing facilities, direct farm sales, and agricultural support services that support long term agricultural use. Agricultural Support Services are secondary to the primary agricultural use of a farm property, 5 ~~and shall not interfere with adjacent farming operations, cause nuisances for nearby residences or generate large amounts of traffic.~~

6 policy 4A-4.3 ~~Farm-Based Business: Farm-based businesses shall be allowed~~ Support farm based businesses as an agriculture accessory use, ~~in Agricultural Resource Land~~. Farm-based businesses are an accessory use, secondary to the primary agricultural use of a farm property, and shall not interfere with adjacent farming operations, cause nuisances for nearby residences or generate large amounts of traffic.

## Page: 7

Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:49:37 AM
4A-3.3 Restore original language.

Number: 2 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:49:55 AM
GOAL 4A-4 Restore original language.

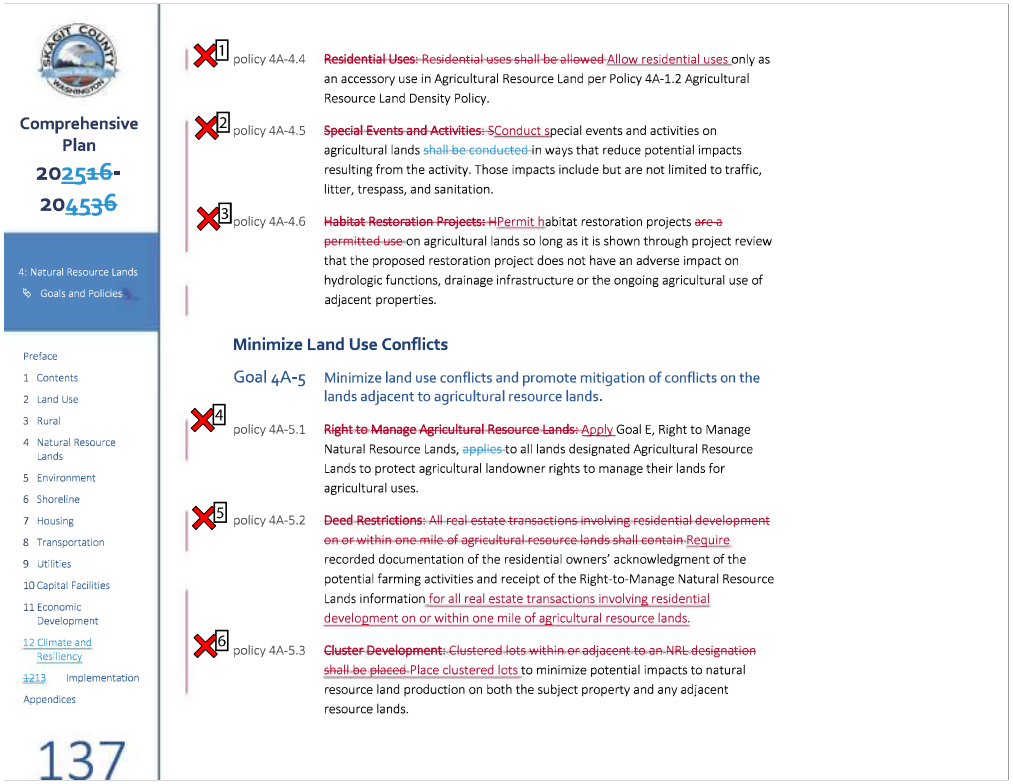
Number: 3 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:50:23 AM
4A-4.1 Revise to: Agricultural production is the primary and highest-priority use of designated agricultural resource lands. Policies and regulations shall be adopted, implemented, and upheld to ensure its protection and viability.

Number: 4 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:50:30 AM
4A-4.2 Strike "and shall not interfere with adjacent farming operations, cause nuisances for nearby residences or generate large amounts of traffic.

Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:34:40 AM
This should align with current SCC definition 14.04 Agricultural Support Services.

Number: 5 Author: Mikala Staples Hughes Subject: Cross-Out Date: 3/13/2025 8:53:41 AM

Number: 6 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:50:34 AM
4A-4.3 Restore original language.



Comprehensive Plan
2025~~16~~-
2045~~36~~

4: Natural Resource Lands
Goals and Policies

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
~~12~~13 Implementation
Appendices

137

1 policy 4A-4.4 ~~Residential Uses: Residential uses shall be allowed~~ Allow residential uses only as an accessory use in Agricultural Resource Land per Policy 4A-1.2 Agricultural Resource Land Density Policy.

2 policy 4A-4.5 ~~Special Events and Activities: S~~Conduct special events and activities on agricultural lands ~~shall be conducted~~ in ways that reduce potential impacts resulting from the activity. Those impacts include but are not limited to traffic, litter, trespass, and sanitation.

3 policy 4A-4.6 ~~Habitat Restoration Projects: H~~Permit habitat restoration projects ~~are a permitted use~~ on agricultural lands so long as it is shown through project review that the proposed restoration project does not have an adverse impact on hydrologic functions, drainage infrastructure or the ongoing agricultural use of adjacent properties.

### Minimize Land Use Conflicts

Goal 4A-5 Minimize land use conflicts and promote mitigation of conflicts on the lands adjacent to agricultural resource lands.

4 policy 4A-5.1 ~~Right to Manage Agricultural Resource Lands: Apply~~ Goal E, Right to Manage Natural Resource Lands, ~~applies~~ to all lands designated Agricultural Resource Lands to protect agricultural landowner rights to manage their lands for agricultural uses.

5 policy 4A-5.2 ~~Deed Restrictions: All real estate transactions involving residential development on or within one mile of agricultural resource lands shall contain~~ Require recorded documentation of the residential owners' acknowledgment of the potential farming activities and receipt of the Right-to-Manage Natural Resource Lands information for all real estate transactions involving residential development on or within one mile of agricultural resource lands.

6 policy 4A-5.3 ~~Cluster Development: Clustered lots within or adjacent to an NRL designation shall be placed~~ Place clustered lots to minimize potential impacts to natural resource land production on both the subject property and any adjacent resource lands.

## Page: 8

Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:51:28 AM
4A-4.4 Restore original language.

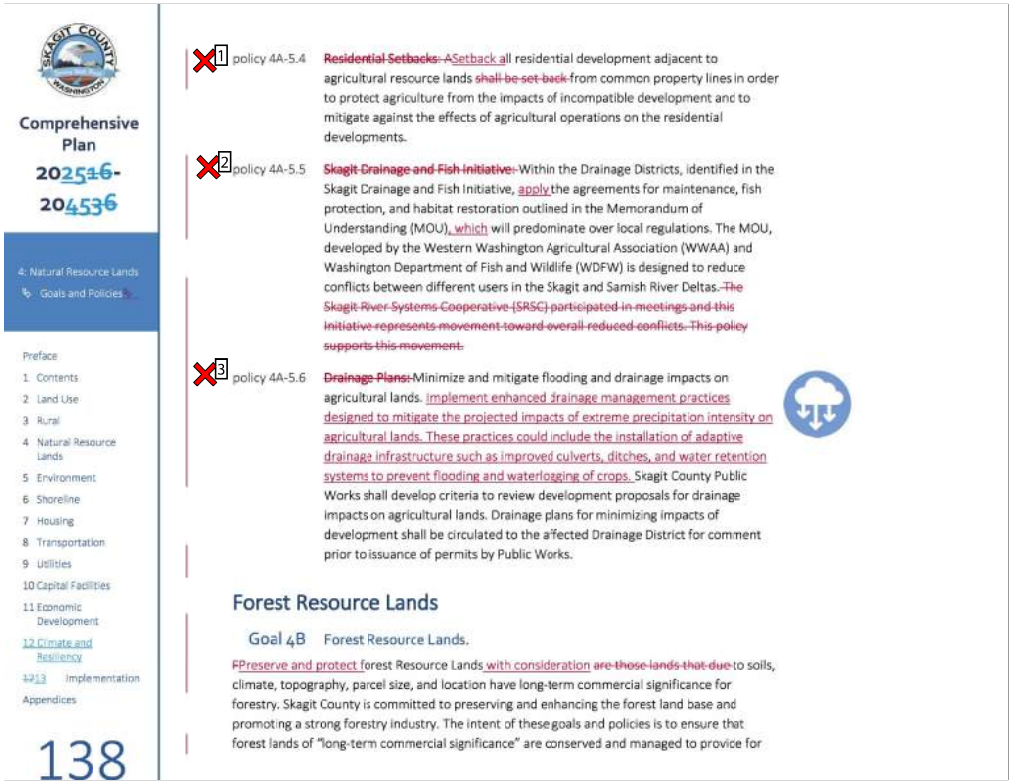
Number: 2 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:51:28 AM
4A-4.5 Revise: Special events and activities, related to agricultural production, on agricultural lands shall be permitted under Special Use Permit Process and conducted in ways that reduce, potential impacts resulting from the activity and will not interfere with adjacent agricultural production.

Number: 3 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:51:28 AM
4A-4.6 Revise: Prohibit habitat restoration projects on agricultural lands except through a special use permit process to ensure restoration projects do not have an adverse impact on hydrology functions, drainage infrastructure or the ongoing agricultural use of adjacent properties.

Number: 4 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:52:04 AM
4A-5.1 Restore original language.

Number: 5 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:52:04 AM
4A-5.2 Restore original language.

Number: 6 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:52:04 AM
4A-5.3 Restore original language.



Comprehensive Plan 2025~~16~~-2045~~36~~

4: Natural Resource Lands
Goals and Policies

Preface
1 Contents
2 Land Use
3 Rural
4 Natural Resource Lands
5 Environment
6 Shoreline
7 Housing
8 Transportation
9 Utilities
10 Capital Facilities
11 Economic Development
12 Climate and Resiliency
~~12~~13 Implementation
Appendices

138

1 policy 4A-5.4 ~~Residential Setbacks:~~ ASetback all residential development adjacent to agricultural resource lands ~~shall be set back~~ from common property lines in order to protect agriculture from the impacts of incompatible development and to mitigate against the effects of agricultural operations on the residential developments.

2 policy 4A-5.5 ~~Skagit Drainage and Fish Initiative:~~ Within the Drainage Districts, identified in the Skagit Drainage and Fish Initiative, apply the agreements for maintenance, fish protection, and habitat restoration outlined in the Memorandum of Understanding (MOU), which will predominate over local regulations. The MOU, developed by the Western Washington Agricultural Association (WWAA) and Washington Department of Fish and Wildlife (WDFW) is designed to reduce conflicts between different users in the Skagit and Samish River Deltas. ~~The Skagit River Systems Cooperative (SRSC) participated in meetings and this initiative represents movement toward overall reduced conflicts. This policy supports this movement.~~

3 policy 4A-5.6 ~~Drainage Plans:~~ Minimize and mitigate flooding and drainage impacts on agricultural lands. Implement enhanced drainage management practices designed to mitigate the projected impacts of extreme precipitation intensity on agricultural lands. These practices could include the installation of adaptive drainage infrastructure such as improved culverts, ditches, and water retention systems to prevent flooding and waterlogging of crops. Skagit County Public Works shall develop criteria to review development proposals for drainage impacts on agricultural lands. Drainage plans for minimizing impacts of development shall be circulated to the affected Drainage District for comment prior to issuance of permits by Public Works.

## Forest Resource Lands

Goal 4B Forest Resource Lands.

~~F~~Preserve and protect forest Resource Lands with consideration ~~are those lands that due~~ to soils, climate, topography, parcel size, and location have long-term commercial significance for forestry. Skagit County is committed to preserving and enhancing the forest land base and promoting a strong forestry industry. The intent of these goals and policies is to ensure that forest lands of "long-term commercial significance" are conserved and managed to provide for

## Page: 9

Number: 1 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:52:30 AM
4A-5.4 Restore original language.

Number: 2 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:52:30 AM
4A-5.5 Revise: Within the Drainage Districts apply the Skagit Drainage Fish Initiative Drainage Maintenance Agreements between WDFW and individual Districts for fish protection and habitat restoration. The DFI Maintenance Agreements will predominate over local regulations. These Drainage Maintenance agreements are designed to reduce conflicts between different users in the Skagit and Samish River Deltas.

Number: 3 Author: Mikala Staples Hughes Subject: Sticky Note Date: 3/13/2025 11:52:30 AM
4A-5.6 Restore original language.

Comment # 75

# Skagit County
# Agricultural Advisory Board

1800 Continental Place • Mount Vernon, Washington 98273
office 360-416-1338 • www.skagitcounty.net/planning

3/17/2025

Skagit County Planning Commission
1800 Continental Place
Mount Vernon, WA 98273

**RE: Skagit County's 2025 Comprehensive Plan**

Dear Planning Commission Members:

The Skagit County Agricultural Advisory Board (AAB) submits the following comments on the draft 2025 Comprehensive Plan.

The AAB has concerns about the overall weakening of language as it relates to Agricultural Resource Lands. We believe strong language is required to protect production agriculture relying on the soil to grow crops. Editing to be concise and for cleanliness, the main argument for the edits, has the potential to lose some of the background information to the casual reader or person new to the County as to why protecting agriculture in County policy is important. In addition to strong language, the AAB has concerns about the removal of Policies 4A 2.10-2.13 promoting agricultural awareness, education and products in Skagit County. Policies to promote and educate the public about the agricultural community will go a long way the protecting agriculture in Skagit County.

Agriculture lands lose out to any type of development and land use changes. Examples can be seen nationwide. Residential, commercial and restoration uses all outbid agricultural operators for land. Maintaining strong protection of agricultural use as land moves from owner to owner is key. De-designation of resource lands should require the utmost analysis. Non-agricultural activities need to be located on non-resource lands first and not allowed to proliferate on the agricultural landscape through inattentiveness.

True agricultural support businesses also need full support to operate. Policy 4A-4.2 may potentially limit their viability by stating they shall not cause nuisances for nearby residences. A true Ag Support Service providing processing services, farm sales or other support services must be able to operate as needed to provide value-added services to locally grown products.

The AAB has concerns about the potential relaxation of standard for special events. In policy 4A-4.5, the removal of 'shall be conducted' could be perceived as lessening that requirement creating the potential of increased impacts from more frequent special event activities. We recommend maintaining the strong language of prior versions.

Agriculture and Skagit County rely on a robust system of drainage. These systems must be able to operate as designed and allow for maintenance in accordance with the Drainage Maintenance agreements. In addition to drainage, irrigation is a key concern to agriculture. Policies should reflect

Advisory Committee Members:
Michael Hughes (Chair), Kraig Knutzen (Vice Chair), Nels Lagerlund,
Justin Hayton, John Morrison, Terry Sapp, Cindy Kleinhuizen, Matt Steinman,
Steve Wright, Michael Trafton, Steve Skrinde, Kim Mower, Don McMoran(Ex Officio)

equal importance and include irrigation water needs as well. Consistent and predictable irrigation water will promote higher value crops to be grown in Skagit County, enhancing the agricultural economy and providing more value to the County and community.

Policy 9B-1.6 should reflect the primary function of structural flood protection is to protect from floods and provide drainage functions as defined by the diking and drainage districts. Other uses should be secondary and only as they fit into the primary function. The AAB also recommends deleting Policy 9B-1.7. This is the opinion of some entities but does not apply to the flood protection infrastructure of Skagit County that was constructed in a legal manner. Habitat restoration projects that occur on resource lands need a higher degree of review than permitted. Policy 4A-4.6 should reflect at a minimum a special use permit to ensure restoration projects do not have an adverse impact on existing drainage infrastructure and negative impacts on properties that rely on the drainage.

The updated Comprehensive Plan is a guide for the County for the next 20 years. The document should strongly reinforce the County's commitment to the agricultural industry in the County. This will inform future leaders of the past sacrifices to maintain agriculture and provide a guide to future land use decisions.

Thank you for receiving and considering our comments.

Sincerely,



Michael Hughes
Chair, Agricultural Advisory Board

**Tara Satushek**

Comment # 76

**From:** Tim Trohimovich <Tim@futurewise.org>
**Sent:** Thursday, March 13, 2025 5:24 PM
**To:** PDS comments
**Subject:** Comments on "2025 Skagit County Periodic Comprehensive Plan Update"

Dear Staff:

Subject: Comments on the 2025 Skagit County Periodic Comprehensive Plan Update

Thank you for the opportunity to comment on the 2025 Skagit County Periodic Comprehensive Plan Update. Futurewise strongly supports the update. We have comments on the final draft below.

Futurewise works throughout Washington State to support land-use policies that encourage healthy, equitable and opportunity-rich communities, and that protect our most valuable farmlands, forests, and water resources. We have members across Washington State including Skagit County.

## Comments on the Preface

The first sentence under "2025 Forecast" on page 10 of the redlined version has the year 20~~4~~5. It appears that 2025 was intended.

**The Rural Growth Allocations, see redline pages 10 through 12.**

Futurewise has three concerns about the rural growth allocations. First, allocating 20 percent of the county's growth to the rural area will be costly for county taxpayers and ratepayers. A peer-reviewed study shows that "the cost of providing public services in rural areas is 39% greater than in cities." Ron Shani, Yaniv Reingewertz & Eran Vigoda-Gadot, *Far from-sight and expensive: additional costs of public services in rural areas* Local Government Studies p. 1, pp. 11 – 12 (22 Jun 2024), DOI: 10.1080/03003930.2024.2369784 last accessed on March 11, 2025, at: https://www.tandfonline.com/doi/pdf/10.1080/03003930.2024.2369784 and enclosed in another email with the filename: "Far-from-sight and expensive additional costs of public services in rural areas.pdf." The draft comprehensive plan in Appendix C the Transportation Element Technical Appendix on page 572 shows a transportation capital projects deficit of $150,689,518. Reallocating rural growth to cities and towns could reduce this $150 million transportation deficit.

Second, 501 rural housing units are intended to be affordable to households earning 51 to 80 percent of the area median income (AMI). The State of Washington Department of Commerce has documented that to provide housing affordable to families and individuals earning 80 percent or less of the area median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023) last accessed on March 11, 2025, at: https://deptofcommerce.app.box.com/s/1d9d5l7g509r389f0mjpowh8isjpirlh and enclosed in another email with the filename: "HB 1220_Book2_Housing Element Update_230823 Final_updated 240920.pdf." Low-rise multifamily and mid-rise multifamily housing are urban uses and require sewers and other urban services. RCW 36.70A.070(5) prohibits urban uses outside urban growth areas.

Third allocating 20 percent of the county's growth to the rural area will make it difficult to comply with RCW 36.70A.070(9)(d)(i) which provides that:

> The greenhouse gas emissions reduction subelement of the comprehensive plan, and its related development regulations, must identify the actions the jurisdiction will take during the planning cycle consistent with the guidelines published by the department pursuant to RCW 70A.45.120 that will:
>
> (A) Result in reductions in overall greenhouse gas emissions generated by transportation and land use within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state;
>
> (B) Result in reductions in per capita vehicle miles traveled within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; and
>
> (C) Prioritize reductions that benefit overburdened communities in order to maximize the cobenefits of reduced air pollution and environmental justice.

Adding twenty percent of the county's growth to rural Skagit County will likely increase greenhouse gas emissions, increase per capital vehicle miles traveled, and not benefit overburdened communities. Rural residents have substantially higher greenhouse gas emissions, particularly higher transport-related direct greenhouse gas emissions than residents in the urban growth areas. Jeffrey Wilson, Jamie Spinney, Hugh Millward, Darren Scott, Anders Hayden, and Peter Tyedmers, *Blame the exurbs, not the suburbs: Exploring the distribution of greenhouse gas emissions within a city region* 62 Energy Policy 1329, pp. 1334 – 35 (2013) enclosed in another email with the filename: "Blame_the_exurbs_not_the_suburbs_Explori.pdf." Energy Policy is a peer reviewed journal. Energy Policy Guide for authors webpage p. *14 last accessed on March 18, 2024, at: https://www.sciencedirect.com/journal/energy-policy/publish/guide-for-authors and in another email with the filename: "Guide for authors - Energy Policy.pdf." The transport-related direct emissions of rural residents are three times those in the inner city, and 1.5 times those in the suburbs. *Id.* p. 1335.

It is better to focus these housing types in cities, towns, and urban growth areas where the public facilities and services they require can be more affordably provided. This is important because if the planned, but not economically feasible, capacity for affordable housing in rural areas is counted towards the affordable housing need then the County and its cities and towns will not have the capacity for the affordable housing the county needs.

## Comments on Element 2: Urban, Open Space, and Land Use.

Futurewise supports the existing and proposed policies in this chapter.

We strongly support policy 2A-1.4 calling for the engagement of federally recognized Indian tribes before expanding urban growth areas.

We also support policies increasing development capacity in urban growth areas where sewer is available. This will increase housing affordability. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023).

## Comments on Element 3 the Rural Element.

**Rural Water on pages 82 and 83 of the Redline Version.**

While we recognize that this section is primarily a historical narrative, RCW 36.70A.070(1) provides that "[t]he land use element shall provide for protection of the quality and quantity of groundwater used for public water supplies." RCW 36.70A.070(5)(c)(iv) provides that "[t]he rural element shall include measures that apply to rural

development and protect the rural character of the area, as established by the county, by: … Protecting surface water and groundwater resources." The Growth Management Act (GMA) in RCW 36.70A.590 also provides that:

> For the purposes of complying with the requirements of this chapter [the GMA] relating to surface and groundwater resources, a county or city may rely on or refer to applicable minimum instream flow rules adopted by the department of ecology under chapters 90.22 and 90.54 RCW. Development regulations must ensure that proposed water uses are consistent with RCW 90.44.050 and with applicable rules adopted pursuant to chapters 90.22 and 90.54 RCW when making decisions under RCW 19.27.097 and 58.17.110.

These policies and development regulations are required because overuse of surface or ground water often harms senior water rights holders and fish and wildlife habitat and consequently tribal treaty rights. Ecology has documented that lower streamflows in parts of the Skagit basin "have impacted important resources for fisheries and general stream health." State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023) last accessed on March 12, 2025, at: https://apps.ecology.wa.gov/publications/documents/2011003.pdf and enclosed in another email with the filename: "2011003.pdf."

> The reduced availability of surface water can have a negative impact on all stages of the salmonid life cycle. Water quality (e.g. temperature, flows) is affected by decreased inputs from groundwater. Lessened groundwater input concentrates pollutants, increases temperature, and diminish[es] dissolved oxygen. This is detrimental to salmonid migration, spawning and rearing.

*2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40 last accessed on March 12, 2025, at: https://nwifc.org/publications/state-of-our-watersheds/ and cited excerpts in another email with the filename: "state-of-our-watersheds-sow-2020-final-web excerpts.pdf."

Changes in Skagit County will directly impact the level of development that can be accommodated outside of urban growth areas. Most water in the Skagit "watershed is already legally spoken for or 'appropriated.'" State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023). Water is already limited and changes in hydrology will make water scarcer in the summer in the future. *Id.*; *Skagit River Basin Climate Science Report: Executive Summary* p. 9 last accessed on March 12, 2025, at: https://www.skagitcounty.net/EnvisionSkagit/Documents/ClimateChange/executive_summary.pdf and enclosed in another email with the filename: "executive_summary.pdf." Winter flooding will increase. *Skagit River Basin Climate Science Report: Executive Summary* pp. 9 – 11. These and other changes will make accommodating rural growth more difficult, more costly, and will adversely affect water available for salmon, wildlife, and irrigation. We recommend the County adopt policies consistent with RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590 to protect water quality and quantity.

**Goal 3A-2 revision on page 87 of the redline version.**

Goal 3A-2 is proposed to be amended to provide for a variety of "affordable housing types." The State of Washington Department of Commerce has documented that to provide housing affordable to families and individuals earning 80 percent or less of the county adjusted median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023). Low-rise multifamily and mid-rise multifamily housing are urban uses and require sewers and other urban services. RCW 36.70A.070(5) prohibits urban uses outside urban growth areas. Even if these housing types were allowed, it would not be affordable to provide the public facilities and services they need. A peer-reviewed study shows that "the cost of providing public services in rural areas is 39% greater than in cities." Ron Shani, Yaniv Reingewertz & Eran Vigoda-Gadot, *Far from-sight and expensive: additional costs of public services in rural areas* Local Government

Studies p. 1, pp. 11 – 12 (22 Jun 2024), DOI: 10.1080/03003930.2024.2369784. The Appendix C, the Transportation Element Technical Appendix on page 572, shows a transportation capital projects deficit of $150 million.

There is also unlikely to be water available to serve these developments in the rural area. *2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40, p. 348. It is better to focus these housing types in cities, towns, and urban growth areas where the public facilities and services they require can be more affordably provided. This is important because if the planned, but not economically feasible, capacity for affordable housing in rural areas is counted towards the affordable housing need then the County and its cities and towns will not have the capacity for the affordable housing the county needs.

## Comments on Element 4: Natural Resource Lands.

**Policy 4A-1.1 on page 130 of the redline version.**

We appreciate that Policy 4A-1.1 is proposed to be amended to provide the "County may also consider unique farmlands soils and farmlands of statewide importance" in designating agricultural lands of long-term commercial significance. WAC 365-190-050(3)(c)(i) provides that in designating agricultural lands of long-term commercial significance "counties and cities should consider …: (i) The classification of prime and unique farmland soils, and farmlands of statewide importance, as mapped by the Natural Resources Conservation Service[.]" Consistent with WAC 365-190-050(3)(c) "should" should be substituted for "may" in Policy 4A-1.1.

We also support Policy 4A-1.1.(e) which requires that individual dedesignation requests must be deferred until a comprehensive countywide analysis is conducted. This policy is required by WAC 365-190-040 and WAC 365-190-050. These changes will better protect working farms and the county economy.

**Adopt a policy prohibiting the transfer of agricultural water for rural residential development.**

As was documented above, water is very limited in Skagit County. There will be pressure to transfer agricultural water to rural residential uses. Once this water is transferred, it will be lost to agriculture. While Skagit County cannot directly regulate water right transfers, it can use its zoning authority and subdivision authority to prohibit the use of agricultural water to mitigate rural residential and commercial developments. We urge the county to adopt a policy and regulation to prohibit the use of agricultural water to mitigate rural residential and commercial developments. It will aid the agricultural industry and the county economy long-term.

**Policy 4B-1.1 and Policy 4B-3.3 on pages 139 through 140 and page 144 of the redline version.**

We support the revisions to Policy 4B-1.1(e) and Policy 4B-3.3 so the policies comply with the amendments to WAC 365-190-040 and WAC 365-190-060. These amendments will help to conserve forest lands and forest industry jobs.

**New Policy on the Wildland Urban Interface and Policy 4B-2.11 on page 144 of the redline version.**

Wildfire is a significant and increasing risk in Skagit County. *Skagit County Community Wildfire Protection Plan 2019 Update* pp. 20 – 21 last accessed on March 12, 2025, at: https://skagitcounty.net/EmergencyManagement/Documents/Skagit%20County%20CWPP.pdf and enclosed in another email with the filename: "Skagit County CWPP.pdf." The Growth Management Act in RCW 36.70A.070(1) provides in part that:

> The land use element must reduce and mitigate the risk to lives and property posed by wildfires by using land use planning tools, which may include, but are not limited to, adoption of portions or all of the wildland urban interface code developed by the

> international code council or developing building and maintenance standards consistent with the firewise USA program or similar program designed to reduce wildfire risk, reducing wildfire risks to residential development in high risk areas and the wildland urban interface area, separating human development from wildfire prone landscapes, and protecting existing residential development and infrastructure through community wildfire preparedness and fire adaptation measures.

While we appreciate and support Policy 4B-2.11, RCW 36.70A.070(1) requires more. We recommend that development be directed away from the WUI. We also recommend the adoption and enforcement of the Firewise Principles which recommend "'two ways out' of the neighborhood for safe evacuation during a wildfire" along with other important measures to protect people and property. *Firewise USA® Program* p. *9 accessed on March 12, 2025, at: https://www.nfpa.org/en/education-and-research/wildfire/firewise-usa/firewise-usa-resources. We recommend that the following new policy be adopted as part of the Land Use Element or the Climate Change Element:

Policy X: Direct non-resource land uses and development away from the Wildland-Urban Interface (WUI), encourage the implementation of Firewise Principles for existing developments and uses, and require implementation of Firewise Principles for new developments and uses.

**Goal 4D-1 on page 153 of the redline version.**

We support the revisions to Goal 4D-1 to comply with WAC 365-190-040 and WAC 365-190-070. These changes will aid the construction industry and the county economy.

## Comments on Element 5: Environment.

**Designate and protect rare plant categories and listings from the Department of Natural Resources, Natural Heritage Program as the GMA requires. See pages 183 to 184 of the redline version.**

The "GMA requires the County to protect the functions and values of Critical Area Ecosystems." *Whidbey Environmental Action Network v. Island Cnty.*, Western Washington Region Growth Management Hearings Board (WWRGMHB) Case No. 14-2-0009, Final Decision and Order (June 24, 2015), at 21 of 49 last accessed on March 12, 2025, at: https://eluho2022.my.site.com/casemanager/s/case/50082000001BDWk/detail. This includes the "high quality ecosystem and rare plant categories and listings from the department of natural resources, natural heritage program." *Id.* at 32 – 35 of 49, see also WAC 365-190-040(4)(b). The *2024 Washington Vascular Plant Species of Conservation Concern* identifies rare plants in Skagit County. Jesse E. D. Miller, Sienna Wessel, and Walter Fertig, *2024 Washington Vascular Plant Species of Conservation Concern* pp. 8 – 44 (Washington Natural Heritage Program, Natural Heritage Report 2024-07: July 3, 2024) last accessed on March 12, 2025, at: https://www.dnr.wa.gov/publications/amp_nh_vascular_ets.pdf and enclosed in another email with the filename: "amp_nh_vascular_ets.pdf." These plants and ecosystems need to be designated as fish and wildlife habitats and conserved as the Growth Management Act requires.

**Do not change the "shalls" to "shoulds" in Policy 5A-5.1, Policy 5A-5.2, and Policy 5A-5.3 on pages 181 through 188 of the redline version.**

Policy 5A-5.1 is proposed to be amended to add that: "Critical areas shall be designated and protected to maintain no net loss of wetland functions and value." We strongly support this addition. It is also consistent with the Growth Management Act (GMA) which "requires that the regulations for critical areas must protect the 'functions and values' of those designated areas. [RCW 36.70A.172(1).] This means all functions and values." *Whidbey Env't Action Network v. Island Cnty.*, 122 Wn. App. 156, 174–75, 93 P.3d 885, 894 (2004). However,

elsewhere in this policy the "shalls" are changed to "should." Shoulds are not consistent with the Growth Management Act requirement and should not be substituted for "shalls."

"Shoulds" are not consistent with the Growth Management Act requirement and also should not be substituted for "shalls in Policy 5A-5.2 and Policy 5A-5.3.

**Do not change "shall" to "should" in policy 5A-5.8 on page 191 of the of the redline version.**

For the same reason, do not change "shall" to "should" in policy 5A-5.8.

**Futurewise supports Goal 5B and its associated policies to address climate hazards and to reduced greenhouse gas pollution on pages 191 and 192 of the redline version.**

We support Goal 5B and its associated policies to address climate hazards and to reduced greenhouse gas pollution. This goal and the policies are required by RCW 36.70A.070(9). We have additional comments on the topic of climate below.

## Comments on Element 7: Housing.

**RCW 36.70A.070(2)(c) requires the housing element to identify sufficient land for affordable housing including STEP housing.**

RCW 36.70A.070(2)(c) requires the County housing element, and the housing elements of the cities, to identify "sufficient capacity of land for housing including, but not limited to, government-assisted housing, housing for moderate, low, very low, and extremely low-income households, manufactured housing, multifamily housing, group homes, foster care facilities, emergency housing, emergency shelters, [and] permanent supportive housing ...." Using the State of Washington Department of Commerce Housing for All Planning Tool (HAPT) methodology, the population targets are converted to needed housing units by income category and beds for permanent supportive housing. The County must then identify the land with the zoning capacities needed to accommodate these housing units by income band or category. We were unable to find the documentation of sufficient capacity in the housing element. It may be in Appendix E Housing Needs Assessment, but we were unable to find this appendix. If it is in the appendix, that is fine. If not, the housing element should document that the County has sufficient capacity for affordable housing types and indoor emergency shelters, transitional housing, emergency housing, and permanent supportive housing (STEP housing).

**Affordable housing should be focused in cities, towns, and urban growth areas.**

The Housing Element on page 226 states: "Skagit County plans to accommodate new housing within its existing land use designations by focusing on limited areas of more intense rural development, specifically the rural village residential zones. The rural village residential zone, which are part of the County's land use and zoning regulations, has been revised to allow for new housing types that are affordable to moderate- and low-income residents." The State of Washington Department of Commerce has documented that to provide housing affordable to families and individuals earning 80 percent or less of the area median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023). Middle housing is not affordable to families earning 80 percent or less of the area median income. In addition, as was documented above there is a significant water shortage and placing affordable housing in rural areas increases transportation costs for families and transportation and public service costs for the County. We do not believe this strategy will work and should be discarded. Instead, affordable housing should be focused in cities, towns, and urban growth areas where affordable housing types and densities can actually be constructed.

Similarly, the *Washington Farmworker Housing Needs Assessment* recommended that to provide more affordable farm worker housing cities should be encouraged "to increase zoning and infrastructure investments for multi-family housing within urban growth areas." BERK Consulting, *Washington Farmworker Housing Needs Assessment* p. 184 (The Washington State Department of Commerce: Jan. 2022) last accessed on March 12, 2025, at: https://www.commerce.wa.gov/wp-content/uploads/2022/04/CommerceReports_CSHD_FarmworkerHousing_Final_4.26.22.pdf and enclosed in a separate email with the filename: "CommerceReports_CSHD_FarmworkerHousing_Final_4.26.22.pdf." The assessment also recommended that cities remove "barriers to the development of rental housing." *Id*. "Encouraging cities to identify and remove barriers to rental housing development is an important strategy to address housing needs for farmworkers." *Id*.

**Comments on Element 12: Climate and Resiliency**

Overall, Futurewise strongly supports the Climate and Resiliency element. We do have some suggestions provided below.

**Futurewise supports Goal 12J on page 396 of the redline version.**

Goal 12J on page 396 calls for integrating climate change projections into land use, infrastructure planning, and development regulations, ensuring long-term safety from sea-level rise, flooding, wildfires, and other climate-exacerbated hazards while protecting natural ecosystems. We support this goal and its associated policies. The deadline for Skagit County to update its development regulations is December 31, 2025. RCW 36.70A.130(1)(a), (5)(b).

**Please clarify policy 12J-1.8 on page 397 of the redline version.**

Futurewise strongly supports policy 12J-1.8. It intends to cover sea level rise which we support. On addition, as the seas are rising and storms become more intense, coastal rivers and streams will be subject to more channel migration. We recommend that policy 12J-1.8 be clarified as follows with our additions underlined.

policy 12J-1.8 All residential and commercial development and accessory uses, port and water related industrial facilities, equipment, and works should be located, designed, and maintained to avoid, or if necessary, withstand 100-year flood frequency flooding, and/or storm tides or surges<u>, channel migration, and tides and water levels likely over the next 100 years</u> without becoming hazards and without the placement of flood hazard reduction measures or other hard structural shoreline stabilization. Incorporate climate projections to account for anticipated changes in flood frequency, storm intensity, and sea-level rise. Ensure that designs and maintenance plans adapt to these projections to enhance long-term resilience against evolving climate impacts.

**Include a policy including the California Coastal Commission recommendations for adapting to sea level rise.**

In addition, we suggest that the County incorporate a policy on adapting to sea level rise and its adverse impacts modeled on the process California's coastal counties and cities use. *California Coastal Commission Sea Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits* pp. 97 – 140 (2024 Update: Nov. 13, 2024) last accessed on March 13, 2025, at: https://www.coastal.ca.gov/climate/slrguidance.html and enclosed in another email with the filename: "2024AdoptedSLRPolicyGuidanceUpdate.pdf." The process includes seven steps and we recommend a policy incorporating these steps be adopted.

1. Initiate planning effort, identify key goals and stakeholders, and engage with environmental justice communities and Indian tribes.
2. Determine the range of sea level rise scenarios relevant to Skagit County's marine shorelines. The California Coastal Commission recommends analyzing intermediate and long-term projections

because "development constructed today is likely to remain in place over the next 75-100 years, or longer." *Id*. p. 109.

3. Identify potential physical sea level rise impacts in Skagit County's unincorporated marine shorelines.
4. Assess potential risks from sea level rise to coastal resources, development, and environmental justice communities in unincorporated Skagit County.
5. Identify equitable adaptation measures. The *California Coastal Commission Sea Level Rise Policy Guidance* includes recommended adaptation strategies the County can consider. *Id*. pp. 179 – 226.
6. Adopt an updated comprehensive plan and development regulations incorporating the selected adaptation strategies.
7. Implement the updated comprehensive plan and development regulations and monitor and revise as needed. Because the scientific data on sea level rise is evolving, the California Coastal Commission recommends that "[i]t will likely be important to modify maps of current and future hazard areas on a five- to ten-year basis or as necessary to allow for the incorporation of new sea level rise science, monitoring results, and information on coastal conditions." *Id*. p. 139.

**The greenhouse gas emissions reduction subelement must quantify whether the element will reduce greenhouse gas emissions and reduce per capita vehicle miles traveled.**

RCW 36.70A.070(9)(d)(i) provides:

> (d)(i) The greenhouse gas emissions reduction subelement of the comprehensive plan, and its related development regulations, must identify the actions the jurisdiction will take during the planning cycle consistent with the guidelines published by the department pursuant to RCW 70A.45.120 that will:
>
> (A) Result in reductions in overall greenhouse gas emissions generated by transportation and land use within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; (B) Result in reductions in per capita vehicle miles traveled within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; and
>
> (C) Prioritize reductions that benefit overburdened communities in order to maximize the cobenefits of reduced air pollution and environmental justice.

Please note that subelement and its related development regulations "must identify the actions the jurisdiction will take … that will: … [r]esult in reductions in overall greenhouse gas emissions …. Similarly, the subelement and its related development regulations "must identify the actions the jurisdiction will take … that will: … [r]esult in reductions in per capita vehicle miles traveled ….." The element itself "must identify" the reductions.

Further, RCW 36.70A.070 provides that "[t]he plan shall be an internally consistent document and all elements shall be consistent with the future land use map." So these calculations must take into the planned growth over the next 20 years.

While we appreciate the three scenarios described on page 399, the reductions are not quantified and it is not clear if they take into account the proposed growth allocations. This information is needed to document compliance with RCW 36.70A.070(9)(d)(i). It would also be helpful to know if these reductions will over time put the County on a path to address the State's overall target of net-zero emissions by 2050. If this information is in an appendix that will be included with the comprehensive plan in the future that would be sufficient to document compliance.

**The Growth Management Act requires water quantity policies and regulations as part of the 2025 comprehensive plan and development regulations update.**

As was documented above, RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590 require Skagit County to adopt policies and regulations to protect water quality and quantity. These policies and development regulations are required because overuse of surface or ground water often harms senior water rights holders and fish and wildlife habitat and consequently tribal treaty rights. Most water in the Skagit "watershed is already legally spoken for or 'appropriated.'" State of Washington Department of Ecology Water Resources Program, WRIAs 3 & 4 Skagit Watershed Water Availability p. 3 (Publication 20-11-003: May 2023). The Washington State Department of Ecology has summarized water availability in the Skagit basin:

> Increasing demands for water over time, from ongoing population growth, agriculture, and other consumptive uses as well as associated land use practices, have resulted in lower streamflows in some areas. These decreases have impacted important resources for fisheries and general stream health. The impacts of climate change in WRIAs 3 and 4 are also yet to be fully realized. However, it is apparent that water availability is limited throughout the Skagit Watershed.

State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023). "The reduced availability of surface water can have a negative impact on all stages of the salmonid life cycle." *2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40.

To address current and future water shortages and to comply with RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590, the comprehensive plan and development regulations should adopt policies and regulations to ensure development complies with the water codes and the applicable instream flow rules.

RCW 36.70A.590 requires the development regulations to ensure that proposed water uses are consistent with RCW 90.44.050. When the County determines if a development, land division, or use qualifies for a residential permit-exempt well under RCW 90.44.050, the development regulations must require that the County limit the water used by the proposal and the parent parcel that existed in 2002, any lots created from the parent parcel, and any development built on or after 2002 on those lots to the no more than the 5,000 gallons a day allowed by RCW 90.44.050. Under the State Supreme Court's *Campbell and Gwinn* decision, each lot is entitled to one 5,000 gallon per day permit exempt withdrawal for single or group domestic uses under RCW 90.44.050. *State Dep't of Ecology v. Campbell & Gwinn, L.L.C.*, 146 Wn.2d 1, 14, 43 P.3d 4, 110 (2002). A "developer may not claim multiple exemptions for the homeowners." *Id*. So each lot that existed in 2002, the year the *Campbell and Gwinn* decision was decided, is entitled to one permit-exempt withdrawal under RCW 90.44.050 and is limited to 5,000 gallons per day.

As lots are subdivided or developed over time, part or all of the permit exempt withdrawals are used by the lots created or the development authorized. To qualify for a permit-exempt groundwater withdrawal authorized under RCW 90.44.050, the lot must have some remaining water from the parent parcel's single 5,000 gallon per day permit exempt withdrawal for single or group domestic uses.

Therefore, the required regulations can only authorize the use of a permit exempt-well for single or group domestic uses if the water use allowed under the permit-exemption does not exceed the 5,000 gallons a day allowed by RCW 90.44.050 including the parent parcel that existed in 2002, any lots created from the parent parcel, and any development built on or after 2002. To comply with RCW 36.70A.590, the proposed development regulations must include this important limitation.

Thank you for considering our comments. If you require additional information, please contact me at telephone (206) 343-0681 or email: tim@futurewise.org.

We will be providing the supporting documents in several emails.

Tim Trohimovich (he/him)

Director of Planning & Law

Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org
**futurewise.org**
connect:

## Tara Satushek

**From:** Tim Trohimovich <Tim@futurewise.org>
**Sent:** Thursday, March 13, 2025 5:30 PM
**To:** PDS comments
**Subject:** Re: Comments on "2025 Skagit County Periodic Comprehensive Plan Update"
**Attachments:** 2011003.pdf; amp_nh_vascular_ets.pdf; Blame_the_exurbs_not_the_suburbs_Explori.pdf; executive_summary.pdf

Dear Staff:

Here is the first set of enclosures.

Tim Trohimovich, AICP
Director of Planning & Law
Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org

---

**From:** Tim Trohimovich
**Sent:** Thursday, March 13, 2025 5:23 PM
**To:** Skagit County PD&S Comments <pdscomments@co.skagit.wa.us>
**Subject:** Comments on "2025 Skagit County Periodic Comprehensive Plan Update"

Dear Staff:

Subject: Comments on the 2025 Skagit County Periodic Comprehensive Plan Update

Thank you for the opportunity to comment on the 2025 Skagit County Periodic Comprehensive Plan Update. Futurewise strongly supports the update. We have comments on the final draft below.

Futurewise works throughout Washington State to support land-use policies that encourage healthy, equitable and opportunity-rich communities, and that protect our most valuable farmlands, forests, and water resources. We have members across Washington State including Skagit County.

### Comments on the Preface

The first sentence under "2025 Forecast" on page 10 of the redlined version has the year 20~~4~~5. It appears that 2025 was intended.

**The Rural Growth Allocations, see redline pages 10 through 12.**

Futurewise has three concerns about the rural growth allocations. First, allocating 20 percent of the county's growth to the rural area will be costly for county taxpayers and ratepayers. A peer-reviewed study shows that "the cost of providing public services in rural areas is 39% greater than in cities." Ron Shani, Yaniv Reingewertz & Eran

Vigoda-Gadot, *Far from-sight and expensive: additional costs of public services in rural areas* Local Government Studies p. 1, pp. 11 – 12 (22 Jun 2024), DOI: 10.1080/03003930.2024.2369784 last accessed on March 11, 2025, at: https://www.tandfonline.com/doi/pdf/10.1080/03003930.2024.2369784 and enclosed in another email with the filename: "Far-from-sight and expensive additional costs of public services in rural areas.pdf." The draft comprehensive plan in Appendix C the Transportation Element Technical Appendix on page 572 shows a transportation capital projects deficit of $150,689,518. Reallocating rural growth to cities and towns could reduce this $150 million transportation deficit.

Second, 501 rural housing units are intended to be affordable to households earning 51 to 80 percent of the area median income (AMI). The State of Washington Department of Commerce has documented that to provide housing affordable to families and individuals earning 80 percent or less of the area median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023) last accessed on March 11, 2025, at: https://deptofcommerce.app.box.com/s/1d9d5l7g509r389f0mjpowh8isjpirlh and enclosed in another email with the filename: "HB 1220_Book2_Housing Element Update_230823 Final_updated 240920.pdf." Low-rise multifamily and mid-rise multifamily housing are urban uses and require sewers and other urban services. RCW 36.70A.070(5) prohibits urban uses outside urban growth areas.

Third allocating 20 percent of the county's growth to the rural area will make it difficult to comply with RCW 36.70A.070(9)(d)(i) which provides that:

> The greenhouse gas emissions reduction subelement of the comprehensive plan, and its related development regulations, must identify the actions the jurisdiction will take during the planning cycle consistent with the guidelines published by the department pursuant to RCW 70A.45.120 that will:
>
> (A) Result in reductions in overall greenhouse gas emissions generated by transportation and land use within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state;
>
> (B) Result in reductions in per capita vehicle miles traveled within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; and
>
> (C) Prioritize reductions that benefit overburdened communities in order to maximize the cobenefits of reduced air pollution and environmental justice.

Adding twenty percent of the county's growth to rural Skagit County will likely increase greenhouse gas emissions, increase per capital vehicle miles traveled, and not benefit overburdened communities. Rural residents have substantially higher greenhouse gas emissions, particularly higher transport-related direct greenhouse gas emissions than residents in the urban growth areas. Jeffrey Wilson, Jamie Spinney, Hugh Millward, Darren Scott, Anders Hayden, and Peter Tyedmers, *Blame the exurbs, not the suburbs: Exploring the distribution of greenhouse gas emissions within a city region* 62 Energy Policy 1329, pp. 1334 – 35 (2013) enclosed in another email with the filename: "Blame_the_exurbs_not_the_suburbs_Explori.pdf." Energy Policy is a peer reviewed journal. Energy Policy Guide for authors webpage p. *14 last accessed on March 18, 2024, at: https://www.sciencedirect.com/journal/energy-policy/publish/guide-for-authors and in another email with the filename: "Guide for authors - Energy Policy.pdf." The transport-related direct emissions of rural residents are three times those in the inner city, and 1.5 times those in the suburbs. *Id.* p. 1335.

It is better to focus these housing types in cities, towns, and urban growth areas where the public facilities and services they require can be more affordably provided. This is important because if the planned, but not economically feasible, capacity for affordable housing in rural areas is counted towards the affordable housing

need then the County and its cities and towns will not have the capacity for the affordable housing the county needs.

## Comments on Element 2: Urban, Open Space, and Land Use.

Futurewise supports the existing and proposed policies in this chapter.

We strongly support policy 2A-1.4 calling for the engagement of federally recognized Indian tribes before expanding urban growth areas.

We also support policies increasing development capacity in urban growth areas where sewer is available. This will increase housing affordability. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023).

## Comments on Element 3 the Rural Element.

**Rural Water on pages 82 and 83 of the Redline Version.**

While we recognize that this section is primarily a historical narrative, RCW 36.70A.070(1) provides that "[t]he land use element shall provide for protection of the quality and quantity of groundwater used for public water supplies." RCW 36.70A.070(5)(c)(iv) provides that "[t]he rural element shall include measures that apply to rural development and protect the rural character of the area, as established by the county, by: … Protecting surface water and groundwater resources." The Growth Management Act (GMA) in RCW 36.70A.590 also provides that:

> For the purposes of complying with the requirements of this chapter [the GMA] relating to surface and groundwater resources, a county or city may rely on or refer to applicable minimum instream flow rules adopted by the department of ecology under chapters 90.22 and 90.54 RCW. Development regulations must ensure that proposed water uses are consistent with RCW 90.44.050 and with applicable rules adopted pursuant to chapters 90.22 and 90.54 RCW when making decisions under RCW 19.27.097 and 58.17.110.

These policies and development regulations are required because overuse of surface or ground water often harms senior water rights holders and fish and wildlife habitat and consequently tribal treaty rights. Ecology has documented that lower streamflows in parts of the Skagit basin "have impacted important resources for fisheries and general stream health." State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023) last accessed on March 12, 2025, at: https://apps.ecology.wa.gov/publications/documents/2011003.pdf and enclosed in another email with the filename: "2011003.pdf."

> The reduced availability of surface water can have a negative impact on all stages of the salmonid life cycle. Water quality (e.g. temperature, flows) is affected by decreased inputs from groundwater. Lessened groundwater input concentrates pollutants, increases temperature, and diminish[es] dissolved oxygen. This is detrimental to salmonid migration, spawning and rearing.

*2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40 last accessed on March 12, 2025, at: https://nwifc.org/publications/state-of-our-watersheds/ and cited excerpts in another email with the filename: "state-of-our-watersheds-sow-2020-final-web excerpts.pdf."

Changes in Skagit County will directly impact the level of development that can be accommodated outside of urban growth areas. Most water in the Skagit "watershed is already legally spoken for or 'appropriated.'" State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023). Water is already limited and changes in hydrology will make water scarcer in

the summer in the future. *Id.*; *Skagit River Basin Climate Science Report: Executive Summary* p. 9 last accessed on March 12, 2025, at: https://www.skagitcounty.net/EnvisionSkagit/Documents/ClimateChange/executive_summary.pdf and enclosed in another email with the filename: "executive_summary.pdf." Winter flooding will increase. *Skagit River Basin Climate Science Report: Executive Summary* pp. 9 – 11. These and other changes will make accommodating rural growth more difficult, more costly, and will adversely affect water available for salmon, wildlife, and irrigation. We recommend the County adopt policies consistent with RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590 to protect water quality and quantity.

**Goal 3A-2 revision on page 87 of the redline version.**

Goal 3A-2 is proposed to be amended to provide for a variety of "affordable housing types." The State of Washington Department of Commerce has documented that to provide housing affordable to families and individuals earning 80 percent or less of the county adjusted median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023). Low-rise multifamily and mid-rise multifamily housing are urban uses and require sewers and other urban services. RCW 36.70A.070(5) prohibits urban uses outside urban growth areas. Even if these housing types were allowed, it would not be affordable to provide the public facilities and services they need. A peer-reviewed study shows that "the cost of providing public services in rural areas is 39% greater than in cities." Ron Shani, Yaniv Reingewertz & Eran Vigoda-Gadot, *Far from-sight and expensive: additional costs of public services in rural areas* Local Government Studies p. 1, pp. 11 – 12 (22 Jun 2024), DOI: 10.1080/03003930.2024.2369784. The Appendix C, the Transportation Element Technical Appendix on page 572, shows a transportation capital projects deficit of $150 million.

There is also unlikely to be water available to serve these developments in the rural area. *2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40, p. 348. It is better to focus these housing types in cities, towns, and urban growth areas where the public facilities and services they require can be more affordably provided. This is important because if the planned, but not economically feasible, capacity for affordable housing in rural areas is counted towards the affordable housing need then the County and its cities and towns will not have the capacity for the affordable housing the county needs.

## Comments on Element 4: Natural Resource Lands.

**Policy 4A-1.1 on page 130 of the redline version.**

We appreciate that Policy 4A-1.1 is proposed to be amended to provide the "County may also consider unique farmlands soils and farmlands of statewide importance" in designating agricultural lands of long-term commercial significance. WAC 365-190-050(3)(c)(i) provides that in designating agricultural lands of long-term commercial significance "counties and cities should consider …: (i) The classification of prime and unique farmland soils, and farmlands of statewide importance, as mapped by the Natural Resources Conservation Service[.]" Consistent with WAC 365-190-050(3)(c) "should" should be substituted for "may" in Policy 4A-1.1.

We also support Policy 4A-1.1.(e) which requires that individual dedesignation requests must be deferred until a comprehensive countywide analysis is conducted. This policy is required by WAC 365-190-040 and WAC 365-190-050. These changes will better protect working farms and the county economy.

**Adopt a policy prohibiting the transfer of agricultural water for rural residential development.**

As was documented above, water is very limited in Skagit County. There will be pressure to transfer agricultural water to rural residential uses. Once this water is transferred, it will be lost to agriculture. While Skagit County cannot directly regulate water right transfers, it can use its zoning authority and subdivision authority to prohibit the use of agricultural water to mitigate rural residential and commercial developments. We urge the county to

adopt a policy and regulation to prohibit the use of agricultural water to mitigate rural residential and commercial developments. It will aid the agricultural industry and the county economy long-term.

**Policy 4B-1.1 and Policy 4B-3.3 on pages 139 through 140 and page 144 of the redline version.**

We support the revisions to Policy 4B-1.1(e) and Policy 4B-3.3 so the policies comply with the amendments to WAC 365-190-040 and WAC 365-190-060. These amendments will help to conserve forest lands and forest industry jobs.

**New Policy on the Wildland Urban Interface and Policy 4B-2.11 on page 144 of the redline version.**

Wildfire is a significant and increasing risk in Skagit County. *Skagit County Community Wildfire Protection Plan 2019 Update* pp. 20 – 21 last accessed on March 12, 2025, at: https://skagitcounty.net/EmergencyManagement/Documents/Skagit%20County%20CWPP.pdf and enclosed in another email with the filename: "Skagit County CWPP.pdf." The Growth Management Act in RCW 36.70A.070(1) provides in part that:

> The land use element must reduce and mitigate the risk to lives and property posed by wildfires by using land use planning tools, which may include, but are not limited to, adoption of portions or all of the wildland urban interface code developed by the international code council or developing building and maintenance standards consistent with the firewise USA program or similar program designed to reduce wildfire risk, reducing wildfire risks to residential development in high risk areas and the wildland urban interface area, separating human development from wildfire prone landscapes, and protecting existing residential development and infrastructure through community wildfire preparedness and fire adaptation measures.

While we appreciate and support Policy 4B-2.11, RCW 36.70A.070(1) requires more. We recommend that development be directed away from the WUI. We also recommend the adoption and enforcement of the Firewise Principles which recommend "'two ways out' of the neighborhood for safe evacuation during a wildfire" along with other important measures to protect people and property. *Firewise USA® Program* p. *9 accessed on March 12, 2025, at: https://www.nfpa.org/en/education-and-research/wildfire/firewise-usa/firewise-usa-resources. We recommend that the following new policy be adopted as part of the Land Use Element or the Climate Change Element:

Policy X: Direct non-resource land uses and development away from the Wildland-Urban Interface (WUI), encourage the implementation of Firewise Principles for existing developments and uses, and require implementation of Firewise Principles for new developments and uses.

**Goal 4D-1 on page 153 of the redline version.**

We support the revisions to Goal 4D-1 to comply with WAC 365-190-040 and WAC 365-190-070. These changes will aid the construction industry and the county economy.

## Comments on Element 5: Environment.

**Designate and protect rare plant categories and listings from the Department of Natural Resources, Natural Heritage Program as the GMA requires. See pages 183 to 184 of the redline version.**

The "GMA requires the County to protect the functions and values of Critical Area Ecosystems." *Whidbey Environmental Action Network v. Island Cnty.*, Western Washington Region Growth Management Hearings Board (WWRGMHB) Case No. 14-2-0009, Final Decision and Order (June 24, 2015), at 21 of 49 last accessed on March 12, 2025, at: https://eluho2022.my.site.com/casemanager/s/case/50082000001BDWk/detail. This includes the "high quality ecosystem and rare plant categories and listings from the department of natural resources, natural heritage program." *Id.* at 32 – 35 of 49, see also WAC 365-190-040(4)(b). The *2024 Washington Vascular Plant Species of Conservation Concern* identifies rare plants in Skagit County. Jesse E. D. Miller, Sienna Wessel, and Walter Fertig, *2024 Washington Vascular Plant Species of Conservation Concern* pp. 8 – 44 (Washington Natural Heritage Program, Natural Heritage Report 2024-07: July 3, 2024) last accessed on March 12, 2025, at: https://www.dnr.wa.gov/publications/amp_nh_vascular_ets.pdf and enclosed in another email with the filename: "amp_nh_vascular_ets.pdf." These plants and ecosystems need to be designated as fish and wildlife habitats and conserved as the Growth Management Act requires.

**Do not change the "shalls" to "shoulds" in Policy 5A-5.1, Policy 5A-5.2, and Policy 5A-5.3 on pages 181 through 188 of the redline version.**

Policy 5A-5.1 is proposed to be amended to add that: "Critical areas shall be designated and protected to maintain no net loss of wetland functions and value." We strongly support this addition. It is also consistent with the Growth Management Act (GMA) which "requires that the regulations for critical areas must protect the 'functions and values' of those designated areas. [RCW 36.70A.172(1).] This means all functions and values." *Whidbey Env't Action Network v. Island Cnty.*, 122 Wn. App. 156, 174–75, 93 P.3d 885, 894 (2004). However, elsewhere in this policy the "shalls" are changed to "should." Shoulds are not consistent with the Growth Management Act requirement and should not be substituted for "shalls."

"Shoulds" are not consistent with the Growth Management Act requirement and also should not be substituted for "shalls in Policy 5A-5.2 and Policy 5A-5.3.

**Do not change "shall" to "should" in policy 5A-5.8 on page 191 of the of the redline version.**

For the same reason, do not change "shall" to "should" in policy 5A-5.8.

**Futurewise supports Goal 5B and its associated policies to address climate hazards and to reduced greenhouse gas pollution on pages 191 and 192 of the redline version.**

We support Goal 5B and its associated policies to address climate hazards and to reduced greenhouse gas pollution. This goal and the policies are required by RCW 36.70A.070(9). We have additional comments on the topic of climate below.

## Comments on Element 7: Housing.

**RCW 36.70A.070(2)(c) requires the housing element to identify sufficient land for affordable housing including STEP housing.**

RCW 36.70A.070(2)(c) requires the County housing element, and the housing elements of the cities, to identify "sufficient capacity of land for housing including, but not limited to, government-assisted housing, housing for moderate, low, very low, and extremely low-income households, manufactured housing, multifamily housing, group homes, foster care facilities, emergency housing, emergency shelters, [and] permanent supportive housing ...." Using the State of Washington Department of Commerce Housing for All Planning Tool (HAPT) methodology, the population targets are converted to needed housing units by income category and beds for permanent supportive housing. The County must then identify the land with the zoning capacities needed to accommodate these housing units by income band or category. We were unable to find the documentation of sufficient capacity in the housing element. It may be in Appendix E Housing Needs Assessment, but we were unable to find this appendix. If it is in the appendix, that is fine. If not, the housing element should document that the County has

sufficient capacity for affordable housing types and indoor emergency shelters, transitional housing, emergency housing, and permanent supportive housing (STEP housing).

**Affordable housing should be focused in cities, towns, and urban growth areas.**

The Housing Element on page 226 states: "Skagit County plans to accommodate new housing within its existing land use designations by focusing on limited areas of more intense rural development, specifically the rural village residential zones. The rural village residential zone, which are part of the County's land use and zoning regulations, has been revised to allow for new housing types that are affordable to moderate- and low-income residents." The State of Washington Department of Commerce has documented that to provide housing affordable to families and individuals earning 80 percent or less of the area median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023). Middle housing is not affordable to families earning 80 percent or less of the area median income. In addition, as was documented above there is a significant water shortage and placing affordable housing in rural areas increases transportation costs for families and transportation and public service costs for the County. We do not believe this strategy will work and should be discarded. Instead, affordable housing should be focused in cities, towns, and urban growth areas where affordable housing types and densities can actually be constructed.

Similarly, the *Washington Farmworker Housing Needs Assessment* recommended that to provide more affordable farm worker housing cities should be encouraged "to increase zoning and infrastructure investments for multi-family housing within urban growth areas." BERK Consulting, *Washington Farmworker Housing Needs Assessment* p. 184 (The Washington State Department of Commerce: Jan. 2022) last accessed on March 12, 2025, at: https://www.commerce.wa.gov/wp-content/uploads/2022/04/CommerceReports_CSHD_FarmworkerHousing_Final_4.26.22.pdf and enclosed in a separate email with the filename: "CommerceReports_CSHD_FarmworkerHousing_Final_4.26.22.pdf." The assessment also recommended that cities remove "barriers to the development of rental housing." *Id*. "Encouraging cities to identify and remove barriers to rental housing development is an important strategy to address housing needs for farmworkers." *Id*.

**Comments on Element 12: Climate and Resiliency**

Overall, Futurewise strongly supports the Climate and Resiliency element. We do have some suggestions provided below.

**Futurewise supports Goal 12J on page 396 of the redline version.**

Goal 12J on page 396 calls for integrating climate change projections into land use, infrastructure planning, and development regulations, ensuring long-term safety from sea-level rise, flooding, wildfires, and other climate-exacerbated hazards while protecting natural ecosystems. We support this goal and its associated policies. The deadline for Skagit County to update its development regulations is December 31, 2025. RCW 36.70A.130(1)(a), (5)(b).

**Please clarify policy 12J-1.8 on page 397 of the redline version.**

Futurewise strongly supports policy 12J-1.8. It intends to cover sea level rise which we support. On addition, as the seas are rising and storms become more intense, coastal rivers and streams will be subject to more channel migration. We recommend that policy 12J-1.8 be clarified as follows with our additions underlined.

policy 12J-1.8 All residential and commercial development and accessory uses, port and water related industrial facilities, equipment, and works should be located, designed, and maintained to avoid, or if necessary, withstand 100-year flood frequency flooding, and/or storm tides or surges, channel migration, and tides and water

levels likely over the next 100 years without becoming hazards and without the placement of flood hazard reduction measures or other hard structural shoreline stabilization. Incorporate climate projections to account for anticipated changes in flood frequency, storm intensity, and sea-level rise. Ensure that designs and maintenance plans adapt to these projections to enhance long-term resilience against evolving climate impacts.

**Include a policy including the California Coastal Commission recommendations for adapting to sea level rise.**

In addition, we suggest that the County incorporate a policy on adapting to sea level rise and its adverse impacts modeled on the process California's coastal counties and cities use. *California Coastal Commission Sea Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits* pp. 97 – 140 (2024 Update: Nov. 13, 2024) last accessed on March 13, 2025, at: https://www.coastal.ca.gov/climate/slrguidance.html and enclosed in another email with the filename: "2024AdoptedSLRPolicyGuidanceUpdate.pdf." The process includes seven steps and we recommend a policy incorporating these steps be adopted.

1. Initiate planning effort, identify key goals and stakeholders, and engage with environmental justice communities and Indian tribes.
2. Determine the range of sea level rise scenarios relevant to Skagit County's marine shorelines. The California Coastal Commission recommends analyzing intermediate and long-term projections because "development constructed today is likely to remain in place over the next 75-100 years, or longer." *Id*. p. 109.
3. Identify potential physical sea level rise impacts in Skagit County's unincorporated marine shorelines.
4. Assess potential risks from sea level rise to coastal resources, development, and environmental justice communities in unincorporated Skagit County.
5. Identify equitable adaptation measures. The *California Coastal Commission Sea Level Rise Policy Guidance* includes recommended adaptation strategies the County can consider. *Id*. pp. 179 – 226.
6. Adopt an updated comprehensive plan and development regulations incorporating the selected adaptation strategies.
7. Implement the updated comprehensive plan and development regulations and monitor and revise as needed. Because the scientific data on sea level rise is evolving, the California Coastal Commission recommends that "[i]t will likely be important to modify maps of current and future hazard areas on a five- to ten-year basis or as necessary to allow for the incorporation of new sea level rise science, monitoring results, and information on coastal conditions." *Id*. p. 139.

**The greenhouse gas emissions reduction subelement must quantify whether the element will reduce greenhouse gas emissions and reduce per capita vehicle miles traveled.**

RCW 36.70A.070(9)(d)(i) provides:

> (d)(i) The greenhouse gas emissions reduction subelement of the comprehensive plan, and its related development regulations, must identify the actions the jurisdiction will take during the planning cycle consistent with the guidelines published by the department pursuant to RCW 70A.45.120 that will:
>
> (A) Result in reductions in overall greenhouse gas emissions generated by transportation and land use within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; (B) Result in reductions in per capita vehicle miles traveled within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; and

> (C) Prioritize reductions that benefit overburdened communities in order to maximize the cobenefits of reduced air pollution and environmental justice.

Please note that subelement and its related development regulations "must identify the actions the jurisdiction will take … that will: … [r]esult in reductions in overall greenhouse gas emissions …. Similarly, the subelement and its related development regulations "must identify the actions the jurisdiction will take … that will: … [r]esult in reductions in per capita vehicle miles traveled …." The element itself "must identify" the reductions.

Further, RCW 36.70A.070 provides that "[t]he plan shall be an internally consistent document and all elements shall be consistent with the future land use map." So these calculations must take into the planned growth over the next 20 years.

While we appreciate the three scenarios described on page 399, the reductions are not quantified and it is not clear if they take into account the proposed growth allocations. This information is needed to document compliance with RCW 36.70A.070(9)(d)(i). It would also be helpful to know if these reductions will over time put the County on a path to address the State's overall target of net-zero emissions by 2050. If this information is in an appendix that will be included with the comprehensive plan in the future that would be sufficient to document compliance.

**The Growth Management Act requires water quantity policies and regulations as part of the 2025 comprehensive plan and development regulations update.**

As was documented above, RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590 require Skagit County to adopt policies and regulations to protect water quality and quantity. These policies and development regulations are required because overuse of surface or ground water often harms senior water rights holders and fish and wildlife habitat and consequently tribal treaty rights. Most water in the Skagit "watershed is already legally spoken for or 'appropriated.'" State of Washington Department of Ecology Water Resources Program, WRIAs 3 & 4 Skagit Watershed Water Availability p. 3 (Publication 20-11-003: May 2023). The Washington State Department of Ecology has summarized water availability in the Skagit basin:

> Increasing demands for water over time, from ongoing population growth, agriculture, and other consumptive uses as well as associated land use practices, have resulted in lower streamflows in some areas. These decreases have impacted important resources for fisheries and general stream health. The impacts of climate change in WRIAs 3 and 4 are also yet to be fully realized. However, it is apparent that water availability is limited throughout the Skagit Watershed.

State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023). "The reduced availability of surface water can have a negative impact on all stages of the salmonid life cycle." *2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40.

To address current and future water shortages and to comply with RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590, the comprehensive plan and development regulations should adopt policies and regulations to ensure development complies with the water codes and the applicable instream flow rules.

RCW 36.70A.590 requires the development regulations to ensure that proposed water uses are consistent with RCW 90.44.050. When the County determines if a development, land division, or use qualifies for a residential permit-exempt well under RCW 90.44.050, the development regulations must require that the County limit the water used by the proposal and the parent parcel that existed in 2002, any lots created from the parent parcel, and any development built on or after 2002 on those lots to the no more than the 5,000 gallons a day allowed by RCW 90.44.050. Under the State Supreme Court's *Campbell and Gwinn* decision, each lot is entitled to <u>one</u> 5,000 gallon per day permit exempt withdrawal for single or group domestic uses under RCW 90.44.050. *State Dep't of Ecology*

*v. Campbell & Gwinn, L.L.C.*, 146 Wn.2d 1, 14, 43 P.3d 4, 110 (2002). A "developer may not claim multiple exemptions for the homeowners." *Id.* So each lot that existed in 2002, the year the *Campbell and Gwinn* decision was decided, is entitled to one permit-exempt withdrawal under RCW 90.44.050 and is limited to 5,000 gallons per day.

As lots are subdivided or developed over time, part or all of the permit exempt withdrawals are used by the lots created or the development authorized. To qualify for a permit-exempt groundwater withdrawal authorized under RCW 90.44.050, the lot must have some remaining water from the parent parcel's single 5,000 gallon per day permit exempt withdrawal for single or group domestic uses.

Therefore, the required regulations can only authorize the use of a permit exempt-well for single or group domestic uses if the water use allowed under the permit-exemption does not exceed the 5,000 gallons a day allowed by RCW 90.44.050 including the parent parcel that existed in 2002, any lots created from the parent parcel, and any development built on or after 2002. To comply with RCW 36.70A.590, the proposed development regulations must include this important limitation.

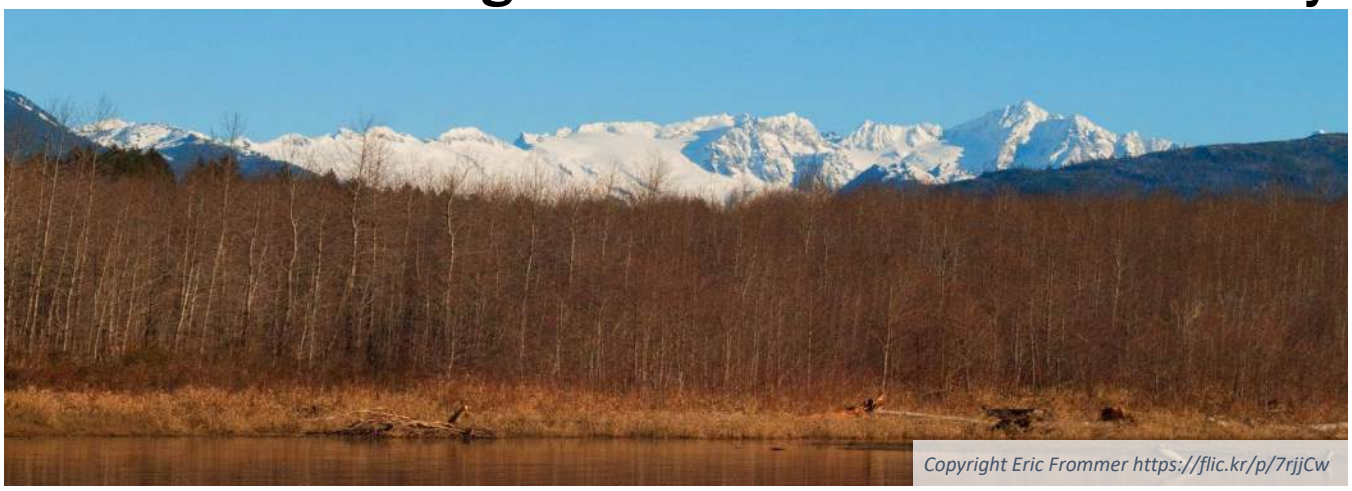
Thank you for considering our comments. If you require additional information, please contact me at telephone (206) 343-0681 or email: tim@futurewise.org.

We will be providing the supporting documents in several emails.

Tim Trohimovich (he/him)
Director of Planning & Law

Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org
**futurewise.org**
connect:

# WRIAs 3 & 4 Skagit Watershed Water Availability



Copyright Eric Frommer https://flic.kr/p/7rjjCw

Overview


- Introduction to WRIAs 3 & 4
- Water Availability Factors
- Options for Acquiring Water
- Resources
- Map





What is a watershed?

Washington is divided into 62 major watersheds or Water Resource Inventory Areas (WRIAs), which are areas that each capture precipitation and funnel rain and snowmelt through smaller subbasins into streams, tributaries, and rivers and typically drain to marine waters or the Columbia River.

## Introduction to WRIAs 3 & 4

The Skagit Watershed or water resource inventory areas (WRIA) 3 and 4, are jointly defined as the area that drains to the Skagit River, but also includes the Samish River basin. The area is comprised of the northern part of Puget Sound east of the San Juan Islands, the majority of Skagit County, and the eastern portions of Snohomish and Whatcom counties.

The Skagit River's major tributaries are the Cascade, Sauk, and Suiattle rivers. The watershed includes various other tributary streams such as Fisher, Carpenter, Jones, and Day creeks.

### How can I get water?

Depending on your proposal, you may have more than one option to acquire a reliable water supply:

- Connecting to an existing water system is usually the fastest and easiest option if your project is within the system's service area.
- Using a permit-exempt well in limited areas of the watershed or with mitigation if you meet the limits under state law.
- Installing a cistern and capturing rainwater may be possible.
- Purchasing an existing water right and transferring it to the new use.
- Applying for a new water right, which may need mitigation.

See *Options for Acquiring Water* section for more information about water right permit options and when to meet with Ecology staff.

### Washington Water Law

Waters of the state belong to the public and can't be owned by any one individual or group. Water right holders have the right to use water, from a set source, for a particular purpose, in a specific location.

The Department of Ecology is responsible for managing the water resources of the state, including issuing the right to use water as well as protecting the instream resources for the benefit of the public.

Washington water law is based on the "prior appropriation" system, often called "first in time, first in right." Applications for water from the same source must be processed in the order they are received, although there are certain exceptions.

### Applicable Laws and Regulations

- RCW 90.03: Washington Water Code
- RCW 90.44: Regulation of Public Groundwaters
- RCW 90.54: Water Resources Act of 1971
- RCW 90.94: Streamflow Restoration
- WAC 173-503: The Instream Flow Rule for WRIAs 3 and 4

### Case Law

- Swinomish Indian Tribal Community v Washington State Department of Ecology (2013)

## Water Availability Factors

Due to Washington's varied land uses, terrain, and precipitation levels, water availability for new water right permits varies dramatically across the state. In the Skagit Watershed, key factors affecting water availability include:

- Instream flow rule
- Indian Tribe Reservations
- Wild and Scenic Rivers
- Precipitation
- Seawater Intrusion

### Instream flow rule

Instream flow rules are an element of water and river management that help maintain healthy ecosystems that support fish, communities, and economies. The Lower and Upper Skagit WRIAs have an instream flow rule (WAC 173-503), adopted in 2001 to preserve the uses and values of individual rivers and streams within the WRIA. Note: This rule applies only to the Skagit River and its tributaries. It does not apply to the Samish River basin or on Fidalgo, Cypress, Guemes, Hope, and Goat islands.

The instream flow rule:

- Protects the river by settings minimum flow levels, which are like water rights for the stream. Instream flows do not put water in the streams and do not affect existing (senior) water rights.
- Creates year-round or seasonal closures for some streams, protecting existing flows from new appropriations.

Ecology revised the Skagit River Instream Flow Rule in 2006 to establish finite "reservations" of surface and groundwater for future out-of-stream uses. The reservations provided uninterruptible water supplies for future water users that could be legally used even if flows in the Skagit River fell below the regulatory flow levels.

On Oct. 3, 2013, the Washington State Supreme Court ruled that Ecology exceeded its authority in creating reservations that would impair the protected instream flow levels. **All new ground and surface water uses in the Skagit watershed** requiring a year-round reliable source of water, **including permit-exempt wells, must be mitigated to prevent impairment of the instream flows**.

For more information, see Ecology publications "Frequently Asked Questions: Water Availability for Skagit Basin Landowners."

### Indian Tribe Reservations

The Swinomish Indian Reservation and Upper Skagit Reservation lands are located within WRIAs 3 and 4. Federally reserved rights are not quantified at this time and therefore the legal availability of water in these areas is undetermined.

### Wild and Scenic Rivers

The Skagit River and the Cascade, Sauk, and Suiattle tributaries are designated as Wild and Scenic Rivers by the U.S. Wild and Scenic Rivers Act (16 USC 1271-1287). Any water withdrawals that would interrupt the free-flowing condition of these rivers, such as run-of-the-river hydropower projects, would not be approved.

## Seawater intrusion

The movement of salt water into freshwater aquifers, known as seawater intrusion, is a concern for coastal areas of Puget Sound. Any groundwater withdrawals located in the coastal areas are evaluated for the risk of seawater intrusion into existing fresh groundwater supplies. Guemes Island, for example, has experienced historical and ongoing seawater intrusion in certain areas.

## Surface Water Source Limitations

The Samish subbasin within the watershed has administrative restrictions known as Surface Water Source Limitations (SWSLs), limiting most water sources in that subbasin. This determination comes from the Washington Department of Fish and Wildlife that flows be protected to maintain fish populations.

## Existing water rights

Water rights have been issued in the Skagit Watershed for over 100 years, and as a result most water in the watershed is already legally spoken for or "appropriated."

## Summary

Increasing demands for water over time, from ongoing population growth, agriculture, and other consumptive uses as well as associated land use practices, have resulted in lower streamflows in some areas. These decreases have impacted important resources for fisheries and general stream health. The impacts of climate change in WRIAs 3 and 4 are also yet to be fully realized. However, it is apparent that water availability is limited throughout the Skagit Watershed.

# Options for Acquiring Water

## Permit-exempt options

Use of water under the permit-exempt state law, RCW 90.44.050, are extremely limited in WRIAs 3 and 4. Please contact Ecology for site-specific information for your proposed project.

### Potential mitigation for domestic uses

The Skagit River Basin Mitigation Program, established by Ecology, creates a process for landowners along an area of the main stem of the Skagit River seeking water for new domestic uses to apply to Ecology for approval. For more information, see Ecology publication "Frequently Asked Questions: Skagit River Basin Mitigation Program." The Big Lake mitigation program also provides mitigation opportunities for homes north of Big Lake, along Nookachamps Creek. For more information, see Ecology publication "Focus on: Skagit Basin's Big Lake Water Bank."

## Permit options

If your project cannot access water from an existing water purveyor and doesn't qualify for use of a permit-exempt well, you will need to apply for and receive a new water right or buy an existing water right and change or transfer it to the new use.

**Ecology asks anyone who needs a water right** (new, change, or transfer) to submit the pre-application consultation form and meet with us to review your water supply needs and project proposal. See the resources section for forms and other information.

### New water right

Attempting to acquire new water rights within areas regulated with either instream flows or closures will likely be a very difficult and expensive process. It requires the hiring of qualified, licensed consultants and submitting a comprehensive mitigation and monitoring plan. This does not guarantee approval of a water right. Mitigation can be any action or group of actions that offset the impact of the water withdrawal or diversion on instream flows or other senior water rights.

Projects proposing non-consumptive uses of water may be approvable in both closed areas and areas with instream flow regulations.

Mitigation refers to measures taken to prevent any impact on streamflow during the period that water is not available, by either:

- Halting the diversion or withdrawal, or
- Replacing the water taken—in time and in-place.

A common form of mitigation is to retire an existing water right upstream from the new use.

### Change or transfer of an existing water right

It can be easier to buy an existing water right and change the purpose and/or place of use. Changing either of these aspects of a water right can be challenging if the change creates a new or different impact on a stream. It is important that the water right be in good standing by regular use over its lifetime.

## Processing options

The wait for your water right application to be processed can be years. An option to speed up the process:

- Submit your new or change water right application through the Cost Reimbursement Program.

For more information on this and other options, refer to Alternatives for Water Right Application Processing.

You can discuss all of your options to supply water to your project at your pre-application consultation with Ecology. To schedule, submit the pre-application consultation form.

## Resources

### Contact Information

Ecology Northwest Region Office
15700 Dayton Ave N, Shoreline, WA
Mail: PO Box 330316
Shoreline, WA 98133
(206) 594-0000

### More Information

Visit our website for the most current information.
ecology.wa.gov/Water-Shorelines/Water-supply

Publications and forms are searchable in the online database. ecology.wa.gov/publications

### Forms

- Water Right Pre-Application Consultation form, Form ECY 070-440
  https://apps.ecology.wa.gov/publications/summarypages/ecy070440.html
- Skagit River Basin Mitigation Program Application Form, Form ECY 070-647
  https://apps.ecology.wa.gov/publications/summarypages/ecy070647.html
- Application for a New Water Right, Form ECY 040-114
  https://apps.ecology.wa.gov/publications/summarypages/ecy040114.html
- Application to Change or Transfer a Water Right or Claim, Form ECY 040-197
  https://apps.ecology.wa.gov/publications/summarypages/ecy040197.html

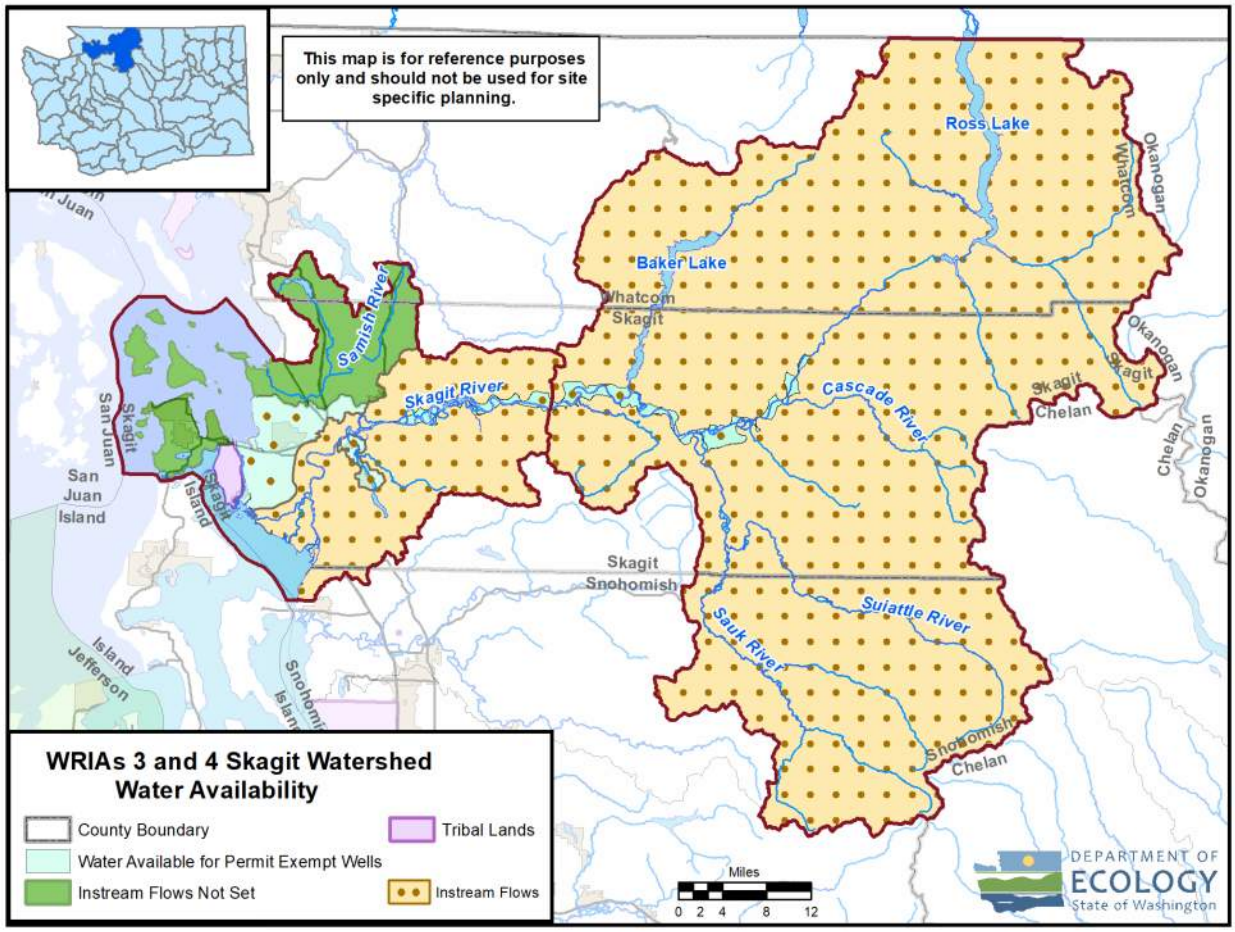
### Publications

- Frequently Asked Questions: Water Availability for Skagit Basin Landowners. Publication 13-11-006,
  https://apps.ecology.wa.gov/publications/summarypages/1311006.html
- Frequently Asked Questions: Skagit River Basin Mitigation Program, Publication 21-11-006
  https://apps.ecology.wa.gov/publications/summarypages/2111006.html
- Focus on: Skagit Basin's Big Lake Water Bank, Publication 19-11-066
  https://apps.ecology.wa.gov/publications/SummaryPages/1911066.html
- Cost Reimbursement Program, Publication 05-11-016
  https://apps.ecology.wa.gov/publications/SummaryPages/0511016.html
- Alternatives for Water Right Application Processing, Publication 11-11-067
  https://apps.ecology.wa.gov/publications/SummaryPages/1111067.html
- Focus on: The Groundwater Permit Exemption, Publication 19-11-090
  https://apps.ecology.wa.gov/publications/SummaryPages/1911090.html

### Website – ecology.wa.gov

- The Skagit basin water availability page provides information on mitigation programs and options for new uses in the Skagit basin. https://ecology.wa.gov/SkagitWaterSupply
- Visit the water rights permits page for more information and helpful links.
  https://ecology.wa.gov/WaterRightPermits
- Use the Water Rights Search to locate and research water rights on land parcels anywhere in the state. https://appswr.ecology.wa.gov/WaterRightsSearch

## Map




### ADA accommodations

The Department of Ecology is committed to providing people with disabilities access to information and services by meeting or exceeding the requirements of the Americans with Disabilities Act (ADA), Section 504 and 508 of the Rehabilitation Act, and Washington State Policy #188.

To request an ADA accommodation, contact Ecology by phone at 360-407-6872, or visit https://ecology.wa.gov/accessibility. For Relay Service or TTY call 711 or 877-833-6341

WASHINGTON NATURAL HERITAGE PROGRAM



# 2024 Washington Vascular Plant Species of Conservation Concern

Jesse E. D. Miller, Sienna Wessel, and Walter Fertig
Washington Natural Heritage Program
July 3, 2024

Natural Heritage
Report 2024-07

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES

# 2024 Washington Vascular Plant Species of Conservation Concern

Washington Natural Heritage Program Report Number: 2024-07

July 3, 2024

Jesse E. D. Miller[1]
Sienna Wessel[1]
& Walter Fertig[2]

[1]Washington Department of Natural Resources, Natural Heritage Program, Olympia, WA
[2]Marion Ownbey Herbarium, Washington State University, Pullman, WA

**ON THE COVER:** Golden paintbrush (*Castilleja levisecta*) from Thurston Co., Washington. Although it has been federally delisted, golden paintbrush remains a species of conservation concern in Washington and is listed as State Threatened.

Photograph by: Jesse E. D. Miller, WNHP

# Table of Contents

Page

Introduction ..... 1

Literature Cited ..... 6

Acknowledgments ..... 43

# Tables, Figures, and Appendices

Table 1. Taxa added to the previous list ..... 1

Table 2. Taxa removed from the previous list ..... 2

Table 3. Matrix for classifying species of conservation concern as state of Washington Endangered, Threatened, Sensitive, or Extirpated ..... 3

Figure 1. Washington counties and ecoregions ..... 4

Table 4. Summary of Washington Species of Concern..... 6

Appendix A. Washington Vascular Plant Species of Conservation Concern ..... 8

# Introduction

For more than 40 years the Washington Natural Heritage Program (WNHP) has maintained a list of Washington plant species of conservation concern. Each of these species is ranked at the global and state scale following the standardized protocol of the NatureServe network (Faber-Langendoen et al. 2012). The Species of Conservation Concern help inform conservation decisions relating to rare plants on federal, state, private, and tribal lands (WDNR 2018).

The Species of Conservation Concern list is periodically updated as new information becomes available on the status and distribution of rare plants in Washington. The following is an update of the 2021 list (WNHP 2021). Two taxa have been dropped from the 2021 list, and 17 have been added.

The 2024 changes are summarized in Tables 1 and 2 below:

**Table 1. Taxa added to the previous list.**

| **Taxon** | **Reason for addition** |
|---|---|
| *Allium scilloides* | Narrow range; despite Review List status new occurrences have not been discovered |
| *Brickellia microphylla* | Rediscovered in Washington in 2023, only one element occurrence in state |
| *Campanula piperi* | Threatened by climate change, few occurrences under modern element occurrence standards |
| *Carex sheldonii* | Only one known occurrence in Washington, despite being on Review List |
| *Erigeron flettii* | Threatened by climate change, few occurrences under modern element occurrence standards |
| *Eucephalus glaucescens* | Narrow range, only six global occurrences under modern element occurrence standards, threatened by habitat fragmentation/degradation & quarrying |
| *Hulsea nana* | Decreasing number of occurrences, narrow ecological niche, vulnerable to climate change |
| *Lathyrus ochroleucus* | Few known occurrences despite being on Review List |
| *Lomatium cuspidatum* | Narrow range, < 20 global occurrences under modern element occurrence standards, partially restricted to serpentine soils |
| *Navarretia breweri* | Few known occurrences despite being on Review List |
| *Penstemon washingtonensis* | Narrow range, 11 global occurrences under modern element occurrence standards |
| *Petrophyton hendersonii* | Narrow range (endemic to Olympic Mountains), 12 global occurrences under modern element occurrence standards, threatened by climate change |
| *Phacelia glandulifera* | Threatened by wildfire, few known occurrences despite being on review list |

| | |
|---|---|
| *Poa curtifolia* | 12 global occurrences under modern element occurrence standards, restricted to serpentine soils |
| *Senecio neowebsteri* | Declining population trend, threatened by climate change, few occurrences under modern element occurrence standards |
| *Silene douglasii* var. *rupinae* | Few occurrences in Washington; previously overlooked? |
| *Viola flettii* | Threatened by climate change, few occurrences under modern element occurrence standards |

**Table 2. Taxa removed from the previous list.**

| **Taxon** | **Reason for removal** |
|---|---|
| *Ammannia robusta* | New populations documented |
| *Aliciella leptomeria* | Taxonomic / identification questions (moved to Review List 2) |

Appendix A contains information on the heritage rank, status, habitat, distribution, and management for each species. The definition and codes for each of these attributes are briefly described below:

**Species/Common Name**: Species are organized alphabetically by their scientific name. Nomenclature mostly follows Hitchcock and Cronquist (2018). Pertinent synonyms are included in parentheses. Common names follow the USDA Plants database (http://plants.usda.gov) or NatureServe (http://explorer.natureserve.org).

**Heritage Rank**: WNHP uses the ranking system developed by NatureServe to assess global and state conservation status of each plant species, subspecies, and variety. Taxa are ranked on a scale of 1 to 5 (from highest to lowest conservation concern).

G = Global Rank: rangewide status of a full species
T = Trinomial Rank: rangewide status of a subspecies or variety
S = State Rank: status of a species, subspecies, or variety within the state of Washington
1 = Critically Imperiled – at very high risk of extirpation due to very restricted range, very few occurrences, very steep declines, very severe threats, or other factors
2 = Imperiled – at high risk of extirpation due to restricted range, few occurrences, steep declines, severe threats, or other factors
3 = Vulnerable – at moderate risk of extirpation due to a fairly restricted range, relatively few occurrences, recent and widespread declines, threats, or other factors
4 = Apparently secure – at fairly low risk of extirpation due to an extensive range or many occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors
5 = Secure – at very low risk of extirpation due to a very extensive range, abundant occurrences, and little to no concern from decline or threats
H = Historical– known from only historical occurrences (prior to 1978) but still with some hope of rediscovery
X = Presumed Extirpated – not relocated since 1978 despite intensive searches and virtually no likelihood of rediscovery
U = Unrankable – lack of information or substantially conflicting information about status
NR = Not Ranked – rank not assessed yet

Q = Questionable – questions exist about the taxonomic validity of a species, subspecies, or variety
? = Questionable – questions exist about the assigned G, T, or S rank of a taxon
[ ] = indicates a recommended, but not yet accepted, rank.

**State Status**: Washington state status is assigned by WNHP based on the matrix in Table 1. Categories include:

Endang = Endangered, in danger of becoming extinct or extirpated from Washington
Threat = Threatened, likely to become Endangered in Washington
Sens = Sensitive, vulnerable or declining and could become Threatened or Endangered in Washington
Extirp = possibly extinct or extirpated in Washington (includes state historical species)

**Federal Status**: Under the US Endangered Species Act (ESA), the US Fish and Wildlife Service recognizes four categories:

Endang = Endangered. A species, subspecies, or variety in danger of extinction throughout all or a significant portion of its range.
Threat = Threatened. A species, subspecies, or variety likely to become Endangered in the foreseeable future
Prop = Proposed. A species, subspecies, or variety formally proposed for listing as Endangered or Threatened (a proposal has been published in the Federal Register, but not a final rule)
Cand = Candidate. A species, subspecies, or variety being evaluated by USFWS for potential listing as Threatened or Endangered under the ESA, but no formal proposal has been published yet.

**Table 3. Matrix for classifying species of conservation concern as state of Washington Endangered, Threatened, Sensitive, or Extirpated**. T ranks can apply to any G rank of equal or higher number (i.e. G2T2 or G5T3, but not G1T3). A lower T rank supersedes a higher G rank (ie. G5T3 is scored based on T3). Blended ranks are rounded down (i.e. G2G3 = G2). * indicates a species needs to be evaluated further to determine whether it warrants Sensitive status.

| Natural Heritage Rank | State Status |
|---|---|
| G1/S1, G2/S1, G3/S1, T1/S1, T2S1, T3S1 | Endangered |
| G2/S2, G3/S2, T2/S2, T3/S2 | Threatened |
| G3/S3*, G4/S1, G4/S2, G4/S3*, G5/S1, G5/S2, G5/S3*, T3/S3*, T4/S1, T4/S2, T4/S3*, T5/S1, T5/S2, T5/S3* | Sensitive |
| SH, SX (regardless of G or T rank) | Extirpated |
| G4/S3*, G4/S4, G5/S3*, G5/S4, G5/S5, T4/S3*, T4/S4, T5/S4, T5/S5 | Not of Concern |

The Interagency Special Status and Sensitive Species Program (ISSSSP) of the US Forest Service (USFS) and Bureau of Land Management (BLM) in Washington and Oregon updated its list of Sensitive species in 2021 (ISSSSP 2021).

B-Sens = BLM Sensitive; all USFWS candidate and delisted species and WNHP species of concern ranked S1, S1S2, S1S3, S2, or S2S3 found on at least one BLM managed area in Washington.

F-Sens = Forest Service Sensitive: all USFWS candidate and delisted species and WNHP species of concern ranked S1, S1S2, S1S3, S2, or S2S3 found on at least one USFS managed area in Washington.

**Distribution (Dist.) Pattern**: Species rarity is often correlated with geographic distribution patterns. The following patterns can be recognized in Washington:

LocEnd = Local Endemic; global range of taxon is less than 16,500 $km^2$ or about 1 degree of latitude x 2 degrees of longitude (about the size of an average county)

RegEnd = Regional Endemic; global range of taxon is between 16,500 to 250,000 $km^2$ (or an area about the size of the state of Washington)

Disjunct = Disjunct; globally widespread but state population is isolated from the main contiguous range by a gap or more than 500 km

Periph = Peripheral; globally widespread but Washington population is at the margin of the main contiguous range of the taxon

Sparse = Sparse; widely distributed across the state but with relatively few populations (less than 20)

Widesp = Widespread; widely distributed globally and in Washington, with more than 20 populations in the state.

**County**: Three-letter codes are used to document the distribution of plant species by county (Figure 1). Vague or unconfirmed reports are indicated by ?.

Ada = Adams
Aso = Asotin
Ben = Benton
Che = Chelan
Clk = Clark
Clm = Clallam
Col = Columbia
Cow = Cowlitz
Dou = Douglas
Fer = Ferry
Fra = Franklin
Gar = Garfield
Gra = Grant
Grh = Grays Harbor
Isl = Island
Jef = Jefferson
Kin = King
Kli = Klickitat
Ktp = Kitsap
Ktt = Kittitas
Lew = Lewis
Lin = Lincoln
Mas = Mason
Oka = Okanogan
Pac = Pacific
Peo = Pend Oreille
Pie = Pierce
Saj = San Juan
Skg = Skagit
Skm = Skamania
Sno = Snohomish
Spo = Spokane
Ste = Stevens
Thu = Thurston
Waw = Walla Walla
Whc = Whatcom
Whk = Wahkiakum
Wht = Whitman
Yak = Yakima




Figure 1. Washington counties and ecoregions.

**Ecoregion**: Ecoregions are biologically-defined geographic areas with similar environmental, physiographic, or vegetation patterns. WNHP follows the classification of Camp and Gamon (2011). Two-letter codes are used for ecoregion names (Figure 1). Vague or unconfirmed reports are indicated by ?.

BM = Blue Mountains
CP = Columbia Plateau
CR = Canadian Rockies
EC = East Cascades
NC = North Cascades
OK = Okanogan
PC = Pacific Northwest Coast
PT = Puget Trough
WC = West Cascades

**Ecological Systems**: Developed by NatureServe, Ecological Systems represent recurring groups of natural upland and wetland plant communities found in similar climatic and physical environments and influenced by similar ecological processes. About 90 Ecological Systems are recognized in Washington (Rocchio and Crawford 2015).

For brevity, the following abbreviations are used for the biogeographic region of each Ecological System (the first part of each system's formal name). These are:

CB = Columbia Basin
CP = Columbia Plateau
EC = East Cascades
IMB = Intermountain Basins
M = Modoc
NA = North American
NCP = Northern Columbia Plateau
NP = North Pacific
NRM = Northern Rocky Mountain
RM = Rocky Mountain
TP = Temperate Pacific
WV = Willamette Valley

**Managed Area**: Major state, federal, or tribal land management areas are included when known. Blank listings indicate that a species is only known from private lands or state trust lands. A "?" indicates that presence within a management area is not confirmed. Complete managed area information, or data specific to individual plant occurrences, can be obtained from WNHP (www.dnr.wa.gov/natural-heritage-program). The following abbreviations are used:

ACEC = Area of Critical Environmental Concern
AFB = Air Force Base (Dept. of Defense)
BLM = Bureau of Land Management
BSA = Biological Study Area (Washington State University
CF = Community Forest
ERP = Environmental Research Park (nuclear reservation)
JB = Joint Base (Dept. of Defense)
NAP = Natural Area Preserve (Washington Dept of Natural Resources)
NF = National Forest
NHP = National Historical Park
NM = National Monument
NP = National Park
NRCA = Natural Resources Conservation Area (Washington Dept of Natural Resources)
NRA = National Recreation Area
NSA = National Scenic Area
NVM = National Volcanic Monument
NWR = National Wildlife Refuge
PUD = Public Utility District
RNA = Research Natural Area
SIA – Special Interest Area (Special Botanical Area)
SF = State Forest
SP = State Park
SWA = State Wildlife Area (Washington Dept of Fish & Wildlife)
TC = Training Center (Dept of Defense)
WA = Wilderness Area

The updated Species of Concern list contains 386 taxa. For State rankings, 73 taxa are Endangered, 53 are Threatened, 232 are Sensitive, and 27 are considered Extirpated. For federal rankings, three taxa are Endangered, six are Threatened, 187 are Bureau of Land Management Sensitive, and 198 are Forest Service Sensitive (Table 4).

Table 4. Summary of Washington Species of Concern.

| | Federal status | | | | State status | | | | Total species of concern |
|---|---|---|---|---|---|---|---|---|---|
| | Endangered | Threatened | Bureau of Land Management Sensitive | Forest Service Sensitive | Endangered | Threatened | Sensitive | Extirpated | |
| Number of species | 3 | 6 | 187 | 198 | 73 | 54 | 232 | 27 | 386 |

## Literature Cited


Camp, P. and J.G. Gamon, eds. 2011. Field Guide to the Rare Plants of Washington. University of Washington Press, Seattle, WA. 392 pp.

Faber-Langendoen, D., J. Nichols, L. Master, K. Snow, A. Tomaino, R. Bittman, G. Hammerson, B. Heidel, L. Ramsay, A. Teucher, and B. Young. 2012. NatureServe conservation status recommendations: methodology for assigning ranks. Revised edition. NatureServe, Arlington, VA. 44 pp.

Hitchcock, C.L. and A. Cronquist. 2018. Flora of the Pacific Northwest: An Illustrated Manual, second edition. Giblin, D.E., B.S. Legler, P.F. Zika, and R.G. Olmstead, eds. University of Washington Press, Seattle, WA. 882 pp.

[ISSSSP] Interagency Special Status/Sensitive Species Program. 2021. FS and BLM Final Special Status/Sensitive Species list. Excel table, 28 June 2021. Available at: www.fs.fed.us/r6/sfpnw/issssp/

Rocchio, F.J. and R.C. Crawford. 2015. Ecological systems of Washington State. A guide to identification. Natural Heritage Report 2015-04. Washington Natural Heritage Program, Department of Natural Resources, Olympia, WA. 384 pp.

[WDNR] Washington State Department of Natural Resources. 2018. 2018 State of Washington Natural Heritage Plan. Washington State Department of Natural Resources, Olympia, WA. 31 pp. Available at: https://www.dnr.wa.gov/publications/amp_nh_plan_2018.pdf?m5phzk

# Appendix A. Washington Vascular Plant Species of Conservation Concern

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Abronia umbellata*<br>(includes var. *acutalata* & *breviflora*)<br>Pink sand-verbena | G4G5/S1 | Sens | | Periph | Clm, Ktp, Pac | PC, PT | NP Maritime Coastal Sand Dune | Leadbetter Point RNA<br>Willapa NWR |
| *Achnatherum richardsonii*<br>(*Stipa richardsonii*)<br>Richardson's needlegrass | G5/S1 | Sens | F-Sens | Periph | Oka, Ste | OK | NRM Dry-Mesic Montane Mixed Conifer Forest<br>NRM Lower Montane, Foothill & Valley Grassland | Crystal Falls SP?<br>Little Pend Oreille NWR,<br>Okanogan-Wenatchee NF |
| *Actaea elata* var. *elata*<br>(*Cimicifuga elata*)<br>Tall bugbane | G4T4/S3 | Sens | | RegEnd | Clk, Clm, Cow, Grh, Kin, Lew, Pie, Skm, Thu, Whc | EC, NC, PC, PT, WC | NP Maritime Mesic-Wet Douglas-fir-Western Hemlock Forest | |
| *Actaea laciniata*<br>(*Cimicifuga laciniata*)<br>Mt. Hood bugbane | G4/ S2 | Sens | F-Sens | RegEnd | Clk, Lew, Skm | WC | NP Montane Riparian Woodland and Shrubland | Gifford Pinchot NF<br>Mt. St. Helens NVM<br>Yacolt Burn SF |
| *Agoseris aurantiaca* var. *carnea*<br>(*A. lackschewitzii*)<br>Pink agoseris | G5T4/S2 | Sens | F-Sens | Sparse | Ktt, Oka | EC, OK | RM Alpine-Montane Wet Meadow | Okanogan-Wenatchee NF |
| *Agoseris elata*<br>(*A.* × *elata*)<br>Tall agoseris | G4/S3? | Sens | | RegEnd | Che, Clm, Cow, Isl, Kli, Ktt, Oka, Pie, Sno, Thu, Whc, Yak | EC, NC, OK, PC, PT, WC | NRM Subalpine-Upper Montane Grassland<br>RM Subalpine-Montane Mesic Meadow<br>WV Upland Prairie & Savanna | Camas Meadows NAP<br>Conboy Lake NWR<br>Mt. Baker-Snoqualmie NF<br>Mt. Rainier NP<br>Okanogan-Wenatchee NF<br>Pasayten WA |
| *Agrostis mertensii*<br>(*A. borealis*)<br>Northern bentgrass | G5/S1S2 | Sens | B-Sens<br>F-Sens | Periph | Che, Oka, Skg | EC, NC, OK | RM Alpine Bedrock & Scree<br>RM Alpine Dwarf-Shrubland, Fell-Field, & Turf | Chopaka Mountain NAP<br>North Cascades NP<br>Okanogan-Wenatchee NF |
| *Allium bisceptrum*<br>Twincrest onion | G4G5/S1 | Sens | | Periph | Fra | CP | IMB Big Sagebrush Steppe | Palouse Falls SP |
| *Allium campanulatum*<br>Sierra onion | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Col, Yak | BM, EC | NRM Lower Montane, Foothill & Valley Grassland | Okanogan-Wenatchee NF<br>Umatilla NF |
| *Allium constrictum*<br>Constricted onion | G2G3/ S2S3 | Sens | B-Sens | LocEnd | Dou, Gra | CP | CP Vernal Pool | Spokane BLM<br>Steamboat Rock SP |
| *Allium dictuon*<br>Blue Mountain onion | G2/S2 | Threat | F-Sens | LocEnd | Col, Gar | BM | RM Cliff, Canyon & Massive Bedrock | Umatilla NF<br>Wenaha-Tucannon WA |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Allium scilloides*<br>Fragile onion | G3/S3 | Sens | | LocEnd | Ben, Dou, Gra, Ktt, Yak | CP | CP Foothill & Canyon Dry Grassland | Colockum SWA<br>Cowiche SWA<br>LT Murray SWA<br>Quincy Lakes SWA<br>Spokane BLM<br>Sun Lakes Dry Falls SP<br>Wenas SWA<br>Yakima River Canyon ACEC |
| *Antennaria corymbosa*<br>Meadow pussytoes | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Col, Oka, Peo | BM, CR OK | RM Alpine-Montane Wet Meadow<br>RM Subalpine-Montane Fen | Bunchgrass Meadows RNA<br>Colville NF<br>Okanogan-Wenatchee NF<br>Roger Lake RNA<br>Umatilla NF<br>Wenaha-Tucannon WA |
| *Aphyllon californicum* ssp. *grayanum*<br>(*Orobanche californica* ssp. *grayana*)<br>Gray's broomrape | G4T3T4/ S1 | Endang | | Periph | Clk, Kli, Yak | CP, EC, PT | RM Alpine-Montane Wet Meadow | Columbia River Gorge NSA<br>Fort Vancouver NHS<br>Klickitat Canyon NRCA |
| *Arabis crucisetosa*<br>Cross-haired rockcress | G4?/S1 | Sens | B-Sens<br>F-Sens | RegEnd | Aso | BM | CB Foothill & Canyon Dry Grassland | Grande Ronde ACEC<br>Vale BLM |
| *Arabis olympica*<br>(*A. furcata* var. *olympica*)<br>Olympic rockcress | G1/S1 | Endang | F-Sens | LocEnd | Clm, Jef, Mas | PC | NP Alpine & Subalpine Dry Grassland<br>NP Dry & Mesic Alpine Dwarf-Shrubland, Fell-Field & Meadow | Buckhorn WA<br>Olympic NF<br>Olympic NP<br>Mount Skokomish WA<br>The Brothers WA |
| *Arcteranthis cooleyae*<br>(*Kumlienia cooleyae*, *Ranunculus cooleyae*)<br>Cooley's buttercup | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Grh, Sno | NC, PC | NP Alpine & Subalpine Bedrock & Scree | Colonel Bob WA<br>Henry M. Jackson WA<br>Morning Star NRCA<br>Mt. Baker-Snoqualmie NF<br>Olympic NF |
| *Arenaria paludicola*<br>Swamp sandwort | G1/SX | Extirp | Endang | Disjunct | Pie | PT | NP Hardwood-Conifer Swamp?<br>TP Freshwater Emergent Marsh? | |
| *Artemisia campestris* var. *wormskioldii*<br>(*A. c.* ssp. *borealis* var. *w.*)<br>Wormskiold's northern wormwood | G5T1/S1 | Endang | B-Sens<br>F-Sens | RegEnd | Ben, Fra, Gra, Kli | CP, EC | CB Foothill Riparian Woodland & Shrubland | Columbia River Gorge NSA<br>Gifford Pinchot NF<br>Grant County PUD<br>McNary NWR |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Asclepias cryptoceras*<br>(*A. cryptoceras* ssp. *davisii*)<br>Pallid milkweed | G4/S1 | Sens | | Periph | Aso | BM | CB Foothill & Canyon Dry Grassland<br>RM Cliff, Canyon & Massive Bedrock | Chief Joseph SWA |
| *Astragalus arrectus*<br>(*Astragalus palousensis*)<br>Palouse milkvetch | G2/S2 | Threat | B-Sens<br>F-Sens | RegEnd | Che, Kli?, Ktt, Lin, Wht | CP, EC | CB Foothill & Canyon Dry Grassland<br>CB Palouse Prairie<br>NRM Ponderosa Pine Woodland & Savanna | Campus Prairie BSA<br>Colockum SWA<br>Okanogan-Wenatchee NF<br>Roosevelt Lake NRA<br>Smoot Hill BSA |
| *Astragalus arthurii*<br>Arthur's milkvetch | G4/S2 | Sens | B-Sens<br>F-Sens | RegEnd | Aso | BM, CP | CB Foothill & Canyon Dry Grassland | Chief Joseph SWA<br>Grande Ronde ACEC<br>Nez Perce NHP<br>Umatilla NF<br>Vale BLM |
| *Astragalus asotinensis*<br>Asotin milkvetch | G1/S1 | Endang | B-Sens | LocEnd | Aso | BM | CB Foothill & Canyon Dry Grassland | Grande Ronde ACEC<br>Vale BLM |
| *Astragalus australis* var. *cottonii*<br>(*A. australis* var. *olympicus, A. cottonii*)<br>Cotton's milkvetch | G5T1/S1 | Endang | B-Sens<br>F-Sens | LocEnd | Clm, Jef | PC | NP Alpine & Subalpine Bedrock & Scree | Buckhorn WA?<br>Olympic NF<br>Olympic NP |
| *Astragalus columbianus*<br>Columbia milkvetch | G2G3/<br>S2S3 | Sens | B-Sens | LocEnd | Ben, Ktt, Yak | CP | IMB Big Sagebrush Steppe | Ginkgo Petrified Forest SP<br>Hanford ERP<br>Hanford Reach NM<br>McCoy Canyon ACEC<br>Rattlesnake Hills RNA<br>Spokane BLM<br>Yakima TC |
| *Astragalus cusickii* var. *cusickii*<br>(*A. eremeticus* var. *malheurensis*)<br>Cusick's milkvetch | G5T4/S2 | Sens | B-Sens<br>F-Sens | RegEnd | Aso | BM | CB Foothill & Canyon Dry Grassland | Chief Joseph SWA<br>Grande Ronde ACEC<br>Umatilla NF<br>Vale BLM |
| *Astragalus diaphanus*<br>Transparent milkvetch | G4/SX | Extirp | | RegEnd | Kli | EC | NA Arid West Emergent Marsh | Columbia River Gorge NSA? |
| *Astragalus geyeri* var. *geyeri*<br>Geyer's milkvetch | G4T4/<br>S1S2 | Sens | B-Sens | Disjunct | Gra | CP | IMB Active & Stabilized Dune<br>IMB Semi-Desert Shrub-Steppe | Columbia NWR<br>Crab Creek SWA<br>Hanford Reach NM<br>Sentinel Slope ACEC<br>Spokane BLM |
| *Astragalus kentrophyta* var. *douglasii*<br>Douglas's thistle milkvetch | G5TX/<br>SX | Extirp | | LocEnd | Waw | CP | IMB Active & Stabilized Dune | |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Astragalus microcystis*<br>Least bladdery milkvetch | G4/S2 | Sens | B-Sens<br>F-Sens | Sparse | Clm, Fer, Jef, Lin, Peo, Ste | CP, CR, OK, PC | NP Dry & Mesic Alpine Dwarf-Shrubland, Fell-Field & Meadow<br>NRM Lower Montane Riparian Woodland & Shrubland | Buckhorn SIA, Buckhorn WA<br>Colville NF<br>Little Pend Oreille SWA<br>Olympic NF<br>Roosevelt Lake NRA<br>Spokane BLM |
| *Astragalus misellus* var. *pauper* (*A. howellii* var. *pauper*)<br>Pauper milkvetch | G3T3/S2 | Threat | B-Sens | RegEnd | Ben, Dou, Fra, Kli, Ktt, Yak | CP | IMB Big Sagebrush Steppe | Colockum SWA<br>LT Murray SWA<br>Rock Island Canyon ACEC<br>Spokane BLM<br>Yakima River Canyon ACEC<br>Yakima River Cliffs-Umtanum Ridge ACEC<br>Yakima TC |
| *Astragalus pulsiferae* var. *suksdorfii*<br>Ames' milkvetch | G4T2/S1 | Endang | | Disjunct | Kli | EC | NRM Dry-Mesic Montane Mixed Conifer Forest | Conboy Lake NWR |
| *Astragalus riparius*<br>Piper's milkvetch | G2/S2 | Threat | | RegEnd | Gar, Wht | CP | CB Foothill & Canyon Dry Grassland | |
| *Astragalus sinuatus*<br>Whited's milkvetch<br>or Colockum milkvetch | G1/S1 | Endang | B-Sens | LocEnd | Che | CP | IMB Big Sagebrush Steppe | Colockum Creek ACEC<br>Spokane BLM<br>Upper Dry Gulch NAP |
| *Astragalus tenellus* (*A. multiflorus*)<br>Loose-flower milkvetch | G5/S1 | Sens | | Disjunct | Dou | CP | CB Foothill & Canyon Dry Grassland? | |
| *Baccharis pilularis* ssp. *consanguinea*<br>Coyotebush | G5TNR/ S1 | Sens | | Periph | Pac, Whk | PC | NP Coastal Cliff & Bluff<br>NP Hypermaritime Shrub & Herbaceous Headland | Cape Disappointment SP |
| *Bergia texana*<br>Texas bergia | G5/SX | Extirp | | Periph | Kli, Wht | CP, EC | CP Vernal Pool<br>NA Arid West Emergent Marsh | Columbia River Gorge NSA? |
| *Blitum spathulatum* (*Monolepis spathulata*)<br>Prostrate povertyweed | G5/S1 | Sens | | Periph | Kli, Oka | EC, OK | IMB Alkaline Closed Depression | Pearrygin Lake SP |
| *Boechera atrorubens* (*Arabis sparsiflora* var. *a.*)<br>Redblack rockcress | G3/S1 | Endang | | RegEnd | Kli, Ktt (other rep-orts false) | EC | IMB Big Sagebrush Steppe | Columbia Hills NAP<br>Columbia River Gorge NSA?<br>Klickitat SWA (E Simcoes Unit) |
| *Boechera cascadensis* (*Arabis microphylla* var. *thompsonii*)<br>Cascades rockcress | G3/S1 | Endang | | RegEnd | Col, Ktt, Yak | BM, EC | RM Cliff, Canyon & Massive Bedrock | Okanogan-Wenatchee NF<br>Umatilla NF<br>William O. Douglas WA |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Bolandra oregana*<br>Oregon bolandra | G3/S2 | Threat | B-Sens<br>F-Sens | RegEnd | Aso, Clk, Col, Gar, Kli, Skm | BM, EC, WC | NP Montane Massive Bedrock, Cliff, & Talus<br>RM Cliff, Canyon & Massive Bedrock | Beacon Rock SP<br>Chief Joseph SWA<br>Columbia Falls NAP<br>Columbia River Gorge NSA<br>Gifford Pinchot NF<br>Grande Ronde ACEC<br>Umatilla NF<br>Vale BLM<br>Wenaha-Tucannon WA |
| *Botrychium ascendens*<br>Triangular-lobed moonwort | G4/S2 | Sens | B-Sens<br>F-Sens | Sparse | Fer, Kin, Mas, Oka, Peo, Pie, Ste, Whc | CR, NC, OK, PC, WC | NP Dry & Mesic Alpine Dwarf-Shrubland, Fell-Field & Meadow<br>RM Alpine Dwarf-Shrubland, Fell-Field, & Turf<br>RM Alpine-Montane Wet Meadow<br>RM Subalpine-Montane Riparian Woodland | Colville NF<br>Mt. Baker-Snoqualmie NF<br>Okanogan-Wenatchee NF<br>Olympic NP<br>Pasayten WA |
| *Botrychium hesperium*<br>Western moonwort | G4/S2 | Sens | B-Sens<br>F-Sens | Sparse | Che, Fer, Kin, Peo, Sno, Ste | CR, EC, NC, OK, WC | NP Alpine & Subalpine Dry Grassland<br>NRM Subalpine-Upper Montane Grassland<br>RM Alpine-Montane Wet Meadow | Colville NF<br>Mt. Baker-Snoqualmie NF<br>North Cascades NP |
| *Botrychium lineare*<br>Skinny moonwort | G3/S1 | Endang | B-Sens<br>F-Sens | Periph | Fer | OK | RM Subalpine-Montane Riparian Woodland | Colville NF |
| *Botrychium michiganense*<br>Michigan moonwort | G3/S1 | Endang | F-Sens | Periph | Peo, Ste | CR | RM Subalpine-Upper Montane Grassland<br>RM Lodgepole Pine Forest | Colville NF |
| *Botrychium paradoxum*<br>Two-spiked moonwort | G3G4/S2 | Threat | B-Sens<br>F-Sens | Sparse | Che, Fer, Oka, Peo, Ste | CR, EC, OK | NRM Subalpine-Upper Montane Grassland<br>RM Alpine-Montane Wet Meadow<br>RM Subalpine-Montane Riparian Woodland | Chopaka Mountain NAP<br>Colville NF<br>Kaniksu NF<br>Loomis NRCA<br>Okanogan-Wenatchee NF |
| *Botrychium pedunculosum*<br>Stalked moonwort | G3G4/S2 | Threat | B-Sens<br>F-Sens | Sparse | Fer, Kin, Peo, Sno, Ste, Whc | CR, NC, OK | NRM Subalpine-Upper Montane Grassland<br>RM Alpine-Montane Wet Meadow<br>RM Subalpine-Montane Riparian Woodland | Big Beaver RNA<br>Colville NF<br>Mt. Baker-Snoqualmie NF<br>Ross Lake NRA |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Brickellia microphylla*<br>Littleleaf brickell-bush | G5/S1 | Sens | | Periph | Aso | BM | CB Foothill & Canyon Dry Grassland | |
| *Brodiaea rosea* ssp. *rosea*<br>(*B. coronaria* ssp. *rosea*)<br>Harvest brodiaea | G4G5T4/ S1 | Sens | | Sparse | Kin?, Pie, Saj, Skg | PT | NP Serpentine Barren<br>WV Upland Prairie & Savanna | San Juan Islands NWR<br>Washington Park<br>Yellow Island Preserve |
| *Calochortus longebarbatus* var. *longebarbatus*<br>Long-bearded mariposa lily | G4T3/S3 | Sens | | RegEnd | Kli, Yak | CP, EC | CB Foothill & Canyon Dry Grassland | Brooks Memorial SP<br>Conboy Lake NWR<br>Klickitat Canyon NRCA<br>Klickitat SWA |
| *Calochortus macrocarpus* var. *maculosus*<br>Sagebrush mariposa lily | G5T2/ S2?<br>Change T3/S3 | Threat | B-Sens<br>F-Sens | RegEnd | Aso, Gar, Wht | BM, CP | CB Foothill & Canyon Dry Grassland<br>NRM Lower Montane, Foothill & Valley Grassland | Asotin Creek SWA<br>Chief Joseph SWA<br>Grande Ronde ACEC<br>Joseph Creek ACEC<br>Spokane BLM<br>Umatilla NF<br>Vale BLM<br>Wenaha-Tucannon WA |
| *Calochortus nitidus*<br>Broad-fruit mariposa lily | G3/S1 | Endang | | RegEnd | Aso, Gar, Wht | BM, CP | CB Palouse Prairie<br>NRM Lower Montane, Foothill & Valley Grassland | Steptoe Butte NA<br>Umatilla NF? |
| *Calyptridium roseum*<br>(*Cistanthe rosea*)<br>Rosy pussypaws | G4/S1 | Sens | | Periph | Ben | CP | IMB Big Sagebrush Steppe | Hanford ERP |
| *Camassia cusickii*<br>Cusick's camas | G4/S1 | Sens | | RegEnd | Kli | EC | RM Alpine-Montane Wet Meadow<br>NA Arid West Emergent Marsh | |
| *Campanula lasiocarpa*<br>Alaska harebell | G5/S2 | Sens | B-Sens<br>F-Sens | Periph | Kin, Oka, Sno | NC, OK | NP Alpine & Subalpine Bedrock & Scree | Alpine Lakes WA<br>Glacier Peak WA<br>Morning Star NRCA<br>Mt. Baker-Snoqualmie NF<br>Perry Creek RNA |
| *Campanula piperi*<br>Olympic hairbell | G2/S2 | Threat | | RegEnd | Cla, Jef | PC | NP Alpine & Subalpine Bedrock & Scree | Olympic NP<br>Olympic NF |
| *Carex anthoxanthea*<br>Yellow-flowered sedge | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Grh | PC | TP Subalpine-Montane Wet Meadow | Olympic NF<br>Three Peaks SIA |
| *Carex capillaris*<br>Hair-like sedge | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Che, Oka, Peo | CR, EC, OK | RM Alpine-Montane Wet Meadow<br>RM Subalpine-Montane Fen | Colville NF<br>North Cascades NP<br>Okanogan-Wenatchee NF<br>Spokane BLM |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Carex capitata*<br>Capitate sedge | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Oka, Whc | NC, OK | RM Alpine Dwarf-Shrubland, Fell-Field, & Turf | Chopaka Mountain NAP<br>Mt. Baker WA<br>Mt. Baker-Snoqualmie NF<br>Okanogan-Wenatchee NF<br>Pasayten WA<br>Ronald J. Taylor RNA<br>Spokane BLM |
| *Carex chordorrhiza*<br>Cordroot sedge | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Oka | OK | RM Subalpine-Montane Fen | Okanogan-Wenatchee NF |
| *Carex circinata*<br>Coiled sedge | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Grh, Jef | PC | NP Montane Massive Bedrock, Cliff, & Talus<br>TP Subalpine-Montane Wet Meadow | Colonel Bob WA<br>Olympic NF<br>Olympic NP |
| *Carex cordillerana*<br>Cordilleran sedge | G4/S1 | Sens | B-Sens<br>F-Sens | Sparse | Aso, Fer, Oka, Peo, Spo, Ste | BM, CP, CR, OK | RM Subalpine-Montane Riparian Woodland | Colville NF<br>Okanogan-Wenatchee NF<br>Pasayten WA<br>Sinlahekin SWA<br>Umatilla NF |
| *Carex davyi*<br>Davy's sedge | G3/SX | Extirp | | Periph | Yak | EC | NRM Subalpine-Upper Montane Grassland? | |
| *Carex densa*<br>Dense sedge | G4/S2 | Sens | | Periph | Clk, Lew, San, Thu, Yak | EC, PC, PT | WV Wet Prairie | Gifford Pinchot NF<br>Lacamas Prairie NAP<br>Mt. Adams WA<br>West Rocky Prairie SWA |
| *Carex eburnea*<br>Bristleleaf sedge | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Peo | CR | RM Cliff, Canyon & Massive Bedrock | Colville NF<br>Spokane BLM |
| *Carex gynocrates*<br>Yellow bog sedge | G5/S2 | Sens | B-Sens<br>F-Sens | Periph | Oka | OK | RM Subalpine-Montane Fen | Okanogan-Wenatchee NF |
| *Carex heteroneura*<br>(*C. h.* var. *epapillosa*)<br>Smooth-fruited sedge | G5/S2S3 | Sens | F-Sens | Sparse | Oka, Whc, Yak | EC, NC, OK | RM Alpine-Montane Wet Meadow | Loomis NRCA<br>Okanogan-Wenatchee NF<br>Pasayten WA |
| *Carex macrochaeta*<br>Longawn sedge | G5/S1 | Sens | | Sparse | Pac, Skm, | PC, WC | NP Montane Massive Bedrock, Cliff, & Talus<br>RM Cliff, Canyon & Massive Bedrock | Columbia Falls NAP<br>Columbia River Gorge NSA |
| *Carex media*<br>(*C. norvegica* ssp. *inferalpina*)<br>Scandanavian sedge<br>(Intermediate sedge) | G5/S2 | Sens | B-Sens<br>F-Sens | Sparse | Oka, Peo | CR, OK | RM Alpine-Montane Wet Meadow<br>RM Subalpine-Montane Riparian Woodland | Chopaka Mountain NAP<br>Colville NF<br>Loomis NRCA<br>Okanogan-Wenatchee NF<br>Pasayten WA<br>Salmo-Priest WA |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Carex obtusata*<br>Blunt sedge | G5/S2 | Sens | B-Sens<br>F-Sens | Periph | Clm, Jef, Mas | PC | NP Alpine & Subalpine Bedrock & Scree<br>RM Alpine Dwarf-Shrubland, Fell-Field, & Turf | Buckhorn SIA<br>Buckhorn WA<br>Olympic NF<br>Olympic NP<br>Wet Weather Creek RNA |
| *Carex pauciflora*<br>Few-flowered sedge | G5/S2 | Sens | B-Sens<br>F-Sens | Sparse | Clm, Jef, Kin, Ktt, Mas, Saj, Skg, Sno, Whc | EC, NC, PC, PT | NP Bog & Fen | Cranberry Lake SIA<br>Kings Lake Bog NAP<br>Moran SP<br>Morning Star NRCA<br>Mt. Baker-Snoqualmie NF<br>Olympic NF<br>Snoqualmie Bog NAP |
| *Carex pluriflora*<br>Black bog sedge | G5/S2 | Sens | | Sparse | Clm, Sno, Whc | NC, PC, PT | NP Bog & Fen | Dailey Prairie NAP<br>Morning Star NRCA<br>Olympic NP |
| *Carex proposita*<br>Smoky Mountain sedge | G4/S2 | Sens | B-Sens<br>F-Sens | Disjunct | Che, Ktt?, Oka, Pie, Skg, Skm, Sno | EC, NC, OK, WC | NP Dry & Mesic Alpine Dwarf-Shrubland, Fell-Field & Meadow<br>RM Alpine Dwarf-Shrubland, Fell-Field, & Turf | Alpine Lakes WA<br>Boston Glacier RNA<br>Enchantment SIB<br>Gifford Pinchot NF<br>Glacier Peak WA<br>Henry M. Jackson WA<br>Mt. Rainier NP<br>Mt. St. Helens NVM<br>North Cascades NP<br>Okanogan-Wenatchee NF |
| *Carex rostrata* (*sensu stricto*)<br>Northern beaked sedge | G5/S2 | Sens | B-Sens<br>F-Sens | Sparse | Fer, Peo | CR, OK | RM Alpine-Montane Wet Meadow<br>RM Subalpine-Montane Fen | Bunchgrass Meadows RNA<br>Colville NF |
| *Carex scirpoidea* ssp. *scirpoidea*<br>Canadian single-spike sedge | G5T5/S2 | Sens | B-Sens<br>F-Sens | Periph | Jef, Ktt, Mas, Oka, Whc | EC, NC, OK, PC | NP Dry & Mesic Alpine Dwarf-Shrubland, Fell-Field & Meadow<br>RM Alpine Dwarf-Shrubland, Fell-Field, & Turf<br>RM Alpine-Montane Wet Meadow | Chewuch RNA<br>Chopaka Mountain NAP<br>Mt. Baker WA<br>Mt. Baker-Snoqualmie NF<br>Okanogan-Wenatchee NF<br>Olympic NP<br>Pasayten WA |
| *Carex sheldonii*<br>Sheldon's sedge | G4/S1 | Sens | | Disj | Aso | BM | RM Lower Montane Riparian Woodland & Shrubland | |
| *Carex stylosa*<br>Long-styled sedge | G5/S2 | Sens | B-Sens<br>F-Sens | Sparse | Clm, Jef, Kin, Skg, Sno, Whc | NC, PC | NP Bog & Fen | Crowberry Bog NAP<br>Morning Star NRCA<br>Mt. Baker-Snoqualmie NF<br>Olympic NP |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Carex sychnocephala*<br>Many-headed sedge | G5/S2 | Sens | B-Sens<br>F-Sens | Sparse | Fer, Lin, Oka, Peo | CP, CR, OK | NA Arid West Emergent Marsh<br>NCP Basalt Pothole Ponds | Alta Lake SP<br>Okanogan-Wenatchee NF<br>Sinlahekin SWA<br>Spokane BLM |
| *Carex tenera* var. *tenera*<br>Slender broom sedge | G5T5/S2 | Sens | B-Sens<br>F-Sens | Sparse | Oka, Peo | CR, OK | NA Arid West Emergent Marsh<br>RM Alpine-Montane Wet Meadow<br>RM Subalpine-Montane Riparian Shrubland | Colville NF<br>Sinlahekin SWA<br>Spokane BLM |
| *Carex tenuiflora*<br>Sparse-flowered sedge | G5/S2 | Sens | B-Sens<br>F-Sens | Periph | Fer, Oka | OK | RM Subalpine-Montane Fen | Colville NF<br>Okanogan-Wenatchee NF<br>Roger Lake RNA |
| *Carex vallicola*<br>Valley sedge | G4G5/S2 | Sens | B-Sens<br>F-Sens | Periph | Gra, Oka | CP, OK | IMB Montane Sagebrush Steppe<br>NRM Subalpine-Upper Montane Grassland | Okanogan-Wenatchee NF<br>Sinlahekin SWA<br>Steamboat Rock SP |
| *Cassiope lycopodioides*<br>Clubmoss mountain-heather | G5/S1 | Sens | F-Sens | Periph | Kin, Sno | NC | NP Alpine & Subalpine Bedrock & Scree | Mount Si NRCA<br>Mt. Baker Snoqualmie NF |
| *Castilleja chambersii*<br>Chambers paintbrush | G1/S1 | Endang | | LocEnd | Pac | PC | NP Montane Massive Bedrock, Cliff, & Talus | |
| *Castilleja cryptantha*<br>Obscure paintbrush | G1/S1 | Endang | B-Sens<br>F-Sens | LocEnd | Pie, Yak | EC, WC | NRM Subalpine-Upper Montane Grassland | Mt. Rainier NP<br>Okanogan-Wenatchee NF<br>William O. Douglas WA |
| *Castilleja levisecta*<br>Golden paintbrush | G2/S2 | Threat | | RegEnd | Clk, Clm, Isl, Jef, Kin, Ktp, Pie, Saj, Skg, Thu | PT | WV Upland Prairie & Savanna | Admiralty Inlet NAP<br>Deception Pass SP<br>Dungeness NWR<br>Fort Casey SP<br>Mima Mounds NAP<br>Rocky Prairie NAP<br>San Juan Islands NHP |
| *Castilleja victoriae*<br>Victoria's paintbrush | G1/S1 | Endang | | LocEnd | Saj | PT | NP Hardpan Vernal Pool | Iceberg Island SP |
| *Chaenactis thompsonii*<br>Thompson's chaenactis | G3/S3 | Sens | B-Sens<br>F-Sens | LocEnd | Che, Ktt, Pie?, Yak | EC, WC? | NP Serpentine Barren | Eldorado Creek RNA<br>Mt. Baker-Snoqualmie NF?<br>Okanogan-Wenatchee NF |
| *Chrysolepis chrysophylla* var. *chrysophylla*<br>(*Castanopsis chrysophylla*)<br>Golden chinquapin | G5T5/S2 | Sens | B-Sens<br>F-Sens | Periph | Mas, Skm | EC, PC, PT, WC | NP Dry Douglas-fir Forest & Woodland<br>NP Maritime Mesic-Wet Douglas-fir-Western Hemlock Forest | Columbia River Gorge NSA<br>Gifford Pinchot NF<br>Olympic NF<br>Trapper Creek WA |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Chrysosplenium tetrandrum*<br>Northern golden-carpet | G5/S2 | Sens | B-Sens<br>F-Sens | Periph | Oka | OK | NRM Conifer Swamp<br>RM Subalpine-Montane Riparian Woodland | Okanogan-Wenatchee NF |
| *Chylismia scapoidea* ssp. *brachycarpa*<br>(*Camissonia scapoidea*)<br>Short-fruited suncups | G5T4T5/ S1 | Sens | B-Sens | Periph | Ktt, Lin | CP | CP Scabland Shrubland<br>IMB Active & Stabilized Dune<br>IMB Big Sagebrush Steppe | Iron Horse Pioneer Trail SP<br>Yakima TC |
| *Cicuta bulbifera*<br>Bulb-bearing water-hemlock | G5/S2S3 | Sens | B-Sens<br>F-Sens | Sparse | Che, Isl, Peo, Ste, Thu, Whc | CR, EC, PT | NA Arid West Emergent Marsh<br>NP Bog & Fen<br>RM Subalpine-Montane Fen<br>TP Freshwater Emergent Marsh | Colville NF<br>Elbow Lake SP<br>Fish Lake Bog RNA<br>Lake Terrell SWA<br>Little Pend Oreille NWR<br>Little Pend Oreille River NAP<br>Okanogan-Wenatchee NF |
| *Cirsium remotifolium* var. *remotifolium*<br>Weak thistle | G5TNR [T3]/S1 | Endang | F-Sens | Periph | Clk, Clm, Grh, Kin, Kli, Pie, Skm, Thu | EC, PC, PT, WC | RM Alpine-Montane Wet Meadow<br>WV Wet Prairie | Bald Hill NAP<br>Columbia River Gorge NSA<br>Conboy Lake NWR<br>Gifford Pinchot NF<br>JB Lewis-McChord<br>Klickitat SWA<br>Lake Sylvia SP<br>Olympic NF<br>Soda Springs SWA<br>Spokane BLM?<br>Trout Lake NAP?<br>White Salmon Oak NRCA? |
| *Claytonia multiscapa* ssp. *pacifica*<br>Pacific lanceleaved springbeauty | G5T3T4/ S1 | Sens | F-Sens | RegEnd | Clm, Grh, Jef, Mas | PC | NP Alpine & Subalpine Bedrock & Scree | Colonel Bob WA<br>Mount Skokomish WA<br>Olympic NF<br>Olympic NP |
| *Cochlearia groenlandica*<br>Scurvygrass | G5/S1S2 | Sens | | Periph | Clm, Grh, Jef, Mas | PC, PT | NP Coastal Cliff & Bluff | Olympic NP<br>Washington Islands NWR |
| *Collinsia sparsiflora* var. *sparsiflora*<br>(*C. s.* var. *bruceae*)<br>Few-flowered collinsia | G4T4/S1 | Sens | B-Sens<br>F-Sens | Periph | Clk, Kli, Skm | CP, EC, PT, WC | M Basalt Flow Vernal Pool? | Columbia River Gorge NSA<br>Doug's Beach SP<br>Gifford Pinchot NF<br>Klickitat SWA<br>Ridgefield NWR<br>Spokane BLM |
| *Collomia macrocalyx*<br>Bristle-flowered collomia | G3G4/S2 | Threat | | RegEnd | Ktt, Yak | CP | CP Scabland Shrubland<br>IMB Big Sagebrush Steppe | Ginkgo Petrified Forest SP<br>Yakima TC |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Comastoma tenellum*<br>(*Gentianella tenella*)<br>Lapland gentian | G4G5/S1 | Sens | B-Sens<br>F-Sens | Disjunct | Oka | OK | RM Alpine Dwarf-Shrubland, Fell-Field, & Turf | Chopaka Mountain NAP<br>Okanogan-Wenatchee NF<br>Pasayten WA |
| *Coptis aspleniifolia*<br>Spleenwort-leaved goldthread | G5/S2 | Sens | B-Sens<br>F-Sens | Sparse | Clm, Grh, Jef, Kin, Sno | PC, NC, WC | NP Lowland Riparian Forest & Shrubland<br>NP Mesic Western Hemlock-Silver Fir Forest | Lake Twenty-Two RNA<br>Mt. Baker-Snoqualmie NF<br>Olympic NP |
| *Coptis trifolia*<br>Threeleaf goldthread | G5/S1 | Sens | | Periph | Clm | PC | NP Bog & Fen | Olympic NP |
| *Corispermum pallidum*<br>Pale bugseed | GH/SH | Extirp | | LocEnd | Gra | CP | IMB Active & Stabilized Dune | Columbia Basin SWA |
| *Corispermum villosum*<br>Hairy bugseed | G4?/S2 | Sens | B-Sens | Sparse | Gra, Kli, Oka | CP, EC. OK | IMB Active & Stabilized Dune | Columbia River Gorge NSA<br>Fort Okanogan SP<br>Sentinel Slope ACEC<br>Spokane BLM |
| *Corydalis aquae-gelidae*<br>(*C. caseana* ssp. *aquae-gelidae*)<br>Clackamas corydalis | G3/S2 | Threat | B-Sens<br>F-Sens | RegEnd | Clk, Cow, Skm | WC | NP Montane Riparian Woodland & Shrubland | Gifford Pinchot NF<br>Mt. St. Helens NVM |
| *Crassula connata*<br>Sand pygmyweed | G5/S1 | Sens | | Disjunct | Saj | PT | NP Coastal Cliff & Bluff<br>NP Hardpan Vernal Pool | Lime Kiln Point SP<br>San Juan Island NHP |
| *Crataegus phippsii*<br>Phipps' hawthorn | G2G3/S1 | Endang | | RegEnd | Oka | OK | RM Subalpine-Montane Riparian Shrubland | |
| *Crepis bakeri*<br>Idaho hawksbeard | G4/S1 | Sens | | RegEnd | Aso, Kli, Yak | BM, CP, EC | CB Foothill & Canyon Dry Grassland<br>NRM Lower Montane, Foothill & Valley Grassland | Asotin Creek SWA<br>Brooks Memorial SP<br>Chief Joseph SWA<br>Gifford Pinchot NF<br>Klickitat SWA (E Simcoes Unit)<br>Okanogan-Wenatchee NF<br>Wenas DNR lands |
| *Cryptantha gracilis*<br>Narrow-stem cryptantha | G5/S2 | Sens | B-Sens<br>F-Sens | Sparse | Aso, Dou, Gra, Ktt, Yak | BM, CP | CP Scabland Shrubland<br>IMB Cliff & Canyon<br>IMB Wash | Beezley Hills Preserve<br>Chief Joseph SWA<br>McCartney Creek Preserve<br>Moses Coulee Preserve<br>Spokane BLM<br>Sun Lakes SP<br>Yakima TC |
| *Cryptantha grandiflora*<br>Clearwater cryptantha | GNR/S1 | Endang | | RegEnd | Aso, Wht? | BM, CP? | CB Foothill & Canyon Dry Grassland | Umatilla NF |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Cryptantha rostellata*<br>Beaked cryptantha | G4/S2 | Sens | B-Sens<br>F-Sens | RegEnd | Aso, Kli, Ktt, Waw, Wht, Yak | BM, CP, EC | CB Palouse Prairie<br>CP Scabland Shrubland | Badger Gulch NAP<br>Chief Joseph SWA<br>Columbia River Gorge NSA<br>Spokane BLM<br>Yakima TC |
| *Cryptantha scoparia*<br>Desert cryptantha | G4?/S2 | Sens | | Sparse | Ben, Dou, Gra, Ktt, Yak | CP | CP Scabland Shrubland<br>IMB Big Sagebrush Steppe<br>IMB Wash | Columbia Basin SWA<br>Hanford ERP<br>Hanford Reach NM<br>Rattlesnake Hills RNA<br>Sun Lakes SP<br>Yakima TC |
| *Cryptogramma stelleri*<br>Steller's rockbrake | G5/S2 | Sens | B-Sens<br>F-Sens | Periph | Che, Oka, Peo, Ste | CR, EC, OK | RM Cliff, Canyon & Massive Bedrock | Lake Chelan-Sawtooth WA<br>Colville NF<br>Glacier Peak WA<br>Okanogan-Wenatchee NF<br>Trombetta Canyon NAP |
| *Cuscuta denticulata*<br>Desert dodder | G4G5/S1 | Sens | | Periph | Ben, Fra | CP | IMB Semi-Desert Shrub-Steppe<br>IMB Wash | Columbia Basin SWA<br>Hanford Reach NM |
| *Cusickiella douglasii*<br>Douglas' draba | G4/S1 | Sens | | Periph | Kli | CP, EC | CP Scabland Shrubland | Columbia Hills NAP<br>Columbia River Gorge NSA? |
| *Cypripedium parviflorum*<br>(includes vars. *makasin* & *pubescens*)<br>Yellow lady's slipper | G5/S2 | Sens | B-Sens<br>F-Sens | Sparse | Fer, Oka, Spo, Ste | CP, CR, OK | NCP Basalt Pothole Ponds<br>NRM Conifer Swamp<br>RM Subalpine-Montane Riparian Shrubland | Colville NF<br>Pine Creek RNA<br>Sinlahekin SWA<br>Spokane BLM<br>Turnbull NWR |
| *Dactylorhiza viridis*<br>(*Coeloglossum v.* var. *virescens*)<br>Frog orchid | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Oka | OK | NRM Dry-Mesic Montane Mixed Conifer Forest | Okanogan-Wenatchee NF |
| *Damasonium californicum*<br>(*Machaerocarpus californicus*)<br>Fringed water-plantain | G4/S1 | Sens | F-Sens | Periph | Kli | CP | NA Arid West Emergent Marsh | Columbia Hills Historical SP<br>Columbia River Gorge NSA<br>Gifford Pinchot NF |
| *Delphinium leucophaeum*<br>(*D. nuttallii* ssp. *leucophaeum*)<br>Pale larkspur | G2/S1 | Endang | | RegEnd | Lew | PT | WV Upland Prairie & Savanna | |
| *Delphinium viridescens*<br>Wenatchee larkspur | G2/S2 | Threat | B-Sens<br>F-Sens | LocEnd | Che, Dou?, Ktt | CP?, EC | RM Alpine-Montane Wet Meadow<br>RM Subalpine-Montane Riparian Shrubland | Camas Meadows NAP<br>Okanogan-Wenatchee NF |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Dendrolycopodium dendroideum*<br>(*Lycopodium dendroideum*)<br>Tree clubmoss | G5/S2 | Sens | B-Sens<br>F-Sens | Sparse | Kin, Peo, Sno, Whc | CR, NC | NP Montane Massive Bedrock, Cliff, & Talus<br>RM Cliff, Canyon & Massive Bedrock<br>RM Subalpine Mesic–Wet Spruce-Fir Forest & Woodland | Big Beaver RNA<br>Colville NF<br>Kaniksu NF<br>Mt. Baker-Snoqualmie NF<br>North Cascades NP<br>Ross Lake NRA |
| *Diplacus cusickioides*<br>(*D. cusickii & Mimulus cusickii*, misapplied)<br>Nesom's monkeyflower | G4G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Aso, Kli | BM, CP, EC | CB Foothill & Canyon Dry Grassland<br>IMB Wash | Chief Joseph SWA<br>Columbia River Gorge NSA |
| *Draba aurea*<br>Golden draba | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Oka, Whc | NC, OK | RM Alpine Dwarf-Shrubland, Fell-Field, & Turf | Chopaka Mountain NAP<br>Okanogan-Wenatchee NF<br>Pasayten WA |
| *Draba cana*<br>(*Draba breweri* var. *cana*)<br>Lance-leaved draba | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Clm, Oka | OK, PC | RM Alpine Bedrock & Scree<br>RM Alpine Dwarf-Shrubland, Fell-Field, & Turf | Buckhorn WA<br>Okanogan-Wenatchee NF<br>Olympic NF<br>Pasayten WA |
| *Draba taylorii*<br>Taylor's draba | G3/S1 | Endang | F-Sens | LocEnd | Oka | OK | RM Alpine Dwarf-Shrubland, Fell-Field, & Turf | Chopaka Mountain NAP<br>Okanogan-Wenatchee NF<br>Pasayten WA |
| *Dryas drummondii* var. *drummondii*<br>Yellow mountain-avens | G5T5/S2 | Sens | B-Sens<br>F-Sens | Periph | Jef. Peo, Sno, Ste | CR, NC, PC | NP Alpine & Subalpine Bedrock & Scree<br>RM Alpine Bedrock & Scree<br>RM Cliff, Canyon & Massive Bedrock | Colville NF<br>Glacier Peak WA<br>Mt. Baker-Snoqualmie NF<br>Olympic NF<br>Olympic NP<br>Trombetta Canyon NAP |
| *Dryopteris cristata*<br>Crested shield-fern | G5/S2 | Sens | B-Sens<br>F-Sens | Periph | Fer, Peo, Ste | CR, OK | NRM Conifer Swamp<br>RM Alpine-Montane Wet Meadow<br>RM Subalpine-Montane Fen | Colville NF<br>Halliday Fen RNA<br>Kaniksu NF<br>Little Pend Oreille River NAP |
| *Eatonella nivea*<br>White eatonella | G4/S2 | Sens | | Periph | Gra, Ktt | CP | CP Scabland Shrubland<br>IMB Big Sagebrush Steppe | Columbia Basin SWA<br>Hanford ERP<br>Hanford Reach NM<br>Yakima TC |
| *Eleocharis atropurpurea*<br>Purple spike-rush | G4G5/S1 | Sens | | Disjunct | Ben, Che, Fra | CP, EC | NA Arid West Emergent Marsh | Hanford Reach NM<br>Okanogan-Wenatchee NF? |
| *Eleocharis coloradoensis*<br>(*E. parvula* var. *anachaeta*)<br>Dwarf spike-rush | G4/S1 | Sens | | Sparse | Ben, Dou, Gra, Oka, Wht | CP, OK | NA Arid West Emergent Marsh | Columbia Basin SWA |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Eleocharis mamillata* ssp. *mamillata*<br>Soft-stemmed spikerush | G5T5/S1 | Sens | F-Sens | Periph | Skg, Whc | NC | TP Freshwater Emergent Marsh<br>TP Subalpine-Montane Wet Meadow | Mt. Baker-Snoqualmie NF |
| *Eleocharis rostellata*<br>Walking spike-rush | G5/S2 | Sens | F-Sens | Sparse | Gra, Oka, Peo, Yak | CP, CR, OK | IMB Alkaline Closed Depression<br>NA Arid West Emergent Marsh<br>RM Subalpine-Montane Fen<br>TP Freshwater Emergent Marsh | Colville NF<br>Halliday Fen RNA<br>Sinlahekin SWA<br>Sun Lakes SP<br>Yakima TC |
| *Epilobium mirabile*<br>(*E. glandulosum* var. *macounii*)<br>Olympic willow-herb | G4/S1 | Sens | F-Sens | RegEnd | Clm, Whc | NC, PC | NP Alpine & Subalpine Bedrock & Scree | Mt. Baker WA<br>Mt. Baker-Snoqualmie NF<br>Olympic NP |
| *Eremogone franklinii* var. *thompsonii*<br>(*Arenaria franklinii* var. *t.*)<br>Thompson's sandwort | G4T2Q/ S2 | Threat | | RegEnd | Ben, Gra | CP | IMB Active & Stabilized Dune | Columbia Basin SWA<br>Hanford ERP |
| *Eremothera minor*<br>(*Camissonia minor*)<br>Smallflower mooncup | G4/S2 | Sens | | Sparse | Ben, Gra, Kli, Ktt?, Yak | CP, EC? | CP Scabland Shrubland<br>IMB Wash | Hanford ERP<br>Hanford Reach NM<br>Rattlesnake Hills RNA |
| *Eremothera pygmaea*<br>(*Camissonia pygmaea*)<br>Dwarf mooncup | G3/S3 | Sens | B-Sens<br>F-Sens | RegEnd | Ben, Dou, Fra, Gra, Ktt, Yak | CP | CP Scabland Shrubland<br>IMB Cliff & Canyon<br>IMB Semi-Desert Shrub-Steppe<br>IMB Wash | Columbia Basin SWA<br>Hanford ERP<br>Hanford Reach NM<br>Rattlesnake Hills RNA<br>Rock Island Canyon ACEC<br>Spokane BLM<br>Steamboat Rock SP<br>Sun Lakes SP<br>Yakima TC |
| *Erigeron aliceae*<br>Eastwood's daisy | G4/S2 | Sens | F-Sens | RegEnd | Clm, Grh, Lew, Pac | PC | NP Alpine & Subalpine Dry Grassland<br>NP Montane Massive Bedrock, Cliff, & Talus | Colonel Bob WA<br>Olympic NF<br>Olympic NP<br>Willapa Divide NAP |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Erigeron basalticus*<br>Basalt daisy | G2/S2 | Threat | B-Sens | LocEnd | Ktt, Yak | CP | IMB Cliff & Canyon | LT Murray SWA<br>Selah Cliffs NAP<br>Spokane BLM<br>Wenas SWA<br>Yakima River Canyon ACEC<br>Yakima River Cliffs-Umtanum Ridge ACEC<br>Yakima TC |
| *Erigeron davisii*<br>(*E. engelmannii* var. *davisii*)<br>Davis's fleabane | G2G3/S1 | Endang | B-Sens<br>F-Sens | RegEnd | Aso, Gar | BM | NRM Subalpine-Upper Montane Grassland | Grande Ronde ACEC<br>Vale BLM<br>William T. Wooten SWA |
| *Erigeron disparipilus*<br>Snake River daisy | G3/S2 | Threat | F-Sens | RegEnd | Aso, Col, Gar | BM | NRM Subalpine-Upper Montane Grassland | Asotin Creek SWA<br>Fields Spring SP<br>Umatilla NF<br>William T Wooten SWA |
| *Erigeron flettii*<br>Olympic fleabane | G1/S1 | Endang | | LocEnd | Clm, Jef | PC | NP Alpine & Subalpine Bedrock & Scree | Olympic NP<br>Olympic NF |
| *Erigeron howellii*<br>Howell's daisy | G2/S2 | Threat | B-Sens<br>F-Sens | LocEnd | Skm | WC | NP Montane Massive Bedrock, Cliff, & Talus | Columbia Falls NAP<br>Columbia River Gorge NSA<br>Table Mt/Greenleaf Pk NRCA |
| *Erigeron oreganus*<br>Oregon fleabane | G3/S2 | Threat | B-Sens<br>F-Sens | RegEnd | Skm, Whk | PC, WC | NP Montane Massive Bedrock, Cliff, & Talus | Beacon Rock SP<br>Columbia Falls NAP<br>Columbia River Gorge NSA<br>Gifford Pinchot NF |
| *Erigeron peregrinus* var. *thompsonii*<br>Thompson's fleabane | G5T1/S1 | Endang | | LocEnd | Grh, Jef | PC | NP Bog & Fen | Copalis Bog Preserve<br>Olympic NF?<br>Olympic NP |
| *Erigeron salishii*<br>Salish daisy | G3/S2 | Threat | B-Sens<br>F-Sens | RegEnd | Che, Sno | EC, NC | RM Alpine Bedrock & Scree | Alpine Lakes WA<br>Lake Chelan-Sawtooth WA<br>Enchantment SIA<br>Glacier Peak WA<br>Lake Chelan NRA<br>Mt. Baker-Snoqualmie NF<br>Okanogan-Wenatchee NF |
| *Eriogonum codium*<br>Umtanum desert buckwheat | G1/S1 | Endang | Threat | LocEnd | Ben | CP | IMB Cliff & Canyon | Hanford Reach NM |
| *Eriogonum maculatum*<br>Spotted buckwheat | G5/SX | Extirp | | Periph | Yak | CP | CP Scabland Shrubland?<br>IMB Active & Stabilized Dune | |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Eriophorum viridicarinatum*<br>Green-keeled cottongrass | G5/S2 | Sens | F-Sens | Periph | Fer, Oka, Peo, Skm | CR, OK, WC | RM Subalpine-Montane Fen | Colville NF<br>Gifford Pinchot NF<br>Halliday Fen RNA<br>Kaniksu NF<br>Mt. St. Helens NVM<br>Okanogan-Wenatchee NF<br>Pasayten WA<br>Salmo Priest WA |
| *Eritrichium argenteum*<br>(*E. nanum* var. *elongatum*)<br>Pale alpine forget-me-not | G4/S1 | Sens | B-Sens<br>F-Sens | Disjunct | Che, Oka | EC, OK | RM Alpine Dwarf-Shrubland, Fell-Field, & Turf | Lake Chelan-Sawtooth WA<br>Okanogan-Wenatchee NF |
| *Eryngium articulatum*<br>Beefthistle coyote-thistle | G5/SH | Extirp | | Periph | Spo, Wht | CP | NA Arid West Emergent Marsh | |
| *Eryngium petiolatum*<br>Oregon coyote-thistle | G4/S2 | Sens | | RegEnd | Clk, Kli, Lew | EC, PT | RM Alpine-Montane Wet Meadow<br>WV Wet Prairie | Columbia River Gorge NSA<br>Conboy Lake NWR<br>Klickitat SWA<br>Lacamas Prairie NAP |
| *Erythranthe ampliata*<br>Nez Perce monkeyflower | G3/SH | Extirp | | RegEnd | Aso | BM | NA Arid West Emergent Marsh | Vale BLM? |
| *Erythranthe jungermannioides*<br>(*Mimulus j.*)<br>Liverwort monkeyflower | G3/SH | Extirp | | RegEnd | Kli | EC | RM Cliff, Canyon & Massive Bedrock | Columbia River Gorge NSA? |
| *Erythranthe patula*<br>(*Mimulus patulus*)<br>Stalk-leaved monkeyflower | G3?/S2? | Threat | B-Sens<br>F-Sens | Periph | Aso, Oka, Spo, Waw | BM, CP, OK | CB Foothill Riparian Woodland & Shrubland | Asotin Creek SWA<br>Grande Ronde ACEC<br>Okanogan-Wenatchee NF<br>Vale BLM |
| *Erythranthe pulsiferae*<br>(*Mimulus pulsiferae*)<br>Candelabrum monkeyflower | G4?/S2 | Sens | B-Sens<br>F-Sens | Sparse Periph | Kli, Oka, Skm, Waw, Wht, Yak | CP, EC, OK, WC | RM Alpine-Montane Wet Meadow<br>TP Subalpine-Montane Wet Meadow | Columbia River Gorge NSA<br>Conboy Lake NWR<br>Gifford Pinchot NF<br>Klickitat Canyon NRCA<br>Okanogan-Wenatchee NF<br>Trout Lake NAP |
| *Erythranthe scouleri*<br>(*Mimulus scouleri*)<br>Scouler's monkeyflower | GNR/S1 | Endang | | RegEnd | Cow, Sno, Whk | PC, PT | NP Intertidal Freshwater Wetland | Julia Butler Hansen NWR |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Erythranthe suksdorfii*<br>*(Mimulus suksdorfii)*<br>Suksdorf's monkeyflower | G4/S2S3 | Sens | B-Sens<br>F-Sens | Sparse | Ada, Ben, Che, Dou, Gra, Kli, Ktt, Oka, Wht, Yak | CP, EC, OK | CP Scabland Shrubland<br>CP Vernal Pool<br>IMB Wash | Beezley Hills Preserve<br>Castle Rock RNA<br>Columbia Basin SWA<br>Columbia River Gorge NSA<br>Crab Creek SWA<br>Hanford ERP<br>Marcellus Shrub Steppe NAP<br>Mt. Adams WA<br>Okanogan-Wenatchee NF<br>Roger Lake RNA<br>Steamboat Rock SP<br>Sun Lakes SP<br>Yakima TC |
| *Erythranthe washingtonensis*<br>(*Mimulus washingtonensis*)<br>Washington monkeyflower | G3/S1 | Endang | | RegEnd | Kli, Skm?, Yak | EC, WC? | NA Arid West Emergent Marsh<br>RM Alpine-Montane Wet Meadow | Columbia River Gorge NSA<br>Conboy Lake NWR |
| *Erythronium quinaultense*<br>Olympic fawn-lily | G1G2/ S1S2 | Threat | F-Sens | LocEnd | Clm, Grh, Jef | PC | NP Hypermaritime Western Red-Cedar-Western Hemlock Forest<br>NP Lowland Riparian Forest & Shrubland | Matheny Prairie Old Western Redcedar SIB<br>Olympic NF |
| *Erythronium revolutum*<br>Coast fawn-lily | G4G5/S3 | Sens | | Sparse | Clm, Cow, Grh, Jef, Lew, Pac, Skg, Thu, Whk | PC, PT | NP Hypermaritime Western Red-Cedar-Western Hemlock Forest<br>NP Lowland Riparian Forest & Shrubland<br>NP Seasonal Sitka Spruce Forest | Deception Pass SP<br>Olympic NF |
| *Eucephalus glaucescens*<br>Klickitat aster | G2/S2 | Threat | | LocEnd | Kli, Skm, Yak | EC | EC Mesic Montane Mixed Conifer Forest & Woodland<br>Northern RM Dry-Mesic Montane Mixed Conifer Forest | Conboy Lake NWR<br>Gifford Pinchot NF<br>Indian Heaven WA |
| *Euonymus occidentalis* var. *occidentalis*<br>Western wahoo | G5TNR/ S2 | Sens | | Periph | Clk, Cow, Lew, Pac, Thu | PC, PT, WC | NP Lowland Riparian Forest & Shrubland<br>NP Montane Riparian Woodland & Shrubland<br>NP Oak Woodland | Lewis & Clark SP<br>Mt. St. Helens SWA |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Eurybia merita*<br>(*Aster meritus*)<br>Subalpine aster | G5/S2 | Sens | F-Sens | Periph | Oka, Saj, Sno?, Ste, Whc | CR, NC, OK, PT | NP Alpine & Subalpine Bedrock & Scree<br>NP Montane Massive Bedrock, Cliff, & Talus<br>RM Alpine Bedrock & Scree | Colville NF<br>Glacier Peak WA?<br>Moran SP<br>Mt. Baker WA<br>Mt. Baker-Snoqualmie NF<br>Ronald J. Taylor RNA |
| *Eutrochium maculatum* var. *bruneri*<br>(*Eupatorium maculatum*)<br>Spotted Joe-Pye weed | G5T5/S1 | Sens | | Periph | Kin, Whc | PT | NP Shrub Swamp | |
| *Filipendula occidentalis*<br>Queen-of-the-forest | G2G3/ S2S3 | Sens | | RegEnd | Pac | PC | NP Lowland Riparian Forest & Shrubland | |
| *Fritillaria camschatcensis*<br>Kamchatka fritillary<br>(Black lily) | G5/S2 | Sens | B-Sens<br>F-Sens | Periph | Isl, Kin, Skg, Skm, Sno | NC, PT, WC | NP Bog & Fen<br>NP Intertidal Freshwater Wetland<br>TP Subalpine-Montane Wet Meadow | Alpine Lakes WA<br>Boulder River WA<br>Columbia River Gorge NSA<br>Deception Pass SP<br>Morning Star NRCA<br>Mt. Baker-Snoqualmie NF |
| *Gaultheria hispidula*<br>Creeping wintergreen | G5/S2 | Sens | B-Sens<br>F-Sens | Periph | Peo | CR | RM Subalpine-Montane Fen | Colville NF<br>Kaniksu NF<br>Salmo Priest WA |
| *Gentiana douglasiana*<br>Swamp gentian | G5/S2 | Sens | B-Sens<br>F-Sens | Periph | Clm, Kin, Ktt | EC, PC, WC | NP Bog & Fen<br>RM Subalpine-Montane Fen | Mt. Baker-Snoqualmie NF<br>Okanogan-Wenatchee NF<br>Olympic NP |
| *Gentiana glauca*<br>Glaucous gentian | G5/S2 | Sens | B-Sens<br>F-Sens | Periph | Oka, Whc | NC, OK | RM Alpine Dwarf-Shrubland, Fell-Field, & Turf | Chopaka Mountain NAP<br>Mt. Baker WA<br>Mt. Baker-Snoqualmie NF<br>Okanogan-Wenatchee NF<br>Pasayten WA<br>Ronald J. Taylor RNA |
| *Geranium oreganum*<br>Oregon geranium | G4G5/SX | Extirp | | Periph | Clk | PT | NP Oak Woodland<br>WV Upland Prairie & Savanna | |
| *Geum rivale*<br>Water avens | G5/S2S3 | Sens | B-Sens<br>F-Sens | Periph | Fer, Oka, Peo, Ste | CR, OK | RM Alpine-Montane Wet Meadow<br>RM Subalpine-Montane Fen | Colville NF<br>Halliday Fen RNA<br>Okanogan-Wenatchee NF<br>Pasayten WA |
| *Geum rossii* var. *depressum*<br>Ross' avens | G5T1/S1 | Endang | F-Sens | LocEnd | Che | EC | NP Serpentine Barren<br>RM Alpine Dwarf-Shrubland, Fell-Field, & Turf | Alpine Lakes WA<br>Enchantment SIB<br>Okanogan-Wenatchee NF |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Githopsis specularioides*<br>Common bluecup | G5/S2S3 | Sens | B-Sens<br>F-Sens | Sparse | Che, Kli, Lew, Mas, Pie, Skm, Thu, Waw, Wht | CP, EC, PC, PT, WC | EC Oak-Ponderosa Pine Forest & Woodland<br>NP Herbaceous Bald & Bluff<br>NP Montane Massive Bedrock, Cliff, & Talus | Bald Hill NAP<br>Lake Chelan-Sawtooth WA<br>Columbia River Gorge NSA<br>Gifford Pinchot NF<br>Hamma Hamma Balds NAP<br>Klickitat SWA<br>Lake Chelan NRA<br>Okanogan-Wenatchee NF<br>Spokane BLM |
| *Hackelia cinerea*<br>Gray stickseed | G4/S1 | Sens | B-Sens<br>F-Sens | Periph | Lin, Spo, Ste | CP, OK | RM Cliff, Canyon & Massive Bedrock | Riverside SP |
| *Hackelia diffusa* var. *diffusa*<br>Diffuse stickseed | G4T3/S2 | Threat | B-Sens<br>F-Sens | RegEnd | Col, Kli, Ktt?, Yak | BM, CP?, EC | RM Cliff, Canyon & Massive Bedrock | Columbia River Gorge NSA<br>Ginkgo Petrified Forest SP?<br>Klickitat Canyon NRCA<br>Klickitat SWA<br>Umatilla NF |
| *Hackelia hispda* var. *disjuncta*<br>Sagebrush stickseed | G4T3/S3 | Sens | B-Sens | LocEnd | Che, Dou, Gra, Ktt | CP, EC | CP Scabland Shrubland<br>IMB Cliff & Canyon<br>IMB Semi-Desert Shrub-Steppe | Columbia Basin SWA<br>Columbia NWR<br>McCartney Creek Preserve<br>Moses Coulee Preserve<br>Okanogan-Wenatchee NF<br>Quincy Lakes SWA<br>Rock Island Canyon ACEC<br>Spokane BLM<br>Sun Lakes SP |
| *Hackelia hispida* var. *hispida*<br>Rough stickseed | G4T4/S1 | Sens | B-Sens<br>F-Sens | RegEnd | Aso | BM | CB Foothill & Canyon Dry Grassland<br>IMB Cliff & Canyon | Grande Ronde ACEC<br>Vale BLM |
| *Hackelia taylorii*<br>Taylor's stickseed | G1/S1 | Endang | F-Sens | LocEnd | Che | EC | RM Bedrock & Scree | Alpine Lakes WA<br>Okanogan-Wenatchee NF |
| *Hackelia venusta*<br>Showy stickseed | G1/S1 | Endang | Endang | LocEnd | Che | EC | RM Cliff, Canyon & Massive Bedrock | Okanogan-Wenatchee NF<br>Tumwater SIB |
| *Hedysarum occidentale*<br>Western sweetvetch | G5/S2 | Sens | F-Sens | Sparse | Clm, Jef, Mas, Skm | PC, WC | NP Alpine & Subalpine Bedrock & Scree<br>NP Montane Massive Bedrock, Cliff, & Talus | Gifford Pinchot NF<br>Mt. Skokomish WA<br>Mt. St. Helens NVM<br>Olympic NF<br>Olympic NP |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Heterotheca oregona*<br>(*Chrysopsis oregona*)<br>Oregon goldenaster | G4/S2 | Sens | B-Sens<br>F-Sens | Sparse | Kin, Ktt, Lew, Mas, Pie, Thu, Yak | CP, EC, PC, PT, WC | EC Oak-Ponderosa Pine Forest & Woodland<br>NRM Lower Montane Riparian Woodland & Shrubland | Federation Forest SP<br>JB Lewis-McChord<br>Mather Memorial SIA<br>Mt. Rainier NP<br>Oak Creek SWA<br>Okanogan-Wenatchee NF<br>Olympic NF |
| *Howellia aquatilis*<br>Water howellia | G3/S2 | Threat | B-Sens<br>F-Sens | Sparse | Clk, Mas, Pie, Spo, Thu | CP, PT | NA Arid West Emergent Marsh<br>NCP Basalt Pothole Ponds<br>NP Shrub Swamp<br>TP Freshwater Emergent Marsh | Blackwater Island RNA<br>Dishman Hills NRCA<br>JB Lewis-McChord<br>Pine Creek RNA<br>Ridgefield NWR<br>Scatter Creek SWA<br>Spokane BLM<br>Turnbull NWR |
| *Hulsea nana*<br>Dwarf alpinegold | G4/S1S2 | Sens | | Sparse | Pie, Lew | EC, WC | NP Dry & Mesic Alpine Dwarf-Shrubland, Fell-Field & Meadow<br>NP Maritime Mesic Subalpine Parkland | Mt. Rainier NP<br>Gifford Pinchot NF |
| *Hymenophyllum wrightii*<br>Wright's filmy fern | G4G5/S1 | Sens | | Periph | Clm, Jef | PC | NP Seasonal Sitka Spruce Forest | Olympic NP |
| *Hypericum majus*<br>Large St. John's-wort | G5/S2 | Sens | F-Sens | Sparse | Ben, Fra, Kin, Ktp, Peo, Skg, Spo, Thu, Whc | CP, CR, NC, PT | NA Arid West Emergent Marsh<br>RM Subalpine-Montane Fen<br>TP Freshwater Emergent Marsh | Columbia Basin SWA<br>Colville NF<br>Hanford ERP<br>Square Lake SP |
| *Impatiens noli-tangere*<br>Boreal jewelweed | G5/S1 | Sens | B-Sens<br>F-Sens | Sparse | Skg, Whc | NC, OK, PT | NP Lowland Riparian Forest & Shrubland | Mt. Baker-Snoqualmie NF |
| *Isöetes minima*<br>Midget quillwort | G1G2/S1 | Endang | B-Sens<br>F-Sens | RegEnd | Ktt, Oka, Spo | CP, EC, OK | CP Vernal Pool | Okanogan-Wenatchee NF<br>Pasayten WA |
| *Isöetes nuttallii*<br>Nuttall's quillwort | G4?/S2 | Sens | B-Sens<br>F-Sens | Sparse | Clk, Cow, Kli, Lew, Pie, Saj, Spo, Thu | CP, EC, PT, WC | CP Vernal Pool<br>M Basalt Flow Vernal Pool<br>NRM Wooded Vernal Pool<br>WV Wet Prairie | Bald Hill NAP<br>Cattle Point NRCA<br>Columbia Hills Historical SP<br>Columbia River Gorge NSA<br>Conboy Lake NWR<br>JB Lewis-McChord<br>Klickitat SWA<br>Lacamas Prairie NAP |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Juncus hemiendytus* var. *hemiendytus*<br>Dwarf rush | G5T5/S1 | Sens | | Periph | Kli, Spo, Yak | CP, EC | CP Vernal Pool<br>M Basalt Flow Vernal Pool<br>NRM Wooded Vernal Pool | Conboy Lake NWR<br>Klickitat Canyon NRCA<br>Klickitat SWA (E Simcoes Unit)<br>Turnbull NWR |
| *Juncus howellii*<br>Howell's rush | G4/S1 | Sens | B-Sens<br>F-Sens | Sparse | Ktt, Skm | EC | TP Subalpine-Montane Wet Meadow | Gifford Pinchot NF<br>Okanogan-Wenatchee NF |
| *Juncus kelloggii*<br>Kellogg's rush | G3?/S1 | Endang | | Periph | Kli, Yak | EC | M Basalt Flow Vernal Pool<br>NRM Wooded Vernal Pool | Columbia River Gorge NSA<br>Conboy Lake NWR<br>Klickitat Canyon NRCA |
| *Juncus patens*<br>Spreading rush | G5/S1 | Sens | | Periph | Clk | PT | WV Wet Prairie | Lacamas Prairie NAP |
| *Juncus tiehmii*<br>Tiehm's dwarf rush | G4/S1 | Sens | B-Sens | Disjunct | Dou | CP | CP Vernal Pool | Spokane BLM |
| *Juncus uncialis*<br>Inch-high rush | G3G4/S2 | Threat | B-Sens | Sparse | Ada, Dou, Gra, Kli, Lin, Spo | CP | CP Vernal Pool<br>M Basalt Flow Vernal Pool | Columbia Basin SWA<br>Columbia Hills Historical SP<br>Columbia River Gorge NSA<br>Fairchild AFB<br>Marcellus Shrub Steppe NAP<br>Swanson Lakes SWA |
| *Kalmia procumbens* (*Loiseluria procumbens*)<br>Alpine azalea | G5/SH | Extirp | B-Sens<br>F-Sens | Periph | Che, Skg, | EC, NC | NP Dry & Mesic Alpine Dwarf-Shrubland, Fell-Field & Meadow<br>TP Subalpine-Montane Wet Meadow | Glacier Peak WA<br>Mt. Baker-Snoqualmie NF<br>Okanogan-Wenatchee NF |
| *Lasthenia glaberrima*<br>Smooth goldfields | G5/S1 | Sens | | Periph | Clk, Kli | CP, PT | M Basalt Flow Vernal Pool<br>WV Wet Prairie | Columbia Hills Historical SP |
| *Lathrocasis tenerrima* (*Gilia tenerrima*)<br>Delicate gilia | G4/S1 | Sens | B-Sens<br>F-Sens | Sparse | Che, Dou, Oka | CP, EC, OK | IMB Big Sagebrush Steppe | Okanogan-Wenatchee NF<br>Spokane BLM |
| *Lathyrus holochlorus*<br>Thin-leaved peavine | G2?/S1 | Endang | | RegEnd | Lew | PT | WV Upland Prairie & Savanna | |
| *Lathyrus ochroleucus*<br>Cream-flower peavine | G5/S1 | Sens | | | Oka, Peo | CR | | |
| *Lathyrus torreyi*<br>Torrey's peavine | G5/S1 | Sens | | Sparse | Clk, Lew, Pie | PT, WC | NP Dry Douglas-fir Forest & Woodland | JB Lewis-McChord |
| *Lathyrus vestitus* var. *ochropetalus*<br>Pacific peavine | G5TNR/S1 | Endang | | RegEnd | Kin, Lew, Thu | PT | WV Upland Prairie & Savanna | Lewis & Clark SP |
| *Lepidium oxycarpum*<br>Sharpfruit peppergrass | G4/S1 | Sens | | Disjunct | Saj | PT | NP Hardpan Vernal Pool | Cattle Point NRCA |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Leptosiphon bolanderi*<br>(*Linanthus bakeri*)<br>Bolander's linanthus | G4G5/S2 | Sens | B-Sens<br>F-Sens | Periph | Kli | EC | EC Oak-Ponderosa Pine Forest & Woodland | Columbia River Gorge NSA<br>Klickitat SWA (including E Simcoes Unit)<br>Spokane BLM |
| *Leptosiphon minimus*<br>(*Linanthus bicolor* var. *m.*)<br>True babystars | GNR [T3]/S1S2 | Threat | | RegEnd | Isl, Pie, Saj, Skg, Thu | PT | NP Herbaceous Bald & Bluff<br>WV Upland Prairie & Savanna | Anacortes CF<br>Deception Pass SP<br>Moran SP<br>Point Colville ACEC<br>Scatter Creek SWA<br>Spokane BLM |
| *Leymus flavescens*<br>(*Elymus flavescens*)<br>Yellow wildrye | G3/S1 | Endang | B-Sens<br>F-Sens | RegEnd | Ada, Ben, Fra, Gar, Gra, Kli, Ktt, Skm, Waw, Wht | EC, CP, WC | IMB Active & Stabilized Dune | Columbia River Gorge NSA<br>Hanford Reach NM<br>Juniper Dunes WA<br>Spokane BLM |
| *Liparis loeselii*<br>Loesel's twayblade | G5/SH | Extirp | | Disjunct | Kli, Saj | EC, PT | NP Bog & Fen<br>RM Subalpine-Montane Fen | Conboy Lake NWR<br>Killebrew Lake NAP |
| *Lipocarpha aristulata*<br>(*Hemicarpha aristulata*)<br>Awned halfchaff sedge | G5?/S1S2 | Sens | | Disjunct | Aso, Ben, Fra, Gar, Gra, Kli, Spo, Wht, Yak | CP, EC | NA Arid West Emergent Marsh<br>TP Freshwater Mudflat | Columbia River Gorge NSA<br>Crab Creek SWA<br>Hanford Reach NM<br>McNary NWR |
| *Lobelia dortmanna*<br>Water lobelia | G5/S3 | Sens | | Sparse | Clm, Kin, Mas, Saj, Skg, Sno, Whc | NC, PC, PT | TP Freshwater Aquatic Bed | Moran SP<br>Olympic NP |
| *Lobelia kalmii*<br>Kalm's lobelia | G5/S1 | Sens | | Disjunct | Yak | CP | RM Subalpine-Montane Fen | Yakima TC |
| *Loeflingia squarrosa*<br>Spreading pygmyleaf | G5/S1 | Sens | | Disjunct | Ben | CP | CP Vernal Pool<br>IMB Wash | Hanford ERP |
| *Lomatium bradshawii*<br>Bradshaw's biscuitroot | G2/S1 | Endang | B-Sens | RegEnd | Clk | PT | WV Wet Prairie | Lacamas Prairie NAP |
| *Lomatium cuspidatum*<br>Wenatchee Desert-parsley | G2/S2 | Threat | | LocEnd | Che, Ktt | EC | m | Alpine Lakes WA<br>Okanogan-Wenatchee NF |
| *Lomatium klickitatense*<br>(previously incl. in *L. grayi*)<br>Klickitat biscuitroot | GNR/S2 | Threat | B-Sens<br>F-Sens | LocEnd | Kli | EC | EC Oak-Ponderosa Pine Forest & Woodland<br>RM Cliff, Canyon & Massive Bedrock | Columbia Hills Historical SP<br>Columbia River Gorge NSA<br>Klickitat Canyon NRCA<br>Klickitat Community Forest<br>Klickitat SWA<br>Spokane BLM |
| *Lomatium knokei*<br>Knoke's biscuitroot | G1/S1 | Endang | B-Sens<br>F-Sens | LocEnd | Ktt | EC | RM Alpine-Montane Wet Meadow | Okanogan-Wenatchee NF |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Lomatium laevigatum*<br>Basalt biscuitroot | G3/S2S3 | Threat | B-Sens<br>F-Sens | LocEnd | Kli | CP | RM Cliff, Canyon & Massive Bedrock | Columbia Hills Historical SP<br>Columbia River Gorge NSA<br>Gifford Pinchot NF |
| *Lomatium lithosolamans*<br>(*Tauschia hooveri*)<br>Hoover's biscuitroot | G2G3/<br>S2S3 | Sens | B-Sens | LocEnd | Ktt, Yak | CP, EC | CP Scabland Shrubland | Cowiche Canyon ACEC<br>Fort Simcoe SP<br>LT Murray SWA<br>Spokane BLM<br>Yakima River Canyon ACEC<br>Yakima TC |
| *Lomatium rollinsii*<br>Rollins' biscuitroot | G3/S2 | Threat | B-Sens<br>F-Sens | RegEnd | Aso | BM, CP | CB Foothill & Canyon Dry Grassland | Asotin Creek SWA<br>Chief Joseph SWA<br>Fields Spring SP<br>Grande Ronde ACEC<br>Umatilla NF<br>Vale BLM |
| *Lomatium roneorum*<br>Leavenworth biscuitroot | G1/S1 | Endang | F-Sens | LocEnd | Che | EC | RM Cliff, Canyon & Massive Bedrock | Okanogan-Wenatchee NF |
| *Lomatium sandbergii*<br>Sandberg's biscuitroot | G4/SH | Extirp | | RegEnd | Oka, Peo | CR, OK | NRM Subalpine-Upper Montane Grassland | Kaniksu NF<br>Okanogan-Wenatchee NF<br>Round Top Mountain RNA<br>Salmo Priest WA |
| *Lomatium serpentinum*<br>Snake Canyon biscuitroot | G4/S2 | Sens | B-Sens<br>F-Sens | RegEnd | Aso, Col, Gar, Gra, Waw, Wht | BM, CP | IMB Cliff & Canyon | Chief Joseph SWA<br>Grande Ronde ACEC<br>McNary NWR<br>Vale BLM |
| *Lomatium suksdorfii*<br>Suksdorf's biscuitroot | G3/S3 | Sens | B-Sens<br>F-Sens | LocEnd | Kli | EC | EC Oak-Ponderosa Pine Forest & Woodland<br>NRM Lower Montane, Foothill & Valley Grassland | Columbia River Gorge NSA<br>Gifford Pinchot NF<br>Klickitat SWA<br>Spokane BLM<br>Wahkiacus Oaks NAP<br>White Salmon NRCA |
| *Lomatium tamanitchii*<br>(*L. packardiae* var. *tamanitchii*)<br>Ribseed biscuitroot | G2/S2 | Threat | | LocEnd | Kli | CP | NRM Lower Montane, Foothill & Valley Grassland | Cleveland Shrub Steppe NAP?<br>Columbia River Gorge NSA |
| *Lomatium tenuissimum*<br>(*Tauschia tenuissima*)<br>Leiberg's umbrellawort | G3/SX | Extirp | | RegEnd | Spo | CP | NA Arid West Emergent Marsh? | |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Lomatium tuberosum*<br>Tuberous biscuitroot<br>(Hoover's desert-parsley) | G2G3/<br>S2S3 | Sens | B-Sens | RegEnd | Ben, Gra, Ktt, Yak | CP, EC | IMB Cliff & Canyon | Columbia NWR<br>Crab Creek SWA<br>Hanford ERP<br>Hanford Reach NM<br>McCoy Canyon ACEC<br>Oak Creek SWA<br>Selah Cliffs NAP<br>Sentinel Slope ACEC<br>Spokane BLM<br>Wenas SWA<br>Yakima River Canyon ACEC<br>Yakima River Cliffs-Umtanum Ridge ACEC<br>Yakima TC |
| *Lupinus oreganus* var. *kincaidii* (*L. sulphureus* ssp. *kincaidii*)<br>Kincaid's lupine | G4T2/S1 | Endang | Threat | RegEnd | Lew | PT | WV Upland Prairie & Savanna | Lozier Prairie Preserve |
| *Lupinus pachylobus*<br>Bigpod lupine | G4/S1 | Sens | | Disjunct | Saj | PT | NP Hypermaritime Shrub & Herbaceous Headland | Sentinel Island Preserve |
| *Lupinus sabinianus*<br>Sabin's lupine | G4/S1 | Sens | | LocEnd | Aso, Waw | BM, CP | NRM Foothill Conifer Wooded Steppe<br>NRM Ponderosa Pine Woodland & Savanna | |
| *Luzula arcuata* ssp. *unalaschcensis*<br>Curved woodrush | G5T4T5/<br>S1 | Sens | F-Sens | Sparse | Che, Oka, Pie, Skg, Yak | EC, NC, OK, WC | RM Alpine Bedrock & Scree<br>RM Alpine Dwarf-Shrubland, Fell-Field, & Turf | Gifford Pinchot NF<br>Lake Chelan NRA<br>Mt. Adams WA<br>Mt. Rainier NP<br>Okanogan-Wenatchee NF<br>Pasayten WA |
| *Lycopodiella inundata* (*Lycopodium inundatum*)<br>Northern bog clubmoss | G5/S2 | Sens | B-Sens<br>F-Sens | Sparse | Clm, Kin, Ktp, Ktt, Mas, Pac, Pie, Skm, Thu, Whc | EC, NC, PC, PT, WC | NP Bog & Fen<br>TP Subalpine-Montane Wet Meadow | Big Beaver RNA<br>Columbia River Gorge NSA<br>JB Lewis-McChord<br>Mt. Baker-Snoqualmie NF<br>North Cascades NP<br>Okanogan-Wenatchee NF<br>Olympic NP<br>Ross Lake NRA<br>Skating Lake SP |
| *Lycopodium lagopus*<br>One-cone clubmoss | G5/S1 | Sens | F-Sens | Disjunct | Che, Kin, Whc | EC, NC | NP Bog & Fen<br>RM Subalpine-Montane Fen | Mt. Baker-Snoqualmie NF<br>Okanogan-Wenatchee NF |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Malaxis monophyllos* var. *brachypoda*<br>(*M. brachypoda*)<br>White adder's-mouth | G5T4T5/ S1 | Sens | F-Sens | Periph | Whc | NC | NP Bog & Fen | Mt. Baker-Snoqualmie NF |
| *Meconella oregana*<br>White meconella | G2/S1 | Endang | B-Sens<br>F-Sens | RegEnd | Isl, Kin, Kli, Pie, Saj | EC, PT | NP Herbaceous Bald & Bluff<br>NP Oak Woodland<br>WV Upland Prairie & Savanna | Columbia River Gorge NSA<br>Deception Pass SP<br>Gifford Pinchot NF<br>Klickitat SWA |
| *Micranthes tischii*<br>(*Saxifraga tischii*)<br>Olympic saxifrage | G2G3/S1? | Endang | F-Sens | RegEnd | Clm, Jef | PC | NP Alpine & Subalpine Bedrock & Scree | Buckhorn WA<br>Olympic NF<br>Olympic NP |
| *Micromonolepis pusilla*<br>(*Monolepis pusilla*)<br>Tiny povertyweed | G5/S1 | Sens | B-Sens<br>F-Sens | Disjunct | Dou, Gra, Yak | CP | IMB Alkaline Closed Depression<br>IMB Playa | Hanford ERP<br>Hanford Reach NM |
| *Microseris bigelovii*<br>Coast silverpuffs | G4/SX | Extirp | | Periph | Saj | PT | NP Maritime Coastal Sand Dune & Strand | |
| *Microseris borealis*<br>(*Apargidium boreale*)<br>Northern silverpuffs | G5/S2 | Sens | B-Sens<br>F-Sens | Sparse | Clm, Pie, Skm | EC, PC, WC | NP Bog & Fen<br>TP Subalpine-Montane Wet Meadow | Gifford Pinchot NF<br>Mt. Adams WA<br>Mt. Rainier NP<br>Mt. St. Helens NVM<br>Olympic NP |
| *Mimetanthe pilosa*<br>Downy false monkeyflower | G5/S1 | Sens | | Sparse | Ben, Dou, Gra, Kli, Skm?, Waw, Wht, Yak | CP, EC | IMB Wash | Gifford Pinchot NF?<br>McCartney Creek Preserve<br>Yakima TC |
| *Montia diffusa*<br>Branched montia | G4/S1S2 | Sens | B-Sens<br>F-Sens | RegEnd | Clm, Clk, Grh, Jef, Kin, Kli, Lew, Pie, Skg, Skm, Sno | EC, NC, PC, PT, WC | NP Dry Douglas-fir Forest & Woodland<br>NRM Ponderosa Pine Woodland & Savanna | Columbia River Gorge NSA<br>Gifford Pinchot NF<br>Mt. St. Helens NVM<br>Olympic NF<br>Olympic NP |
| *Muhlenbergia glomerata*<br>Marsh muhly | G5/S2 | Sens | B-Sens<br>F-Sens | Periph | Oka, Peo, Spo | CP, CR, OK | RM Alpine-Montane Wet Meadow<br>RM Subalpine-Montane Fen | Colville NF<br>Halliday Fen RNA<br>Kaniksu NF |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Myosurus* × *alopecuroides* (*M. clavicaulis*)<br>Foxtail mousetail | G3?/S2 | Threat | B-Sens | Sparse | Ada, Ben, Kli, Lin, Spo | CP | CP Vernal Pool<br>M Basalt Flow Vernal Pool | Columbia Hills Historical SP<br>Columbia River Gorge NSA<br>Fairchild AFB<br>Hanford ERP<br>Klickitat SWA<br>Marcellus Shrub Steppe NAP<br>Spokane BLM<br>Turnbull NWR |
| *Myosurus sessilis*<br>Vernal pool mousetail | GNR[G2]/ S1 | Endang | | Periph | Kli | CP | M Basalt Flow Vernal Pool | |
| *Myriopteris gracilis* (*Cheilanthes feei*)<br>Slender lip-fern | G5/S1 | Sens | B-Sens | Periph | Aso, Wht | BM, CP | IMB Cliff & Canyon | Grande Ronde ACEC<br>Vale BLM |
| *Navarretia breweri*<br>Brewer's navarretia | G4G5/S1 | Sens | | Disj | Ktt, Yak | CP | CP Scabland Shrubland | |
| *Navarretia leucocephala* ssp. *diffusa*<br>Least pincushion-plant | G4T1/S1 | Endang | B-Sens | LocEnd | Lin | CP | CP Vernal Pool | Spokane BLM<br>Swanson Lakes SWA |
| *Navarretia tagetina*<br>Marigold pincushion-plant | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Kli | EC | M Basalt Flow Vernal Pool | Columbia River Gorge NSA<br>Gifford Pinchot NF |
| *Nicotiana attenuata*<br>Coyote tobacco | G4/S2 | Sens | B-Sens<br>F-Sens | Sparse | Ben, Che, Dou, Fra, Gra, Kli, Ktt, Wht, Yak | CP, EC | CP Scabland Shrubland<br>IMB Big Sagebrush Steppe<br>IMB Wash | Colockum SWA<br>Columbia River Gorge NSA<br>Ginkgo Petrified Forest SP<br>Hanford Reach NM<br>Moses Coulee Preserve<br>Oak Creek SWA<br>Okanogan-Wenatchee NF<br>Rattlesnake Hills RNA<br>Rock Island Canyon ACEC<br>Spokane BLM<br>Two Steppe NAP<br>Yakima TC |
| *Nuttallanthus canadensis* (*Linaria canadensis*; previously included in *N. texanus*)<br>Old field blue toadflax | G5/S1 | Sens | | Sparse | Isl, Kin, Saj, Skg, Thu | PT | WV Upland Prairie & Savanna | Deception Pass SP<br>Scatter Creek SWA<br>Sucia Island SP |
| *Nuttallanthus texanus* (*Linaria canadensis* var. *texana*)<br>Texas blue toadflax | G4G5/S1 | Sens | | Sparse | Clk?, Isl, Pie, Skg, Thu | PT | WV Upland Prairie & Savanna | Deception Pass SP<br>Glacial Heritage Preserve<br>JB Lewis-McChord<br>Scatter Creek SWA<br>West Rocky Prairie SWA |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Nymphaea tetragona*<br>Pygmy water-lily | G5/SH | Extirp | | Periph | Whc | PT | TP Freshwater Aquatic Bed | |
| *Oenothera cespitosa* ssp. *cespitosa*<br>Tufted evening-primrose | G5T5/S2 | Sens | B-Sens | Periph | Ben, Fra, Gra, Kli, Ktt, Yak | CP | CP Scabland Shrubland<br>IMB Cliff & Canyon | Columbia NWR<br>Hanford ERP<br>Hanford Reach NM<br>Rattlesnake Hills RNA<br>Spokane BLM<br>Yakima TC |
| *Oenothera cespitosa* ssp. *marginata*<br>Tufted evening-primrose | G5T3T5/ S1 | Sens | B-Sens<br>F-Sens | Periph | Aso, Kli, Wht | BM, CP, EC | CB Foothill & Canyon Dry Grassland<br>RM Cliff, Canyon & Massive Bedrock | Asotin Creek SWA<br>Chief Joseph SWA<br>Grande Ronde ACEC<br>Vale BLM |
| *Oenothera flava* ssp. *flava*<br>Long-tubed evening-primrose | G5T3T5/ SH | Extirp | | Periph | Yak | CP | NA Arid West Emergent Marsh | |
| *Ophioglossum pusillum*<br>Adder's-tongue | G4/S2 | Sens | B-Sens<br>F-Sens | Sparse | Che, Dou, Kli, Ktt, Mas, Oka, Peo, Saj, Ste | CP, CR, EC, OK, PC, PT | NP Bog & Fen<br>NRM Subalpine-Upper Montane Grassland<br>RM Subalpine-Montane Fen | Colville NF<br>Conboy Lake NWR<br>Killebrew Lake NAP<br>Little Pend Oreille NWR<br>Spokane BLM |
| *Oreocarya leucophaea (Cryptantha leucophaea)*<br>Gray cryptantha | G1/S1 | Endang | B-Sens | RegEnd | Ben, Dou, Fra, Gra, Ktt, Waw, Yak | CP | IMB Active & Stabilized Dune | Colockum SWA<br>Columbia Basin SWA<br>Crab Creek SWA<br>Ginkgo Petrified Forest SP<br>Hanford ERP<br>Hanford Reach NM<br>Juniper Dunes WA<br>Juniper Forest ACEC<br>Sentinel Slope ACEC<br>Spokane BLM<br>Yakima TC |
| *Oreocarya spiculifera (Cryptantha spiculifera)*<br>Snake River cryptantha | G4?/ S2S3 | Sens | B-Sens | Sparse | Ada, Ben, Che, Fra, Gra, Kli, Lin, Oka, Yak | CP, EC, OK | CP Scabland Shrubland<br>IMB Cliff & Canyon<br>IMB Semi-Desert Shrub-Steppe | Columbia Basin SWA<br>Entiat Slopes NAP<br>Hanford ERP<br>Hanford Reach NM<br>Keystone Point ACEC<br>Rattlesnake Hills RNA<br>Riverside Breaks NAP<br>Sentinel Slope ACEC<br>Spokane BLM |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Orthocarpus bracteosus*<br>Rosy owl's-clover | G3?/S2 | Threat | B-Sens<br>F-Sens | RegEnd | Kli, Saj, Skm, Whc, Yak | EC, PT | NP Hardpan Vernal Pool?<br>RM Alpine-Montane Wet Meadow | Conboy Lake NWR<br>Gifford Pinchot NF<br>Klickitat Canyon NRCA<br>Trout Lake NAP |
| *Oxalis suksdorfii*<br>Western yellow wood-sorrel | G4/SH | Extirp | | RegEnd | Clm, Clk, Kli, Ktp | EC, PC, PT | NP Maritime Coastal Sand Dune & Strand<br>NP Maritime Dry-Mesic Douglas-fir-Western Hemlock Forest | Columbia River Gorge NSA? |
| *Oxytropis borealis* var. *viscida*<br>(*Oxytropis viscida*)<br>Sticky crazyweed | G5T5/S1 | Sens | | Periph | Clm | PC | RM Alpine Dwarf-Shrubland, Fell-Field, & Turf | Olympic NP |
| *Oxytropis campestris* var. *columbiana*<br>Columbia crazyweed | G5T2/S1 | Endang | | RegEnd | Fer, Oka, Ste | CR, OK | NA Arid West Emergent Marsh | Lake Roosevelt NRA |
| *Oxytropis campestris* var. *gracilis*<br>(*O. monticola*, *O. c.* var. *spicata*)<br>Slender crazyweed | G5T5/S2 | Sens | B-Sens<br>F-Sens | Sparse | Clm, Jef, Ktt, Oka, Pie, Saj, Whc | EC, NC, OK, PC, PT, WC | NP Alpine & Subalpine Bedrock & Scree<br>NP Alpine & Subalpine Dry Grassland<br>RM Alpine Bedrock & Scree<br>RM Alpine Dwarf-Shrubland, Fell-Field, & Turf<br>WV Upland Prairie & Savanna | Buckhorn WA<br>Chopaka Mountain NAP<br>Iceberg Point ACEC<br>Mt. Baker WA<br>Mt. Baker-Snoqualmie NF<br>Mt. Rainier NP<br>Okanogan-Wenatchee NF<br>Olympic NF<br>Olympic NP<br>Pasayten WA<br>San Juan Islands NWR<br>Spokane BLM |
| *Oxytropis campestris* var. *wanapum*<br>Wanapum crazyweed | G5T1/S1 | Endang | B-Sens | LocEnd | Gra | CP | IMB Cliff & Canyon | Sentinel Slope ACEC<br>Spokane BLM |
| *Packera bolanderi* var. *harfordii*<br>(*Senecio bolanderi* var. *h.*)<br>Harford's groundsel | G4T3?/S1 | Endang | F-Sens | RegEnd | Skm, Whk | EC, PC, WC | NP Montane Massive Bedrock, Cliff, & Talus<br>RM Alpine Dwarf-Shrubland, Fell-Field, & Turf<br>RM Subalpine Mesic Spruce-Fir Forest & Woodland | Beacon Rock SP<br>Columbia River Gorge NSA<br>Gifford Pinchot NF |
| *Packera macounii*<br>(*Senecio macounii*)<br>Puget groundsel | G4?/S1 | Sens | | RegEnd | Saj, Skg | PT | NP Herbaceous Bald & Bluff<br>WV Upland Prairie & Savanna | Burrows Island SP<br>Moran SP |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Packera porteri*<br>(*Ligularia porteri, Senecio p.*)<br>Porter's groundsel | G4/S1 | Sens | F-Sens | Disjunct | Oka | OK | RM Alpine Bedrock & Scree | Lake Chelan-Sawtooth WA<br>Okanogan-Wenatchee NF |
| *Parnassia cirrata* var. *intermedia*<br>(*P. fimbriata* var. *hoodiana*)<br>Cascade grass-of-Parnassus | GNRTNR/S1 | Endang | | Periph Reg End?? | Skm | WC | TP Subalpine-Montane Wet Meadow | |
| *Parnassia kotzebuei*<br>Kotzebue's grass-of-Parnassus | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Che, Oka | EC, OK | RM Alpine-Montane Wet Meadow<br>RM Subalpine-Montane Fen | Lake Chelan NRA<br>Lake Chelan-Sawtooth WA<br>Okanogan-Wenatchee NF |
| *Parnassia palustris*<br>(includes var. *neogaea* & *tenuis*)<br>Marsh grass-of-Parnassus | G5/S2 | Sens | B-Sens<br>F-Sens | Periph | Grh, Jef, Mas, Pac | PC | TP Subalpine-Montane Wet Meadow | North Fork Matheny Ponds Old Alaska yellowcedar SIB<br>Olympic NF<br>Olympic NP<br>Three Peaks SIB |
| *Pedicularis bracteosa* var. *siifolia*<br>Smothflower bracted lousewort | G5T1T3/SH | Extirp | | RegEnd | Aso | BM | NRM Dry-Mesic Montane Mixed Conifer Forest | Umatilla NF? |
| *Pedicularis pulchella*<br>Pretty dwarf lousewort | G3/S1 | Endang | F-Sens | Disjunct | Che | EC | NP Alpine & Subalpine Bedrock & Scree | Alpine Lakes WA<br>Okanogan-Wenatchee NF |
| *Pedicularis rainierensis*<br>Mt. Rainier lousewort | G2/S2 | Threat | F-Sens | LocEnd | Lew, Pie, Yak | EC, WC | NP Dry & Mesic Alpine Dwarf-Shrubland, Fell-Field & Meadow<br>NP Maritime Mesic Subalpine Parkland | Clearwater WA<br>Mt. Baker-Snoqualmie NF<br>Mt. Rainier NP<br>Okanogan-Wenatchee NF |
| *Pediocactus nigrispinus*<br>Dark-spine ball cactus | G4/S2 | Sens | B-Sens | RegEnd | Dou, Gra, Ktt, Yak | EC, CP | CB Scabland Shrubland | Beezley Hills Preserve<br>Colockum SWA<br>Columbia Basin SWA<br>Ginkgo Petrified Forest SP<br>LT Murray SWA<br>Spokane BLM<br>Yakima River Canyon ACEC<br>Yakima TC |
| *Pellaea brachyptera*<br>Sierra cliffbrake | G4G5/S2 | Sens | B-Sens<br>F-Sens | Disjunct | Che | EC | RM Cliff, Canyon & Massive Bedrock | Lake Chelan-Sawtooth WA<br>Okanogan-Wenatchee NF |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Pellaea breweri*<br>Brewer's cliffbrake | G5/S2 | Sens | F-Sens | Sparse | Che, Jef, Kin, Ktt, Mas, Oka, Ste | CR, EC, NC, OK, PC | NP Alpine & Subalpine Bedrock & Scree<br>RM Alpine Bedrock & Scree | Alpine Lakes WA<br>Buckhorn WA<br>Enchantment SIA<br>Glacier Peak WA<br>Lake Chelan-Sawtooth WA<br>Mt Baker Snoqualmie NF<br>Okanogan-Wenatchee NF<br>Olympic NF<br>Olympic NP<br>Spokane BLM |
| *Pellaea gastonyi*<br>Gastony's cliffbrake | G3/S1 | Endang | | Periph | Ste | OK | RM Cliff, Canyon & Massive Bedrock | Trombetta Canyon NAP |
| *Penstemon barrettiae*<br>Barrett's beardtongue | G2/S2 | Threat | B-Sens<br>F-Sens | LocEnd | Kli, Skm | EC | RM Cliff, Canyon & Massive Bedrock | Columbia River Gorge NSA<br>Gifford Pinchot NF<br>Klickitat SWA<br>Spokane BLM |
| *Penstemon deustus* var. *variabilis*<br>Hot-rock beardtongue | G5T2/S1 | Endang | | RegEnd | Kli | CP | NRM Lower Montane, Foothill & Valley Grassland | Columbia Hills NAP<br>Columbia River Gorge NSA? |
| *Penstemon eriantherus* var. *whitedii*<br>Whited's fuzzytongue beardtongue | G4G5T2/S2 | Threat | B-Sens<br>F-Sens | RegEnd | Che, Dou, Fra, Gra, Kli, Ktt, Lin, Spo | CP, EC | IMB Cliff & Canyon<br>IMB Semi-Desert Shrub-Steppe<br>RM Cliff, Canyon & Massive Bedrock | Colockum SWA<br>Columbia Basin SWA<br>Entiat Slopes NAP<br>Hanford Reach NM<br>Okanogan-Wenatchee NF<br>Peshastin Pinnacles SP<br>Riverside SP<br>Spokane BLM |
| *Penstemon hesperius*<br>(*P. rydbergii*, misapplied)<br>Tall beardtongue | G1/S1 | Endang | | RegEnd | Clk | PT | NP Lowland Riparian Forest & Shrubland | Lacamas Prairie NAP |
| *Penstemon pennellianus*<br>Blue Mountain beardtongue | G3/S2 | Threat | B-Sens<br>F-Sens | RegEnd | Aso, Col, Gar, Waw? | BM | NRM Lower Montane, Foothill & Valley Grassland | Chief Joseph SWA<br>Fields Spring SP<br>Spokane BLM?<br>Umatilla NF<br>Wenaha-Tucannon WA |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Penstemon washingtonensis*<br>Washington beardtongue | G2/S2 | Threat | | LocEnd | Che, Oka | EC, OK | RM Alpine & Subalpine Bedrock & Scree<br>RM Lodgepole Pine Forest<br>Northern RM Dry-Mesic Montane Mixed Conifer Forest<br>Northern RM Subalpine Woodland & Parkland | Glacier Peak WA<br>Okanogan-Wenatchee NF |
| *Penstemon wilcoxii*<br>Wilcox's beardtongue | G4/S1 | Sens | B-Sens<br>F-Sens | RegEnd | Col, Gra, Oka, Skm, Spo, Wht | BM, CP, OK, WC | NRM Dry-Mesic Montane Mixed Conifer Forest | Columbia Basin SWA<br>Columbia River Gorge NSA<br>Gifford Pinchot NF<br>Okanogan-Wenatchee NF<br>Trapper Creek WA<br>Umatilla NF |
| *Perideridia oregana*<br>Oregon yampah | G4G5/SH | Extirp | | Periph | Skm | WC | NP Montane Massive Bedrock, Cliff, & Talus | Columbia River Gorge NSA |
| *Petrophytum caespitosum* ssp. *caespitosum*<br>Rocky Mountain rockmat | G5T4T5/ S1 | Sens | B-Sens | Periph | Aso | BM | IMB Cliff & Canyon | Grande Ronde ACEC<br>Vale BLM |
| *Petrophytum cinerascens*<br>Chelan rockmat | G1G2/ S1S2 | Endang | B-Sens<br>F-Sens | LocEnd | Che, Dou | CP, EC | IMB Cliff & Canyon | Colockum SWA<br>Earthquake Point ACEC<br>Okanogan-Wenatchee NF<br>Spokane BLM |
| *Petrophytum hendersonii*<br>Henderson's rockmat | G3/S3 | Sens | | LocEnd | Clm, Grh, Jef, Mas | PC | NP Alpine & Subalpine Bedrock & Scree | Colonel Bob WA<br>Mt. Skokomish WA<br>Olympic NF |
| *Phacelia glandulifera*<br>Sticky phacelia | G5/S1 | Sens | | Periph | Ben, Gra | CP | CP Scabland Shrubland | |
| *Phacelia lenta*<br>Sticky phacelia | G2?/S2? | Threat | B-Sens | LocEnd | Dou | CP | IMB Cliff & Canyon | Rock Island Canyon ACEC<br>Spokane BLM |
| *Phacelia minutissima*<br>Least phacelia | G3/S1 | Endang | B-Sens<br>F-Sens | Disjunct | Ktt | EC | RM Alpine-Montane Wet Meadow | Okanogan-Wenatchee NF |
| *Phacelia tetramera*<br>Dwarf phacelia | G4/S1 | Sens | B-Sens<br>F-Sens | Sparse | Dou, Gra | CP | CP Vernal Pool<br>IMB Playa | McCartney Creek Preserve<br>Spokane BLM<br>Sun Lakes SP |
| *Phlox solivaga*<br>Yeti phlox | G1/S1 | Endang | F-Sens | LocEnd | Col, Gar, Waw? | BM | NRM Subalpine-Upper Montane Grassland | Asotin Creek SWA<br>Pataha Bunchgrass RNA<br>Spokane BLM?<br>Umatilla NF<br>Wenaha-Tucannon WA |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Physaria didymocarpa* ssp. *didymocarpa*<br>Common twinpod | G5T4/SH | Extirp | | Periph | Ste | OK | RM Cliff, Canyon & Massive Bedrock? | |
| *Physaria douglasii* ssp. *tuplashensis*<br>(*Lesquerella tuplashensis*)<br>White Bluffs bladderpod | G5T1Q/ S1 | Endang | Threat | LocEnd | Fra, Gra | CP | IMB Cliff & Canyon<br>IMB Semi-Desert Shrub-Steppe | Columbia Basin SWA<br>Hanford Reach NM |
| *Pilularia americana*<br>American pillwort | G4?/S2 | Sens | B-Sens | Disjunct | Ada, Lin, Spo | CP | CP Vernal Pool | Fairchild AFB<br>Marcellus Shrub Steppe NAP<br>Spokane BLM<br>Swanson Lakes SWA<br>Turnbull NWR |
| *Pinus albicaulis*<br>Whitebark pine | G3G4/S3 | Sens | Threat | Widesp | Che, Clm, Fer, Jef, Kin, Kli, Ktt, Lew, Oka, Peo, Pie, Skg, Skm, Sno, Ste, Whc, Yak | CR, EC, NC, OK, PC, WC | NP Mountain Hemlock Forest<br>NRM Subalpine Woodland & Parkland<br>RM Subalpine Dry-Mesic Spruce-Fir Forest & Woodland | Alpine Lakes WA<br>Boston Glacier RNA<br>Buckhorn WA<br>Butter Creek RNA<br>Chopaka Mountain NAP<br>Colville NF<br>Eldorado Creek NAP<br>Gifford Pinchot NF<br>Glacier Peak WA<br>Goat Rocks WA<br>Henry M. Jackson WA<br>Mt Adams WA<br>Mt. Baker WA<br>Mt Baker-Snoqualmie NF<br>Mt Rainier NP<br>Norse Peak WA<br>North Cascades NP<br>Okanogan-Wenatchee NF<br>Olympic NF<br>Olympic NP<br>Pasayten WA<br>Ross Lake NRA<br>William O. Douglas WA |
| *Pityopus californicus*<br>Pine-foot | G4G5/S1 | Extirp | | Disjunct | Pie | PT | NP Maritime Mesic-Wet Douglas-fir-Western Hemlock Forest | JB Lewis-McChord |
| *Plantago macrocarpa*<br>Alaska plantain | G4/S2 | Sens | | Periph | Clm, Grh, Jef | PC | NP Bog & Fen<br>TP Freshwater Emergent Marsh | Clearwater Bogs NAP<br>Olympic NP |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Platanthera chorisiana*<br>(*Habenaria chorisiana*)<br>Choriso's bog-orchid | G4/S2 | Sens | B-Sens<br>F-Sens | Periph | Kin, Sno | NC | NP Bog & Fen | Boulder River WA<br>Henry M. Jackson WA<br>Morning Star NRCA<br>Mt. Baker-Snoqualmie NF |
| *Plectritis brachystemon*<br>(*P. congesta* ssp. *brachystemon*)<br>Short-spurred plectritis | G5?/S1? | Sens | F-Sens | Sparse | Clm. Grh, Isl, Kli, Mas, Saj, Skg, Skm | EC, PC, PT, WC | NP Herbaceous Bald & Bluff<br>WV Upland Prairie & Savanna | Anacortes CF<br>Columbia River Gorge NSA<br>Conboy Lake NWR<br>Deception Pass SP<br>Elwha SWA<br>Fort Casey SP<br>Gifford Pinchot NF<br>Olympic NF<br>Olympic NP<br>Trout Lake NAP? |
| *Poa curtifolia*<br>*Little Mountain bluegrass* | G2/S2 | Threat | | LocEnd | Che, Ktt, Oka | EC | NP Serpentine Barren | Alpine Lakes WA<br>Okanogan-Wenatchee NF |
| *Poa laxiflora*<br>Lax-flower bluegrass | G4G5/<br>S2S3 | Sens | F-Sens | Sparse | Clm, Cow, Grh, Jef, Lew, Pac, Whk | PC, PT | NP Lowland Riparian Forest & Shrubland | Olympic NF<br>Olympic NP |
| *Poa unilateralis* ssp. *pachypholis*<br>Sea-bluff bluegrass | G4TNR [T2?]/S1 | Endang | | RegEnd | Pac | PC | NP Coastal Cliff & Bluff | Cape Disappointment SP |
| *Polemonium carneum*<br>Salmon Jacob's-ladder | G3G4/S2 | Threat | B-Sens<br>F-Sens | RegEnd | Clm, Clk, Grh, Lew, Pac, Skm, Thu | PC, PT, WC | NP Dry Douglas-fir Forest & Woodland<br>NP Herbaceous Bald & Bluff<br>NP Maritime Dry-Mesic Douglas-fir-Western Hemlock Forest<br>WV Upland Prairie & Savanna | Columbia River Gorge NSA<br>Olympic NP |
| *Polemonium pectinatum*<br>Washington Jacob's-ladder | G2/S2 | Threat | B-Sens | RegEnd | Ada, Lin, Spo, Wht | CP | CB Foothill Riparian Woodland & Shrubland<br>IMB Big Sagebrush Steppe<br>NA Arid West Emergent Marsh<br>NCP Basalt Pothole Ponds | Coal Creek ACEC<br>Spokane BLM |
| *Polemonium viscosum*<br>Sticky sky-pilot | G5/S2 | Sens | B-Sens<br>F-Sens | Periph | Oka | OK | RM Alpine Bedrock & Scree | Lake Chelan-Sawtooth WA<br>Okanogan-Wenatchee NF<br>Pasayten WA |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Polyctenium fremontii*<br>Fremont's combleaf | G4/S1 | Sens | B-Sens | Disjunct | Gra | CP | CP Vernal Pool | Spokane BLM |
| *Polygonum austiniae*<br>(*P. douglasii* ssp. *austiniae*)<br>Austin's knotweed | G4/S1 | Sens | F-Sens | Sparse | Col, Gar, Gra, Spo, Yak | BM, CP, EC | CP Scabland Shrubland<br>NRM Subalpine-Upper Montane Grassland | Okanogan-Wenatchee NF<br>Sun Lakes SP<br>Umatilla NF |
| *Polygonum parryi*<br>Parry's knotweed | G4/S1 | Sens | | Periph | Kli | EC | NRM Wooded Vernal Pool | Conboy Lake NWR<br>Trout Lake NAP |
| *Polystichum californicum*<br>California swordfern | G4/S1 | Sens | B-Sens<br>F-Sens | Sparse | Pie, Skm, Thu | WC | NP Montane Massive Bedrock, Cliff, & Talus | Bald Hill NAP<br>Gifford Pinchot NF<br>Mt St. Helens NVM |
| *Potamogeton obtusifolius*<br>Blunt-leaved pondweed | G5/S2 | Sens | F-Sens | Sparse | Jef, Mas, Oka, Saj, Skg, Skm, Thu | NC, OK, PT, WC | TP Freshwater Aquatic Bed | Gifford Pinchot NF<br>Sinlahekin SWA |
| *Potentilla breweri*<br>(*P. drummondii* ssp. *breweri*)<br>Brewer's cinquefoil | G4G5/S1 | Sens | B-Sens<br>F-Sens | Sparse | Clm, Ktt, Lew, Yak | EC, PC, WC | NP Alpine & Subalpine Dry Grassland<br>NRM Subalpine-Montane Mesic Meadow<br>RM Cliff, Canyon & Massive Bedrock | Gifford Pinchot NF<br>Goat Rocks WA<br>Okanogan-Wenatchee NF<br>Olympic NP |
| *Potentilla jepsonii* var. *kluanensis*<br>(*P. pensylvanica* var. *ovium*)<br>Kluane cinquefoil | G4G5 TNR [T3T4]/S1 | Sens | | Periph | Oka | OK | RM Alpine Bedrock & Scree | Chopaka Mountain NAP |
| *Potentilla newberryi*<br>Newberry's cinquefoil | G3G4/SX | Extirp | | Periph | Kli, Waw | CP, EC | NA Arid West Emergent Marsh | Columbia River Gorge NSA? |
| *Potentilla nivea*<br>Snowy cinquefoil | G5/S2 | Sens | B-Sens<br>F-Sens | Periph | Oka | OK | RM Alpine Bedrock & Scree<br>RM Alpine Dwarf-Shrubland, Fell-Field, & Turf | Lake Chelan-Sawtooth WA<br>Chopaka Mountain NAP<br>Okanogan-Wenatchee NF<br>Pasayten WA |
| *Primula austrofrigidum*<br>Frigid shootingstar | G2/S1 | Endang | B-Sens<br>F-Sens | RegEnd | Grh, Pac | PC | NP Montane Massive Bedrock, Cliff, & Talus | Colonel Bob WA<br>Olympic NF |
| *Pulsatilla nuttalliana*<br>Pasqueflower | G5T5/S1 | Sens | B-Sens<br>F-Sens | Periph | Che | EC | NRM Dry-Mesic Montane Mixed Conifer Forest | Colockum SWA<br>Okanogan-Wenatchee NF |
| *Pyrrocoma hirta* var. *sonchifolia*<br>(*Haplopappus hirtus* var. *s.*)<br>Hairy goldenweed | G4G5T3/S2 | Threat | B-Sens<br>F-Sens | RegEnd | Ktt | EC | NRM Lower Montane, Foothill & Valley Grassland | LT Murray SWA<br>Okanogan-Wenatchee NF |
| *Pyrrocoma liatriformis*<br>(*Haplopappus liatriformis*)<br>Smallhead goldenweed | G2/S2 | Threat | | RegEnd | Spo, Wht | CP | CB Palouse Prairie | Campus Prairie BSA<br>Kramer Palouse BSA<br>Smoot Hill BSA<br>Steptoe Butte NA<br>Steptoe Butte SP |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Pyrrocoma scaberula*<br>(*Haplopappus scaberulus*)<br>Palouse goldenweed | G2/S1 | Endang | B-Sens<br>F-Sens | RegEnd | Aso | BM, CP | CB Foothill & Canyon Dry Grassland<br>NRM Ponderosa Pine Woodland & Savanna | Chief Joseph SWA<br>Fields Spring SP<br>Grande Ronde ACEC<br>Umatilla NF<br>Vale BLM |
| *Ranunculus californicus*<br>California buttercup | G5/S1 | Sens | B-Sens | Periph | Saj | PT | NP Hypermaritime Shrub & Herbaceous Headland<br>WV Upland Prairie & Savanna | Iceberg Island SP<br>Iceberg Point ACEC<br>San Juan Islands NWR<br>Spokane BLM |
| *Ranunculus hebecarpus*<br>Downy buttercup | G5/S1 | Sens | | Periph | Ada, Gar?, Kli, Wht | CP, EC | M Basalt Flow Vernal Pool | Columbia Hills Historical SP<br>Columbia River Gorge NSA<br>Spokane BLM |
| *Ranunculus populago*<br>Mountain buttercup | G4/S2 | Sens | B-Sens<br>F-Sens | Sparse | Col, Gar, Pie | BM, NC | RM Alpine-Montane Wet Meadow | Gifford Pinchot NF<br>Glacier View WA<br>Umatilla NF<br>Wenaha-Tucannon WA |
| *Ranunculus triternatus*<br>(*R. glaberrimus* var. *reconditus, R. reconditus*)<br>Obscure buttercup | G2/ S1S2 | Endang | B-Sens<br>F-Sens | LocEnd | Kli | CP, EC | EC Oak-Ponderosa Pine Forest & Woodland<br>NRM Lower Montane, Foothill & Valley Grassland | Columbia Hills Historical SP<br>Columbia Hills NAP<br>Columbia River Gorge NSA<br>Klickitat SWA<br>Spokane BLM |
| *Ribes cereum* var. *colubrinum*<br>Snake wax currant | G5T3/S1 | Endang | B-Sens<br>F-Sens | RegEnd | Aso | BM, CP | CB Foothill & Canyon Dry Grassland<br>RM Subalpine-Montane Mesic Meadow | Asotin Creek SWA<br>Grande Ronde ACEC<br>Vale BLM |
| *Ribes oxyacanthoides* var. *irriguum*<br>Idaho gooseberry | G5T4/S2 | Sens | B-Sens<br>F-Sens | RegEnd | Aso, Spo?, Wht? | BM, CP | CB Foothill & Canyon Dry Grassland<br>RM Lower Montane Riparian Woodland & Shrubland | Chief Joseph SWA<br>Fields Spring SP<br>Umatilla NF |
| *Ribes wolfii*<br>Wolf's currant | G4/S2 | Sens | F-Sens | Periph | Aso, Gar | BM | NRM Subalpine-Upper Montane Grassland | Umatilla NF |
| *Rorippa columbiae*<br>Columbia yellowcress | G3/S1S2 | Threat | B-Sens<br>F-Sens | RegEnd | Ben, Fra, Kli, Skm | CP, EC, WC | NA Arid West Emergent Marsh<br>TP Freshwater Mudflat | Beacon Rock SP<br>Columbia Basin SWA<br>Columbia River Gorge NSA<br>Hanford Reach NM<br>McNary NWR<br>Pierce Island NWR<br>Pierce Island Preserve<br>Spokane BLM<br>Yakima and Columbia River Islands ACEC |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Rubus arcticus* ssp. *acaulis*<br>Nagoonberry | G5T5/S1 | Sens | B-Sens<br>F-Sens | Periph | Oka | OK | RM Subalpine-Montane Fen<br>RM Subalpine-Montane Riparian Woodland | Okanogan-Wenatchee NF<br>Roger Lake RNA |
| *Rubus nigerrimus*<br>Northwest raspberry | G2/S2 | Threat | B-Sens | LocEnd | Aso, Gar, Wht | BM, CP | CB Foothill & Canyon Dry Grassland<br>RM Lower Montane Riparian Woodland & Shrubland | Grande Ronde ACEC?<br>Vale BLM? |
| *Sabulina basaltica*<br>Olympic Mountain sandwort | G2/S2 | Threat | F-Sens | LocEnd | Clm, Jef | PC | NP Alpine & Subalpine Bedrock & Scree | Buckhorn WA<br>Olympic NF<br>Olympic NP |
| *Sabulina nuttallii* var. *fragilis*<br>(*Minuartia nuttallii* var. *fragilis*)<br>Nuttall's sandwort | G5T4/S1 | Sens | B-Sens | Periph | Ben, Gra, Ktt | CP | IMB Cliff & Canyon | Columbia NWR<br>McCoy Canyon ACEC<br>Sentinel Slopes ACEC<br>Spokane BLM<br>Yakima TC |
| *Sabulina pusilla*<br>(*Minuartia pusilla*)<br>Dwarf sandwort | G3G5/S1 | Sens | | Sparse | Ben, Gra, Kli, Spo, Waw, Wht | CP, EC | CP Scabland Shrubland | Columbia River Gorge NSA<br>Hanford Reach NM |
| *Sabulina sororia*<br>Twin Sisters sandwort | G1/S1 | Endang | F-Sens | LocEnd | Whc | NC | NP Serpentine Barren | Mt. Baker WA<br>Mt. Baker-Snoqualmie NF |
| *Salix candida*<br>Hoary willow | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Peo, Ste | CR | RM Subalpine-Montane Fen | Colville NF<br>Halliday Fen RNA |
| *Salix glauca* var. *villosa*<br>Gray willow | G5T5/<br>S1S2 | Sens | B-Sens<br>F-Sens | Periph | Oka | OK | RM Alpine Dwarf-Shrubland, Fell-Field, & Turf<br>RM Subalpine-Montane Riparian Shrubland | Okanogan-Wenatchee NF<br>Pasayten WA<br>Roger Lake RNA |
| *Salix maccalliana*<br>MacCalla's willow | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Oka, Peo, Ste | CR, OK | RM Subalpine-Montane Fen | Colville NF<br>Halliday Fen RNA<br>Sinlahekin SWA |
| *Salix pseudomonticola*<br>False mountain willow | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Che, Peo | CR, EC | RM Subalpine-Montane Fen | Alpine Lakes WA<br>Colville NF<br>Halliday Fen RNA<br>Okanogan-Wenatchee NF |
| *Salix sessilifolia*<br>Soft-leaved willow | G4?/S2 | Sens | | RegEnd | Clk, Cow, Kli, Skg, Whc, Whk | EC, PC, PT | NP Intertidal Freshwater Wetland<br>NP Lowland Riparian Forest & Shrubland<br>TP Freshwater Mudflat | Columbia River Gorge NSA<br>Ridgefield NWR |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Salix vestita*<br>Rock willow | G5/SH | Extirp | | Periph | Che, Whc | EC, NC | RM Alpine Dwarf-Shrubland, Fell-Field, & Turf | Alpine Lakes WA<br>Enchantment SIB<br>Mt. Baker WA<br>Mt. Baker-Snoqualmie NF<br>Okanogan-Wenatchee NF |
| *Samolus parviflorus*<br>(*S. valerandi* ssp. *p.*)<br>Seaside brookweed | G5/S1 | Sens | | Disjunct | Whk | PC | NP Intertidal Freshwater Wetland | |
| *Sandbergia perplexa*<br>(*Halimolobos perplexa* var. *p.*)<br>Puzzling halimolobos | G4/S1 | Sens | | Disjunct | Dou | CP | CP Scabland Shrubland | Sagebrush Flat SWA |
| *Sanguisorba menziesii*<br>Menzies' burnet | G3G4/S2 | Threat | | Periph | Clm, Grh? | PC | NP Bog & Fen | Carlisle Bog NAP?<br>Olympic NP |
| *Sanicula arctopoides*<br>Bear's-foot sanicle | G5/S1 | Sens | B-Sens | Sparse | Grh, Pac, Saj | PC, PT | NP Coastal Cliff & Bluff<br>NP Maritime Coastal Sand Dune & Strand | Leadbetter Point SP?<br>Pacific Pines SP?<br>Point Colville ACEC<br>San Juan Islands NM<br>San Juan Islands NWR<br>Spokane BLM<br>Turn Island SP |
| *Saxifraga cernua*<br>Nodding saxifrage | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Che, Oka | EC, OK | RM Alpine Dwarf-Shrubland, Fell-Field, & Turf | North Cascades NP<br>Okanogan-Wenatchee NF<br>Pasayten WA |
| *Saxifraga hyperborea*<br>(*Saxifraga debilis, S. rivularis*)<br>Pygmy saxifrage | G5/S3 | Sens | | Sparse | Che, Clm, Jef, Oka, Pie, Skg, Sno, Whc | EC, NC, OK, PC, WC | NP Alpine & Subalpine Bedrock & Scree<br>RM Alpine Bedrock & Scree | Buckhorn WA<br>Chopaka Mountain NAP<br>Glacier Peak WA<br>Lake Chelan NRA<br>Lake Chelan-Sawtooth WA<br>Mt. Baker WA<br>Mt. Baker-Snoqualmie NF<br>Mt. Rainier NP<br>North Cascades NP<br>Okanogan-Wenatchee NF<br>Olympic NF<br>Olympic NP<br>Pasayten WA<br>Ronald J. Taylor RNA<br>Silver Lake RNA |
| *Saxifragopsis fragarioides*<br>(*Saxifraga fragarioides*)<br>Strawberry saxifrage | G3?/S2 | Threat | B-Sens<br>F-Sens | Disjunct | Che | EC | RM Cliff, Canyon & Massive Bedrock | Alpine Lakes WA<br>Okanogan-Wenatchee NF |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Schizachyrium scoparium* var. *scoparium*<br>Little bluestem | G5T5/S1 | Sens | B-Sens | Disjunct | Che, Dou, Gra, Ste | CP, CR, EC | NA Arid West Emergent Marsh | Spokane BLM |
| *Schoenoplectus saximontanus*<br>Rocky Mountain bulrush | G5/S1 | Sens | | Sparse | Spo | CP | IMB Alkaline Closed Depression | Turnbull NWR |
| *Sclerolinon digynum*<br>Yellow hard flax | G5/S2 | Sens | | Periph | Spo, Wht | CP | CP Vernal Pool<br>IMB Alkaline Closed Depression | Fairchild AFB<br>Turnbull NWR |
| *Scribneria bolanderi*<br>Scribner's grass | G4/S1 | Sens | B-Sens<br>F-Sens | Periph | Kli, Skm | EC | CP Vernal Pool | Columbia Hills Historical SP<br>Columbia River Gorge NSA<br>Gifford Pinchot NF |
| *Senecio neowebsteri*<br>Olympic Mountain groundsel | G1/S1 | Endang | | LocEnd | Clm, Jef | PC | NP Dry & Mesic Alpine Dwarf-Shrubland, Fell-Field & Meadow | Olympic NP<br>Olympic NF |
| *Sericocarpus oregonensis* ssp. *oregonensis*<br>(*Aster oregonensis*)<br>Oregon white-top aster | G5T3T4/ S1 | Endang | B-Sens<br>F-Sens | RegEnd | Skm | EC, WC | NRM Foothill Conifer Wooded Steppe<br>NRM Ponderosa Pine Woodland & Savanna | Columbia River Gorge NSA |
| *Sericocarpus rigidus*<br>(*Aster curtus*)<br>Columbia white-topped aster | G3/S3 | Sens | B-Sens<br>F-Sens | RegEnd | Grh, Isl, Kin, Pie, Saj, Thu | PC, PT | WV Upland Prairie & Savanna | Glacial Heritage Preserve<br>Iceberg Point ACEC<br>JB Lewis-McChord<br>Mima Mounds NAP<br>Rocky Prairie NAP<br>Scatter Creek SWA<br>Spokane BLM<br>West Rocky Prairie SWA |
| *Sidalcea hirtipes*<br>Hairy-stemmed checkermallow | G2/S2 | Threat | B-Sens<br>F-Sens | RegEnd | Clk, Lew, Whk | PC, PT, WC | WV Upland Prairie & Savanna | Gifford Pinchot NF |
| *Sidalcea nelsoniana*<br>Nelson's checkermallow | G2G3/S1 | Endang | Delist'd in 2023 | RegEnd | Clk, Cow, Lew | PC, PT | WV Wet Prairie | Ridgefield NWR<br>Steigerwald Lake NWR |
| *Sidalcea oregana* var. *calva*<br>Wenatchee Mountains checkermallow | GNRT1/ S1 | Endang | Endang | LocEnd | Che, Ktt? | EC | RM Alpine-Montane Wet Meadow | Camas Meadows NAP<br>Colockum SWA?<br>Okanogan-Wenatchee NF |
| *Sidalcea virgata*<br>(*S. malviflora* ssp. *virgata*)<br>Rose checkermallow | GNR/S1 | Sens | | RegEnd | Thu | PT | WV Upland Prairie & Savanna | Scatter Creek SWA |
| *Silene douglasii* var. *rupinae*<br>Douglas's catchfly | G5TNR/ S1 | Endang | | | Che, Ska | EC | NRM Dry-Mesic Montane Mixed Conifer Forest | Beacon Rock SP<br>Okanogan-Wenatchee NF |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Silene scouleri* ssp. *scouleri*<br>Scouler's catchfly | G5T3T5/ S1 | Sens | B-Sens<br>F-Sens | Sparse | Che, Clm, Fer, Gar, Isl, Pie, Spo, Ste, Thu, Wht, Yak | BM, CP, CR, EC, OK, PT | NP Herbaceous Bald & Bluff<br>NRM Lower Montane, Foothill & Valley Grassland<br>WV Upland Prairie & Savanna | Asotin Creek SWA<br>Colville NF<br>JB Lewis-McChord<br>Okanogan-Wenatchee NF<br>Steptoe Butte SP<br>William O. Douglas WA |
| *Silene seelyi*<br>Seely's catchfly | G3/S3 | Sens | B-Sens<br>F-Sens | LocEnd | Che, Ktt | EC | NP Serpentine Barren<br>RM Cliff, Canyon & Massive Bedrock | Alpine Lakes WA<br>Enchantment SIB<br>Lake Chelan NRA<br>North Cascades NP<br>Okanogan-Wenatchee NF<br>Tumwater SIB |
| *Silene spaldingii*<br>Spalding's catchfly | G2/S2 | Threat | Threat | RegEnd | Ada, Aso, Gar, Lin, Spo, Wht | BM, CP, CR | CB Foothill & Canyon Dry Grassland<br>CB Palouse Prairie<br>IMB Big Sagebrush Steppe | Asotin Creek SWA<br>Campus Prairie BSA<br>Coal Creek ACEC<br>Fairchild AFB<br>Kramer Palouse BSA<br>Nez Perce NHP<br>Smoot Hill BSA<br>Spokane BLM<br>Steptoe Butte NA<br>Steptoe Butte SP<br>Swanson Lakes SWA<br>Turnbull NWR<br>Umatilla NF |
| *Sisyrinchium montanum* var. *montanum*<br>Strict blue-eyed grass | G5T5/S1 | Sens | B-Sens<br>F-Sens | Periph | Dou, Peo | CP, CR | CP Vernal Pool?<br>RM Alpine-Montane Wet Meadow | Colville NF<br>Kaniksu NF?<br>Spokane BLM |
| *Sisyrinchium sarmentosum*<br>Pale blue-eyed grass | G2/S2 | Threat | B-Sens<br>F-Sens | LocEnd | Kli, Skm | EC, WC | RM Alpine-Montane Wet Meadow<br>TP Subalpine-Montane Wet Meadow | Columbia River Gorge NSA<br>Conboy Lake NWR?<br>Gifford Pinchot NF<br>Trout Lake NAP |
| *Sisyrinchium septentrionale*<br>Northern blue-eyed grass | G4/S3 | Sens | | Periph | Fer, Oka, Peo, Ste | CR, OK | NRM Subalpine-Upper Montane Grassland<br>RM Alpine-Montane Wet Meadow | Colville NF<br>Little Pend Oreille NWR<br>Okanogan-Wenatchee NF<br>Spokane BLM |
| *Sparganium fluctuans*<br>Floating-leaved bur-reed | G5/S1 | Sens | | Periph | Clm | PC | TP Freshwater Aquatic Bed | Olympic NP |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Spartina pectinata*<br>(*Sporobolus michauxianus*)<br>Prairie cordgrass | G5/S2 | Sens | B-Sens<br>F-Sens | Sparse | Aso, Dou, Fra, Gar, Gra, Peo, Spo, Waw, Wht | BM, CP, CR, OK | NA Arid West Emergent Marsh<br>NCP Basalt Pothole Ponds | Chief Joseph SWA<br>Colville NF<br>Grande Ronde ACEC<br>Little Pend Oreille NWR<br>McNary NWR<br>Palouse Falls SP<br>Riverside SP<br>Vale BLM<br>Wells SWA |
| *Spiranthes diluvialis*<br>Ute ladies'-tresses | G2G3/S1 | Endang | Threat;<br>Prop'd delist | Sparse | Che, Dou, Gra, Oka | CP, EC, OK | CB Foothill Riparian Woodland & Shrubland<br>IMB Alkaline Closed Depression<br>NA Arid West Emergent Marsh | Chelan County PUD<br>Chelan SWA<br>Grant County PUD<br>Spokane BLM |
| *Spiranthes porrifolia*<br>(*S. romanzoffiana* var. *p.*)<br>Western ladies'-tresses | G4/S2 | Sens | B-Sens<br>F-Sens | Sparse | Che, Clk, Kli, Ktt, Lin, Oka, Skm | CP, EC, OK, PT, WC | CB Foothill Riparian Woodland & Shrubland<br>M Basalt Flow Vernal Pool<br>NCP Basalt Pothole Ponds<br>WV Wet Prairie | Columbia Hills Historical SP<br>Columbia River Gorge NSA<br>Klickitat SWA<br>Lake Chelan-Sawtooth WA<br>Okanogan-Wenatchee NF<br>Pasayten WA |
| *Sullivantia oregana*<br>Oregon sullivantia | G2/S1 | Endang | B-Sens<br>F-Sens | LocEnd | Skm | WC | NP Montane Massive Bedrock, Cliff, & Talus | Beacon Rock SP<br>Columbia Falls NAP<br>Columbia River Gorge NSA |
| *Swertia perennis*<br>Swertia | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Che, Sno | EC, NC | NP Bog & Fen<br>RM Alpine-Montane Wet Meadow<br>RM Subalpine-Montane Fen<br>TP Subalpine-Montane Wet Meadow | Glacier Peak WA<br>Henry M. Jackson WA<br>Mt. Baker-Snoqualmie NF<br>Okanogan-Wenatchee NF |
| *Symphyotrichum boreale*<br>(*Aster borealis*)<br>Rush aster | G5/S1 | Sens | F-Sens | Periph | Peo, Pie, Saj, Ste | CR, PT | NP Bog & Fen<br>RM Subalpine-Montane Fen | Colville NF<br>Killebrew Lake NAP |
| *Symphyotrichum hallii*<br>(*Aster hallii*)<br>Hall's aster | G4/S2 | Sens | | RegEnd | Clk, Lew, Thu | PT | WV Upland Prairie & Savanna | JB Lewis-McChord<br>Scatter Creek SWA<br>West Rocky Prairie SWA |
| *Symphyotrichum jessicae*<br>(*Aster jessicae*)<br>Jessica's aster | G2/S1S2 | Endang | | RegEnd | Spo, Wht | CP | CB Palouse Prairie<br>NRM Lower Montane, Foothill & Valley Grassland | Rose Creek Preserve<br>Turnbull NWR |
| *Thelypodium howellii* ssp. *howellii*<br>Howell's thelypody | G1T1/SH | Extirp | | RegEnd | Yak | CP | IMB Alkaline Closed Depression | |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Thelypodium sagittatum* ssp. *sagittatum*<br>Slender thelypody | G4T4/S1 | Sens | B-Sens | Disjunct | Dou, Gra, Lin | CP | IMB Alkaline Closed Depression<br>IMB Big Sagebrush Steppe | Spokane BLM<br>Steamboat Rock SP |
| *Trifolium douglasii*<br>Douglas' clover | G3/S1 | Endang | B-Sens<br>F-Sens | RegEnd | Aso, Gar, Wht | BM, CP | NA Arid West Emergent Marsh<br>RM Alpine-Montane Wet Meadow | Umatilla NF |
| *Trifolium plumosum* var. *plumosum*<br>Plumed clover | G4T4/SH | Extirp | | RegEnd | Waw | BM | NRM Lower Montane, Foothill & Valley Grassland | |
| *Trifolium thompsonii*<br>Thompson's clover | G2/S2 | Threat | B-Sens<br>F-Sens | LocEnd | Che, Dou | CP, EC | NRM Ponderosa Pine Woodland & Savanna | Colockum SWA<br>Entiat Slopes NAP<br>Keystone Point ACEC<br>Okanogan-Wenatchee NF<br>Spokane BLM<br>Thompson Clover RNA |
| *Triglochin palustris*<br>Marsh arrowgrass | G5/S1 | Sens | F-Sens | Periph | Oka, Peo, Ste | CR, OK | RM Subalpine-Montane Fen | Colville NF<br>Halliday Fen RNA<br>Okanogan-Wenatchee NF |
| *Trillium albidum* ssp. *parviflorum*<br>(*T. parviflorum*)<br>Small-flowered trillium | G4G5 T2T3/ S2S3 | Sens | | RegEnd | Clk, Lew, Pie, Thu | PC, PT, WC | NP Lowland Riparian Forest & Shrubland<br>WV Wet Prairie | Bald Hill NAP<br>Blackwater Islands RNA<br>Columbia River Gorge NSA<br>Glacial Heritage Preserve<br>JB Lewis-McChord<br>Lacamas Prairie NAP<br>Ridgefield NWR<br>Scatter Creek SWA<br>Washougal Oaks NAP/NRCA<br>West Rocky Prairie SWA<br>Willapa Hills SP |
| *Utricularia intermedia*<br>Flat-leaved bladderwort | G5/S2S3 | Sens | B-Sens<br>F-Sens | Sparse | Clm, Kin, Kli, Peo, Skm, Sno | CR, EC, NC, PC, PT, WC | NA Arid West Emergent Marsh<br>RM Subalpine-Montane Fen<br>TP Freshwater Aquatic Bed | Conboy Lake NWR<br>Gifford Pinchot NF<br>Olympic NP<br>Snoqualmie Bog NAP |
| *Vaccinium myrtilloides*<br>Velvet-leaf blueberry | G5/S1 | Sens | B-Sens<br>F-Sens | Periph | Oka | OK | RM Subalpine Mesic-Wet Spruce-Fir Forest & Woodland | Okanogan-Wenatchee NF |
| *Veratrum insolitum*<br>Siskiyou false hellebore | G3/S1 | Endang | | RegEnd | Kli | EC | NP Alpine & Subalpine Dry Grassland<br>NRM Dry-Mesic Montane Mixed Conifer Forest | Columbia River Gorge NSA |

| Species<br>Common Name | Heritage Rank | State Status | Federal Status | Dist. Pattern | County | Eco-region | Ecological System | Managed Area |
|---|---|---|---|---|---|---|---|---|
| *Veronica dissecta* ssp. *lanuginosa*<br>(*S. lanuginosa, S, pinnatifida* var. *lanuginosa*)<br>Woolly kittentails | G4T2/S2 | Threat | B-Sens<br>F-Sens | RegEnd | Clm, Jef | PC | NP Dry & Mesic Alpine Dwarf-Shrubland, Fell-Field & Meadow | Buckhorn SIB<br>Buckhorn WA<br>Olympic NF<br>Olympic NP |
| *Veronica schizantha*<br>(*Synthyris schizantha*)<br>Fringed kittentails | G2/S1 | Endang | F-Sens | RegEnd | Grh, Lew | PC, WC | NP Montane Massive Bedrock, Cliff, & Talus | Colonel Bob WA<br>Gifford Pinchot NF<br>Mt Baker Snoqualmie NF<br>Olympic NF<br>Olympic NP? |
| *Viola flettii*<br>Olympic violet | G1/S1 | Endang | | LocEnd | Clm, Jef | PC | NP Alpine & Subalpine Bedrock & Scree | Olympic NP<br>Olympic NF |
| *Whipplea modesta*<br>Whipplevine | G4/S1 | Sens | | Periph | Clm, Thu | PC, PT | NP Herbaceous Bald & Bluff | Olympic NP |
| *Woodwardia fimbriata*<br>Giant chainfern | G5/S2 | Sens | | Sparse | Jef, Ktp, Mas, Pie, Thu | PC, PT | NP Intertidal Freshwater Wetland<br>NP Lowland Riparian Forest & Shrubland | Blake Island SP<br>Hamma Hamma Balds NAP<br>Joemma Beach SP<br>Olympic NF |
| *Wyethia angustifolia*<br>Narrow-leaf mule's-ears | G4/S1 | Sens | | Periph | Clk, Kli, Lew, Thu | EC, PT | WV Upland Prairie & Savanna | Columbia River Gorge NSA<br>Lacamas Prairie NAP<br>Scatter Creek SWA |
| *Zeltnera muehlenbergii*<br>(*Centaurium muehlenbergii*)<br>Monterey centaury | G5?/S1 | Sens | | Sparse | Kli, Ktt, Spo, Thu | CP, EC, WC | RM Alpine-Montane Wet Meadow<br>TP Subalpine-Montane Wet Meadow | Bald Hill NAP<br>Conboy Lake NWR?<br>Klickitat SWA (E Simcoes Unit)<br>Turnbull NWR |

## Acknowledgments

Thanks to the following individuals for contributing new data and recommendations on species ranks: Carlo Abbruzzese, Rose Agbalog, Ed Alverson, Joe Arnett, Laurel Baldwin, Susan Ballinger, Cheryl Bartlett, Ryan Batten, Katy Beck, Matt Below, Laura Blomfield, Molly Boyter, Bec Braisted, Tom Brannon, Karen Brimacombe, Paula Brooks, Tom Brumbelow, Keyna Bugner, Janet Burcham, Amy Cabral, Tara Callaway, Gabriel Campbell, Sarah Canman, Kimberly Carlson, Mickie Chamness, Alex Chmielewski, Janet Coles, Kelli Cordell, Mark Darrach, Nate Dietrich, Peter Dunwiddie, Rich Dwelkotte, Tatiana Dreisbach, Richard Easterly, Mark Egger, Clint Emerson, Kathleen Foley, Joan Frazee, Kim Frymire, Wendy Gibble, David Giblin, Rod Gilbert, Bridget Glass, Ann Gray, Erica Heinlen, Carol Hughes, Beau Johnson, Heidi Jump, Stacy Kinsell, Sarah Krock, Linda Kunze, Helen Lau, Ben Legler, Joe LeMoine, Peter Lesica, Ed Lisowski, Larry Loftis, Michael Lowry, Lauri Malmquist, Danielle Marshall, Amber Martens, Adam Martin, Stacy McDonough, Kelli Van Norman, Emily Orling, Von Pope, Tynan Ramm-Granberg, Bridgette Ranne, Randi Riggs, Allison Rossman, Joe Rocchio, Kayla Saager, Debra Salstrom, Sarah Shank, Mark Sheehan, Paul Slichter, Kathleen Smayda, Pene Speaks, Nick Teague, George Thornton, Andrea Thorpe, Ron Tressler, Jenny von Reis, Dana Visalli, Ann Weinmann, Fred Weinmann, Barry Wendling, Ariel Whitacre, David Wilderman, David Woodall, Alex Wright, Carolyn Wright, and Peter Zika. Special thanks to all the UW RareCare staff and volunteers (40 or more dedicated community scientists) for contributing data. Jasa Holt, database specialist with the WNHP, assisted with data entry and editing. Jake Kleinknecht, formerly of WNHP, created the state map in Figure 1. To any other contributors we have omitted, please accept our apologies, and thank you!

Energy Policy 62 (2013) 1329–1335

Contents lists available at ScienceDirect

Energy Policy

journal homepage: www.elsevier.com/locate/enpol

# Blame the exurbs, not the suburbs: Exploring the distribution of greenhouse gas emissions within a city region

Jeffrey Wilson [a,*], Jamie Spinney [b], Hugh Millward [b], Darren Scott [c], Anders Hayden [d], Peter Tyedmers [e,a]

[a] College of Sustainability, Dalhousie University, 1459 LeMarchant Street, Halifax NS, Canada
[b] Department of Geography, Saint Mary's University, 923 Robie Street, Halifax, NS, Canada
[c] TransLAB (Transportation Research Lab), School of Geography and Earth Sciences, McMaster University, 1280 Main Street West, Hamilton, ON, Canada
[d] Department of Political Science, Dalhousie University, 6299 South Street, Halifax, NS, Canada
[e] School for Resource and Environmental Studies, Faculty of Management, Dalhousie University, 6100 University Avenue, Halifax, NS, Canada

## HIGHLIGHTS

- Household survey data and GPS-verified travel data are used to estimate GHG emissions.
- Residential location impacts both transportation and housing-related GHG emissions.
- Results reveal spatial variability in direct GHG emissions at the sub-regional scale.
- No significant difference in total direct GHG emissions between urban and suburban respondents.
- Travel related GHG emissions are significantly higher among those living in the exurbs.

## ARTICLE INFO

*Article history:*
Received 26 June 2012
Accepted 6 July 2013
Available online 9 August 2013

*Keywords:*
Greenhouse gases
Transport
Suburbs

## ABSTRACT

This research investigates whether where we live matters in terms of contributions to direct greenhouse gas (GHG) emissions. Using results from the Halifax Space Time Activity Research (STAR) project, we estimate GHG emissions for 1920 randomly selected respondents in Halifax Regional Municipality, Nova Scotia, Canada. The unique data set allows us to report direct GHG emissions with an unprecedented level of specificity at the sub-regional scale using household energy-use survey data and GPS-verified travel data. We report results and investigate statistical differences between communities and urban–rural zones (inner city, suburban, and inner and outer commuter belts). Results reveal considerable spatial variability in direct GHG emissions across the study area. Our findings indicate that individuals living in the suburbs generate similar amounts of GHG emissions (20.5 kg $CO_2$e person$^{-1}$ day$^{-1}$) to those living in the inner city (20.2 kg $CO_2$e person$^{-1}$ day$^{-1}$), challenging a widely held assumption that living in the urban centre is better for sustainability. However, individuals in more rural areas have significantly higher transport-related GHG emissions than those living in the inner city and suburbs. Our results underscore the importance of understanding the spatial distribution of GHG emissions at the sub-regional scale.

© 2013 Elsevier Ltd. All rights reserved.

## 1. Introduction

Influencing where people live is a strategy available to municipalities for reducing household greenhouse gas (GHG) emissions. The objective has been to increase the population density of the urban core and curb urban sprawl (Parshall et al., 2010; Weisz and Steinberger, 2010). The rationale is based on a poorly tested, yet widely held, assumption that people living in the urban core have lower environmental impact lifestyles than do their suburban and rural counterparts (Hoornweg et al., 2011). The premises held that square-footage of houses are smaller in inner city zones, and that individuals are less vehicle-dependent than those living in the suburbs and rural fringes of urban regions. However, the relationship between the built environment and travel mode choice remains poorly understood (Ewing and Cervero, 2010). Furthermore, as most sustainability and land-use planning studies are urban-focused, the policy debate has focused on an urban (inner-city) versus suburban dichotomy. The suburbs are perceived as the locus of 'unsustainable' development and living, compared to the urban core (Hoornweg et al., 2011). In the North American context, however, the rapidly-developing "exurbs" of the urban fringe (Davis et al., 1994; Lamb, 1983; Nelson, 1991; Taylor, 2011) extend far into the quasi-rural commuter belt, and it is therefore also important to compare GHG emissions of exurbanites to those of urban and suburban residents.

* Corresponding author. Tel.: +1 902 494 4581; fax: +1 902 494 8923.
*E-mail address:* jswilson@dal.ca (J. Wilson).

0301-4215/$ - see front matter © 2013 Elsevier Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.enpol.2013.07.012

The notion that where we live influences our environmental impact has been an important meta-theme within the "smart growth" planning movement. Understanding of the distribution of GHG emissions across urban regions is, however, poor at best. Few studies report GHG emissions or carbon footprints at the sub-regional or sub-municipality scales. Lack of data at finer spatial scales presents a significant limitation for sustainability analysis (Wilson and Grant, 2009). Lenzen et al. (2004) and Haq and Owen (2009) estimate both energy consumption and carbon footprints at the sub-city level by linking input-output analysis with household spending survey data. Druckman and Jackson (2008) for the United Kingdom, and Weber, Matthews (2008) for the United States, estimate GHG emissions of households by income category and other household characteristics using models that link household expenditure data to energy consumption. Neither study specifies a geographic region, but their models could support a sub-regional analysis. In absence of input-output data, VandeWeghe and Kennedy (2007) estimate residential GHG emissions by census tract for the Toronto Census Metropolitan Area (Canada) based on household fuel payments and transportation survey data. Wilson et al. (2013) presents the most refined analysis to date, estimating the ecological footprint, including the carbon footprint, by Census Dissemination Area (400–700 people) for Oakville, Ontario (Canada). Ecological footprint values were derived using household energy use data, square footage data, household spending data, and commuting survey data.

The literature provides convincing evidence that environmental impacts vary substantially at the sub-city level. What is of interest, however, is to discern whether such variation is repetitive and predictable, and here the results are mixed. Wilson et al. (2013) found substantial variability in ecological footprints within what one might expect to be a relatively homogeneous group (the study community, Oakville, is a bedroom community of Toronto and considered a suburb in its entirety). In Oakville, higher footprint households tended to concentrate along the waterfront and green spaces indicative of higher-income households. Lenzen et al. (2004) found that energy requirements of subdivisions are higher nearer the city centre. Haq and Owen (2009) noted neighborhoods reporting the largest carbon footprints were in either the inner city or rural areas. VandeWegh and Kennedy (2007) found census tracts located in the suburbs had the highest per capita GHG emissions. All of these efforts, however, quantify the environmental impact of households based, in part, on spending data or other indicators. To the best of our knowledge, no studies have estimated GHG emissions (or similar measurement units, i.e. carbon footprint) based directly on energy use information collected at the household level.

The objective of the present analysis is to understand spatial variation in direct greenhouse gas emissions across an urban region based on household-specific energy use data and GPS-verified personal travel data. The unique dataset allows us to report direct GHG emissions with an unprecedented level of specificity at a sub-regional level. The analysis reports direct GHG emissions using for 1920 respondents living in Halifax Regional Municipality (HRM), Nova Scotia, Canada.

Results are reported by community, confirming variability in direct GHG emissions across HRM. In addition, results are reported by urban–rural zones, highlighting differences in direct GHG emissions between urban, suburban, and rural commuter zones.

## 2. Data and methods

### 2.1. Data

Our study employs data from the Halifax Space-Time Activity Research (STAR) project, which represented the world's largest deployment of global positioning system (GPS) technology for a household activity survey (Bricka, 2008). The Halifax STAR project sampled 1971 randomly selected households in HRM, or about one household in 78, between April 2007 and May 2008 (Time Use Research Program (TURP), 2008). HRM is the provincial capital of Nova Scotia and the largest municipality in Atlantic Canada, spanning almost 5500 square kilometers, with a population of over 390,000 people in 2007 (Statistics Canada, 2012). In many ways, HRM is highly representative of Canadian mid-sized metropolitan areas, having a diverse and moderately prosperous economy with population growth of about 0.5% per year. The study area has a clearly-defined downtown area that has experienced little inner city decay, and income variations across the region are modest. Low-density exurban sprawl is particularly evident in a commuter belt within 50 km of downtown Halifax, while very few people reside in the fully rural area beyond 50 km (Millward and Spinney, 2011a).

The Halifax STAR project collected time diary and questionnaire data over 373 days of data collection, with a cooperation rate of 25% and overall response rate of 21% (Millward and Spinney, 2011b). The primary sampling frame was all residential households with listed telephone numbers. A pre-notification letter was used to make initial contact with each household, followed by a recruitment telephone call. Using computer-assisted telephone interview (CATI) software, recruited households completed a brief intake questionnaire to collect age and other information for all household members. The age information was used to randomly select the secondary sampling unit; a single household member over the age of 15 who was randomly selected as the "primary respondent", and was assigned a consecutive pair of diary days (e.g. Thursday–Friday, Friday–Saturday, etc.). Throughout the 48-h reporting period, the primary respondent carried a GPS-device (Hewlett Packard iPAQ hw6955) that was programmed to collect GPS data every 2 s and automatically send that information back to a central server for processing. The "day after" the two-day reporting period, both questionnaire and two-day time diary data were collected using specially-designed computer-assisted telephone interview (CATI) software. The CATI software enables interviewers to visualize the GPS data, travel routes, and precise start and end times for all "stops" (i.e. stationary locations lasting at least two minutes). See Time Use Research Program (TURP), 2008, 2010a, and, 2010b for a detailed description of the sampling strategy, survey methods, and data user guide. The STAR survey was modeled after Statistics Canada's (2006) General Social Survey (GSS) Cycle 19, which asked questions about personal characteristics, household characteristics, neighborhood features, socio-economic data, and subjective dimensions of well-being. The STAR survey supplemented those questionnaire items with questions regarding electricity consumption, home heating, and energy efficiency behaviors, among others.

Using ArcGIS 9.3®, the geographic coordinates (latitude and longitude) of each household's residential location within the study area were "spatially joined" with communities (based on municipal administrative boundaries) and urban–rural zones (delimited operationally on the basis of both urban form and commuting linkages to the urbanized area). Given the measurement of transportation-related GHG emissions is based primarily on average travel distance, the zones defined by Millward and Spinney (2011a) are used in this study. These zones are based on street network travel distance outwards from "downtown", and, therefore, offer a more functional approach to examine the extent to which GHG emissions vary within the study region. The "inner city" of HRM is defined as the area within a 5 km travel distance of Halifax and Dartmouth's "downtown" areas. The "suburbs" are adjacent developed areas with city water and sewer services, mostly lying between 5 and 10 km from downtown. The "inner

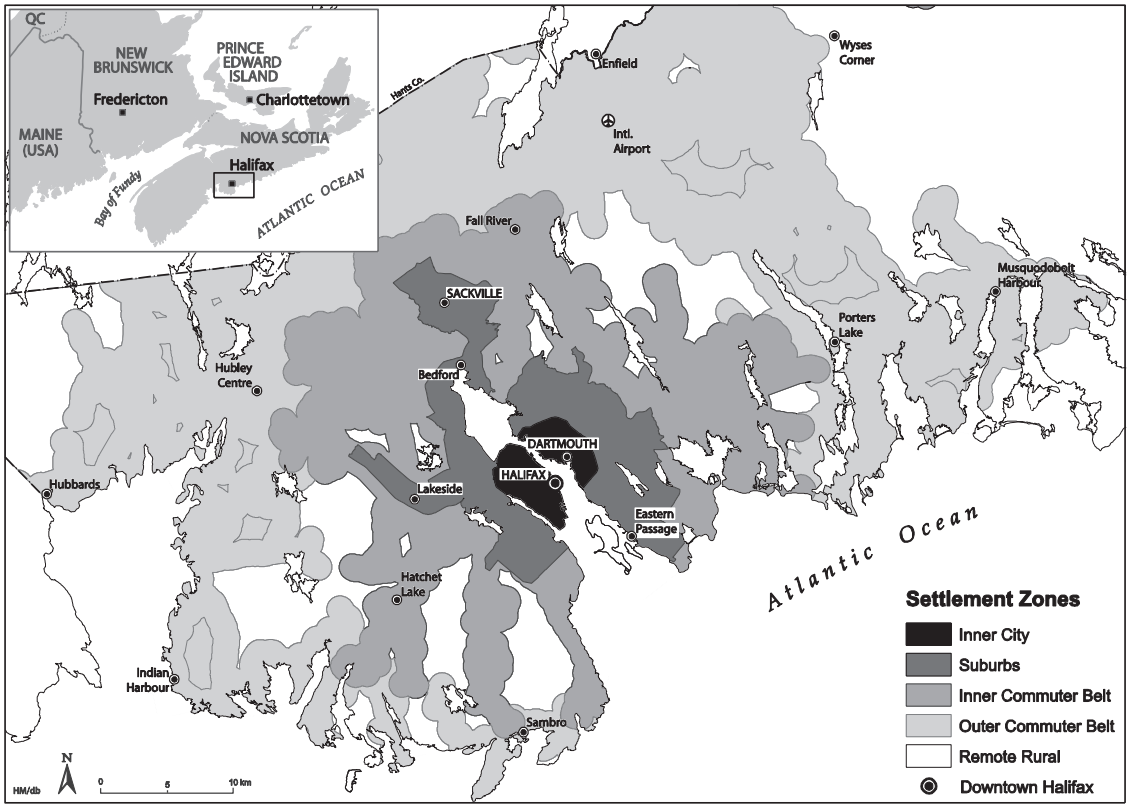



**Fig. 1.** Urban–Rural Zones in the Halifax Regional Municipality.

**Table 1**
Summary statistics for select survey items by urban–rural zone.

| | **Inner city** *Mean (S.D.)* | **Suburbs** *Mean (S.D.)* | **Inner commuter belt** *Mean (S.D.)* | **Outer commuter belt** *Mean (S.D.)* |
|---|---|---|---|---|
| **Age of respondents** | 55.3 (14.2) | 52.6 (13.9) | 48.7 (11.0) | 48.9 (12.1) |
| **Persons per household** | 2.5 (1.1) | 2.7 (1.1) | 3.1 (1.2) | 2.9 (1.2) |
| **Heated square feet** | 1983 (1128) | 1979 (820) | 2237 (915) | 2177 (786) |
| **Heated square feet per person** | 920 (626) | 848 (505) | 836 (514) | 857 (443) |
| **Number of household vehicles** | 1.4 (0.7) | 1.7 (0.7) | 2.1 (1.0) | 2.0 (0.7) |
| **Car-dependency (km/day)** | 25.8 (38.5) | 32.6 (42.7) | 49.3 (50.6) | 53.2 (52.1) |
| **Percent light duty vans and trucks (%)** | 21 | 31 | 34 | 38 |

commuter belt (ICB)" comprises unserviced communities lying between 10 and 25 km travel distance to downtown while the "outer commuter belt (OCB)" lies between 25 and 50 km to downtown. Millward and Spinney (2011a) define a fifth zone, "remote rural", which encompasses areas beyond 50 km travel distance to downtown, or lacking road access, but due to a lack of sample, we do not report GHG emissions for this zone (Fig. 1).

The STAR sample approximates a proportional distribution for gender, days of the week, and the months of the year. Spinney and Millward (2011) provides a detailed description of the sample. A few of the more pertinent survey items to the study are summarized and presented in Table 1 using measures of central tendency and dispersion that are stratified by urban–rural zone. The survey items that are summarized in Table 1 are respondents' ages; persons per household; housing size (heated square footage); heated square footage per person; number of household vehicles, "car-dependency" that is measured using daily mean travel distance (km) in a private vehicle or taxi; and the prevalence of light duty vans and trucks (bigger vehicles) as a percentage of vehicle fleet of respondents.

If we consider adjacent successive urban–rural zones as an ordinal classification of increasing distance from downtown, both household size and the number of persons per household increases as we move away from the inner city toward the inner and outer commuter belts. The heated square footage of households per person, however, decreases with increasing distance from the inner city. The mean heated square feet of housing increases with increasing distance from the inner city, but when the size of the home is adjusted for the size of the family, there appears to be an inverse relationship between heated square feet per person and increasing distance from the inner city. Both dwelling size and family size increase with distance from the inner city. There is a steady decline in the age profile with increasing distance from the inner city; average age decreases from a high of 55 years old in the inner city to 48 years old in the inner and outer commuter belts. More pronounced is the pattern of increasing car dependency (km traveled per day) with increasing distance from the inner city, and decreasing opportunities for alternate travel modes. About one-quarter of inner city respondents are car dependent. That value rises to about one-third in the

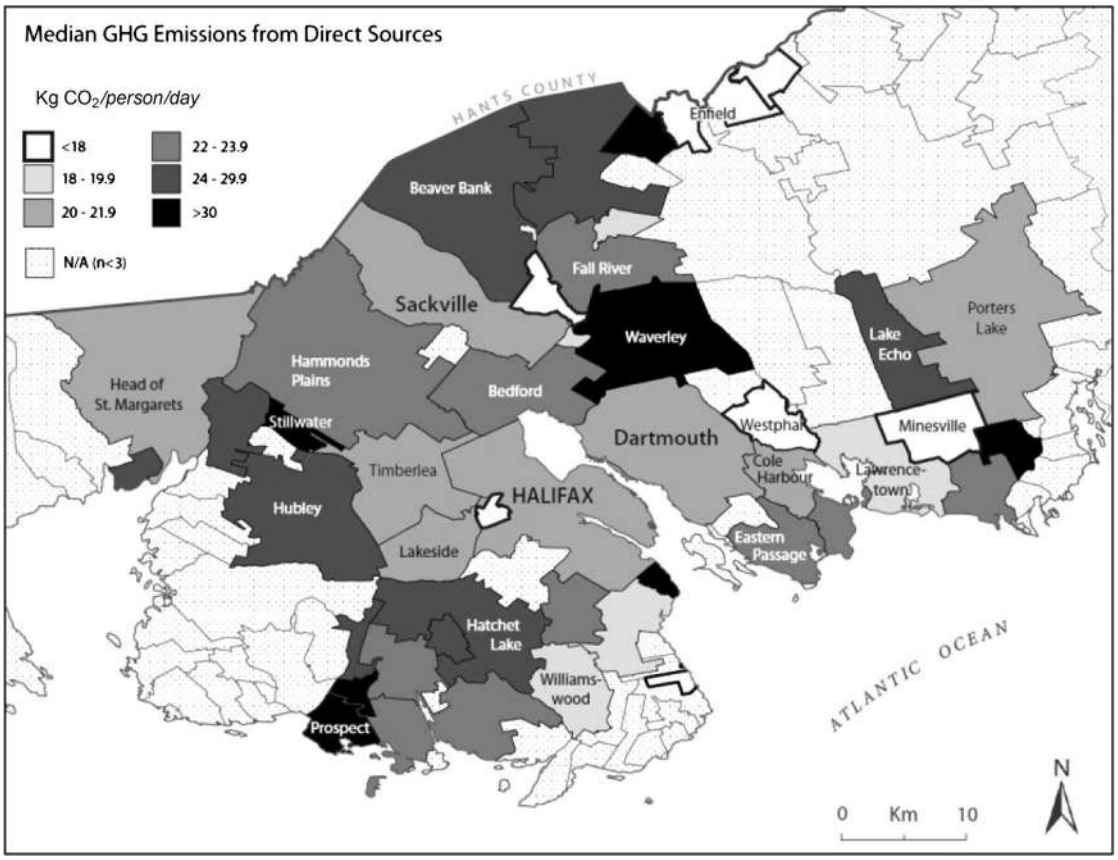



**Fig. 2.** Spatial distribution of median GHG estimates by communities.

suburbs, to almost one-half in the inner commuter belt, and exceeds one-half in the outer commuter belt. Not surprising then, the average number of vehicles per household also increases with increasing distance from the inner city, where the average is 1.4 vehicles per household and that number reaches its maximum in the inner commuter belt at 2.1 vehicles per household. In the same vein, there is a modest, but steady, increase in the prevalence of light-duty vehicles with increasing distance from the inner city to the rural countryside. Overall, however, we found little distinction in prevalence of light-duty vehicles between the inner and outer commuter belt zones.

### 2.2. Methods

Shelter-related and transportation-related direct GHG emissions were estimated per respondent per day in kilograms carbon dioxide equivalents (kg $CO_2$e person$^{-1}$ day$^{-1}$). Shelter-related GHG emission estimates are based on respondent-recall of electricity bills, home heating bills, and amount of wood burned. Respondents were asked to consult bills, although we are not able to verify which houses did and did not. We reported shelter-related emissions per respondent by dividing the total household emissions by the number of household members. We confirmed results with an expert from the provincial energy efficiency agency, which resulted in 15 cases being screened out of our analysis, because of unreasonably high shelter-related energy use. For transportation-related direct GHG emissions, we estimated personal transportation based on distances traveled, using household activity survey data. Trip distances were computed using the shortest path between GPS-verified origins and destinations. Thirty-six respondents had incomplete travel data and were screened out of our analysis. Also, we do not include air travel in our estimation of GHG emissions, because many of the out-of-country coordinates were not captured in the STAR survey. In Nova Scotia, air travel (domestic aviation) represents approximately 7% of total transport-related GHG emissions (Environment Canada, 2010). For a more detailed description of specific methods and assumptions used to estimate direct GHG emissions, see Wilson et al. (in press).

Each respondent's residential location was used to summarize the spatial distribution of direct GHG emissions across the 62 communities within the study area. Communities, in this context, do not reflect a specific population size. Rather, they represent longstanding geographic areas with meaningful similarities in both perceptions and interpretations of both place and context. Median direct GHG emissions were calculated for communities with three or more sampled households and mapped using ArcGIS 10® to illustrate the spatial distribution of emissions. In addition, shelter-related, transportation-related, and total direct GHG emissions were assigned to urban–rural zones. Statistical Package for the Social Sciences (SPSS, v.15.0) software was used to measure the median and inter-quartile range (IQR) for GHG emissions by urban–rural zones. Medians were chosen in preference to means, because each of the three emission variables exhibit skewed distributions, which was confirmed by the Kolmogorov–Smirnov $Z$ test. We tested two-tailed significance of differences among adjacent successive urban–rural zones using a Mann–Whitney $U$ test. The $U$-test is a non-parametric difference-of-ranks test that tests whether two independent samples of observations are drawn from the same distribution, and it is employed in preference to the two-sample $t$-test because the distributions of the variables under scrutiny are skewed.

## 3. Results

In total, direct GHG emissions were estimated for 1920 respondents. We omitted 51 of the 1971 households due to incomplete or

problematic data specific to this research. Statistical analysis of the STAR household data indicates the median total direct GHG emissions for HRM is 21 kg $CO_2$e person$^{-1}$ day$^{-1}$, with a range of 101 kg, and inter-quartile range of 14 kg. On average, provision of electricity and home heating contribute 78% of direct GHG emissions with a mean of 14.6 kg $CO_2$e person$^{-1}$ day$^{-1}$, which is significantly higher ($p = < 0.001$) than emissions associated with personal transportation, which account for the balance of direct GHG emissions and average 4.1 kg $CO_2$e person$^{-1}$ day$^{-1}$.

### 3.1. Greenhouse gas emissions by community

A total of 44 communities have three or more households with estimates of direct GHG emissions (Fig. 2). We found variability in direct GHG emissions across the HRM, with median values ranging from 13.9 to 35.8, and a median value across all communities of 21 kg of $CO_2$e person$^{-1}$ day$^{-1}$. In general, median GHG emissions per person tend to increase as we move toward the perimeter of the HRM, although that pattern does not appear consistent. For example, the communities of Stillwater and Waverley both have very high emissions ( > 30 kg $CO_2$e person$^{-1}$ day$^{-1}$) while the community of Westphal has very low median emissions ( < 18 kg $CO_2$e person$^{-1}$ day$^{-1}$) (Fig. 2). The overall pattern is that communities in the commuter belt tend to have higher values than the inner-city or suburbs, and it is noteworthy that all communities with median direct emission values over 24 kg $CO_2$e person$^{-1}$ day$^{-1}$ lie in the exurban commuter area. Relatively high per capita daily emission values ( > 24) are noted for wealthier commuter-belt communities, such as Waverley, Stillwater, and Oakfield, while relatively lower emission values ( < 20) in the commuter belt tend to occur in medium or low-medium income areas, such as Enfield, Lawrencetown, and Williamswood. These community-level patterns echo results produced previously by Wilson et al. (2013) for the town of Oakville, Ontario. However, some community-level median emission values are based on few observations, which prevents significance testing. To allow such testing, we turn to an examination of zonal differences along the urban–rural continuum.

### 3.2. Greenhouse gas emissions by urban-rural zone

To further elucidate the spatial distribution of shelter-related, transportation-related, and total direct GHG emissions across the study area, we present median and IQR emissions per person per day by urban–rural zone in Table 2. In addition, in Table 2, we report Mann–Whitney U test results of differences between adjacent successive urban–rural zones.

Results in Table 2 indicate that total emissions increase away from the urban core; median daily direct GHG emissions for respondents living in the inner and outer commuter belt zones are approximately 11% higher than for respondents living in the inner city zone. Interestingly, there is little difference ( < 2%) in median direct GHG emissions between the inner city zone and the suburban zone, and any difference appears purely due to chance. For total direct GHG emissions, the only significant difference ($p = 0.003$) between adjacent successive zones is for the suburbs and ICB, the suburbs being lower. Basically, the results in Table 2 illustrate that as we move away from the inner city zone, there is a decrease in shelter-related emissions and an increase in transportation-related emissions.

Results in Table 2 indicate that the overall median transportation-related GHG emissions are 4.1 kg $CO_2$e person$^{-1}$ day$^{-1}$. Our sample indicates that private vehicle use contributes about ninety-nine percent (99%) of direct GHG emission associated with personal transportation. Transportation-related GHG emissions increase from the inner city (2.2 kg $CO_2$e person$^{-1}$ day$^{-1}$) to the suburbs (4.0 kg $CO_2$e person$^{-1}$ day$^{-1}$), and another increase to the inner commuter belt (6.2 kg $CO_2$e person$^{-1}$ day$^{-1}$). Despite another increase (0.9 kg $CO_2$e person$^{-1}$ day$^{-1}$) from the inner to the outer commuter belt, values for these two zones are not significantly different (Table 2). Any increase in transportation-related emissions moving outwards from the inner city appears to be offset by significantly reduced shelter-related emissions. Results in Table 2 indicate that significantly lower shelter-related emissions were reported in the suburbs (14.6 kg $CO_2$e person$^{-1}$ day$^{-1}$) compared to the inner city (16.2 kg $CO_2$e person$^{-1}$ day$^{-1}$), and significantly lower again in the inner commuter belt (13.6 kg $CO_2$e person$^{-1}$ day$^{-1}$). Just like travel-related emissions, shelter-related emissions are not statistically different between respondents living in inner and outer commuter belts.

**Table 2**
Median direct greenhouse gas emissions, kg $CO_2$e person$^{-1}$ day$^{-1}$.

| Zone | *N* | Total direct GHG *Median (IQR)* | Transportation-related GHG *Median (IQR)* | Shelter-related GHG *Median (IQR)* |
|---|---|---|---|---|
| **Overall** | 1920 | 20.8 (14.1) | 4.1 (7.0) | 14.6 (10.0) |
| **Inner city** | 382 | 20.2 (12.6) | 2.2 (3.9) | 16.2 (10.5) |
| *Significance* | | 0.382 | < 0.001 | 0.026 |
| **Suburbs** | 1039 | 20.5 (13.5) | 4.0 (6.1) | 14.6 (10.0) |
| *Significance* | | 0.003 | < 0.001 | 0.023 |
| **Inner commuter belt** | 334 | 22.9 (15.4) | 6.2 (9.1) | 13.6 (9.5) |
| *Significance* | | 0.944 | 0.513 | 0.818 |
| **Outer commuter belt** | 165 | 22.0 (19.6) | 7.1 (11.4) | 13.4 (8.2) |

## 4. Discussion

The present analysis complements previous sub-city environmental impact analyses by reporting direct GHG emissions using household-specific energy use data and GPS-verified travel data for 1920 respondents living in HRM. Our unique dataset allows us to report direct GHG emissions with an unprecedented level of specificity at a sub-regional level. The data demonstrate a wide range in direct GHG emissions by respondent, reflective of the sampling strategy and consistent with trip diary data. Data collection occurred over a 1-year period. Depending on the time of year, households could have very different home energy use demands. Further, with respect to personal transportation, large ranges in travel distances are consistent with trip diary surveys (Kang and Scott, 2010). While individual travel events may appear to be atypical for the person undertaking them (e.g., the case of visiting a distant relative), taken in aggregate they accurately represent variability in GHG emissions based on people's activities, which take place at disparate locations. Not all trip purposes are repetitive (as is the case for travel to and from work). Rather, there exists considerable variability in activities and travel across days of the week (Kang and Scott, 2010).

Our analysis is not without its limitations. For example, it reports GHG emissions per respondent, because the travel data are based on a personal, wearable, GPS collection device. Conceptualizations of urban regions in terms of households may be a more functional unit. It would also help mitigate issues of attribution of transportation-related GHG emissions if other household members are present in the vehicle. For example, what is the appropriate approach to split the associated GHG emissions if the trip purpose is taking a child to sports practice or if a child is present on a shopping trip? A potential research direction could be to incorporate out-of-home activity diary data from other household

members, which could be used to identify if and why other household members are present in the vehicle. Using trip purpose by travel segment could provide a useful mechanism for mitigating attribution issues.

Although studies suggest that indirect emissions contribute 40–65% of total GHG emissions associated with typical Western lifestyles (Benders et al., 2006; Kok et al., 2006; Moll et al., 2005; Nansai et al., 2008; Weber and Matthews, 2008), our analysis does not include indirect GHG emissions. Indirect GHG emissions refer to the emissions that result from earlier stages in the life cycle of the goods and services that we consume and correlate strongly with income (Benders et al., 2006; Druckman and Jackson, 2008; Lenzen et al., 2004; Weber and Matthews, 2008). We considered including indirect emissions by allocating regional input–output data to households by income category, using household expenditure survey data. We decided not to, however, to avoid estimating sub-city results by extrapolating from national-level data. Further, HRM does not appear to have a high concentration of higher-income households in one specific zone. In the sample, all zones reported a median personal income range category of $40,000–$59,999. Future research will look at including indirect GHG emissions.

Our results illustrate the patterning of GHG emissions within a city region at an exceptional spatial scale. These fine-resolution results offer planners and policy makers a unique perspective regarding variation in GHG emissions at a sub-city level. The community-level mapping, for example, revealed considerable variation in emissions at the local level, consistent with other sub-city analyses of environmental impacts (Haq and Owen, 2009; VandeWeghe and Kennedy, 2007; Wilson et al., 2013) and challenges the notion of a simple gradient in increasing emissions moving outward from the urban core. Although peripheral communities tend to show higher median total emissions, these medians also seem to relate to income levels, with wealthier communities showing higher values (Wilson et al., in press). Small sample sizes in many rural communities, however, prevented the use of significance testing.

Shelter-related emissions per person decrease as we move away from the inner city toward the outer commuter belt. While houses become bigger as we move outward from the inner city, to the commuter-belt zones, the STAR sample indicates there are more people per household (Table 1). When we factor in number of persons per household, therefore, the square footage per person is very similar in all zones except the inner city, where it is noticeably larger. This may reflect the “empty-nest” characteristic of many inner-city households, compounded by under-sampling of renters, such as students and those with lower incomes.

We feel reporting results by urban–rural zone to be a more useful approach for analyzing direct GHG emissions at the sub-city level than reporting by community. The zones organize the municipality based on urban form and distance to the regional centre, which are both widely perceived factors influencing energy consumption patterns. Categorizing HRM by zone can support policy and planning decisions that cater to different challenges and opportunities faced by each zone to reduce GHG emissions. For example, public transportation either does not service or poorly services the inner and outer commuter zones, limiting travel options. Also, the housing stock in the urban core is typically older than in the suburban and commuter zones, presenting different challenges to reducing shelter-related GHG emissions. The lack of significant differences between inner and out commuter belt zones in direct, transportation-related, and shelter-related emissions, plus select survey items, suggesting remarkable similarities among these two regional groups of respondents.

Our results for HRM show little difference in per capita direct GHG emissions between the inner city and the serviced suburbs, challenging a widely-held assumption that inner city living is inherently more sustainable than suburban living. The notion that inner city living is ‘greener’ is partially based on the assumptions that people in the inner city drive less and live in smaller households (square footage). We did find that those living in the suburbs had higher median transportation related GHG emissions. Respondents in the suburbs, on average, traveled more per day as the driver or passenger of a private vehicle (Table 1) and drove bigger vehicles (SUV, van, pick-up) as a percentage of the total vehicle fleet. Median transportation related GHG emissions of respondents living in the inner city are 2.2 kg $CO_2$e person$^{-1}$ day$^{-1}$ compared to 4.0 kg $CO_2$e person$^{-1}$ day$^{-1}$ for respondents living in the surburbs. Our dataset, however, does not support the assumption of bigger homes and higher shelter related GHG emissions in the suburbs in comparison to the inner city. Average heated square footage of households was remarkably similar. When we consider square footage per household member, it was less in the suburbs compared to the inner city. Median shelter related GHG emissions of respondents living in the inner city are 16.1 kg $CO_2$e person$^{-1}$ day$^{-1}$ compared to 14.6 kg $CO_2$e person$^{-1}$ day$^{-1}$ for respondents living in the surburbs. Lower GHG emissions associated with electricity use and home heating in the suburbs offset the higher transportation related emissions.

In HRM, heating and electricity related emissions dominate direct GHG emissions accounting for 78% of total GHG emissions. The substantial contribution of heating and electricity to overall emissions can be explained in part by Halifax′s reliance on oil and electricity as a primary heating source coupled by the fact that the greenhouse gas intensity of electricity generation in the province is high, over triple the Canadian average. Additionally, in comparison to other regions in Canada, the housing stock is older and there are more single-family dwellings as a percentage of the total housing stock (77% vs. 58%) (Natural Resources Canada (NRCAN), 2010). In comparison, jurisdictions relying on hydro generated electricity and heating primarily with natural gas would have lower associated household GHG emissions. If GHG emissions associated with shelter were lower, the difference in transportation related emissions would be more pronounced in terms of influencing overall emissions. As the province of Nova Scotia moves toward lower-carbon electricity, shelter-related emissions should decline placing greater emphasis on transportation related emissions.

The dynamics driving transportation related GHG emissions are not straight-forward. For example, the notion of a single travel flow from suburbs to inner city for work and shopping in the HRM context is incorrect. In the case of HRM, several major industrial-business hubs are located in the suburbs. Ninety-six percent of new office space between 2008 and 2012 was built in the suburbs indicating a decreasing need to enter the downtown core for work (Our HRM Alliance, 2012). Further, those living in the urban core may travel to suburbs to access services and shopping creating a reverse travel requirement. Assuming that inner city living is inherently more sustainable than suburban living masks that both zones present sustainability challenges that require attention. In the case of HRM, the inner city is dealing with a number of critical issues: high carbon electricity and heating sources, inefficient homes, low population density, large housing size per person, low public transit use, and an infrastructure that favours travel to suburban zones for shopping, services, and potentially even employment.

Efforts to reduce greenhouse gas emissions must also include the exurbanites. Those living in commuter belt zones and on the rural fringe have substantially higher greenhouse gas emissions, and particularly higher transport-related direct GHG, which often get

overlooked in a policy debate that has focused on an urban (inner-city) versus suburban dichotomy. The exurbs of the commuter belt are characterized by low-density, large-lot development, lacking city water and sewer services. Though commuter-dependent, they have the appearance of rurality, and provide sought-after environments for family living (Millward, 2006). However, lack of public transport, and limited options for active transport, lead to greater car-dependency and longer trip distances per person, such that transport-related direct emissions are three times those in the inner city, and 1.5 times those in the suburbs. Interestingly, median transport-related GHG estimates for the inner and outer commuter zones are virtually the same, which is likely due to transport-minimizing accommodations made by outer commuter belt residents, reported by Millward and Spinney (2011a). In particular, respondents in the outer commuter belt make significantly fewer car trips than those in the inner commuter belt, though average trip duration is slightly longer.

## 5. Conclusion

Policy and planning efforts to reduce the carbon footprints of our cities requires an understanding of the variability in household environmental impacts within a community (Wilson et al., 2013). The STAR data provide a more nuanced perspective on direct GHG emissions than previously available, particularly because they reflect accurate and precise location information. Analysis of these data by urban–rural zones offers a functional categorization around which to frame GHG reduction strategies. Findings challenge the assumption that development patterns outside of the urban core, notably in the serviced suburbs, are inherently less sustainable and/or detrimental to sustainability. The assumptions that those living in the suburbs have bigger homes, bigger cars, and drive more are only partially correct. We did find bigger cars and higher transportation-related GHG emissions, but lower shelter-related emissions appear to offset them. Shelter-related emissions account for 70% of total GHG emissions, on average. We do, however, see a noticeable increase in direct GHG emissions for the inner and outer commuter belts, raising concerns regarding exurban sprawl. The increase can be almost entirely attributed to transportation-related emissions. The results stress the importance of energy use information collected at a household level to inform policy and planning decisions to reduce greenhouse gas emissions at a city level.

While where we live may be important, other factors influence direct GHG emissions. The results of the current study using household level energy use information confirm considerable variability in household GHG emissions across HRM, but also significant predictability between urban–rural zones. Other factors such as income, household size, and respondent age may be better predictors of GHG emissions (Wilson et al., in press), and are interrelated with zonal variations. Research supporting a more nuanced understanding of household GHG emissions within cities, targeting the different challenges and opportunities of different zones, will benefit efforts to achieve GHG reductions.

## References


Benders, R., Kok, R., Moll, H., Wiersma, G., Noorman, K., 2006. New approaches for household energy conservation—in search of personal household energy budgets and energy reduction options. Energy Policy 34, 3612–3622.

Bricka, S., 2008. Non-response challenges in GPS-based surveys. Resource Paper, Prepared for the May 2008 International Steering Committee on Travel Survey Conferences Workshop on Non-Response Challenges in GPS-based Surveys. Retrieved from: ⟨www.nustats.com/nustats_dot_com/templates/yet again_new-menu/docs/great_reads/Nonresponse_GPS_BasedSurveys.pdf⟩.

Davis, J.S., Nelson, A.C., Dueker, K.J., 1994. The new 'burbs'. The exurbs and their implications for planning policy. Journal of the American Planning Association 60, 45–59.

Druckman, A., Jackson, T., 2008. Household energy consumption in the UK: a highly geographically and socio-economically disaggregated model. Energy Policy 36, 3177–3192.

Environment Canada, 2010. National Inventory Report 1990–2008: Greenhouse Gas Sources and Sinks in Canada. ISBN: 978-1-100-15579-1. Cat. No.: En81-4/2008E-PDF, Ottawa, ON.

Ewing, R., Cervero, R., 2010. Travel and the built environment: a meta-analysis. Journal of the American Planning Association 76, 265–294.

Haq, G., Owen, A., 2009. Green streets, the neighbourhood carbon footprint of York. Stockholm Environment Institute, Stockholm.

Hoornweg, D., Sugar, L., Gomez, C., Lorena Trejos, 2011. Cities and greenhouse gas emissions: moving forward. Environment and Urbanization 23, 207–227.

Kang, H., Scott, D., 2010. Exploring day-to-day variability in time use for household members. Transportation Research Part A 44, 609–619.

Kok, R., Benders, R., Moll, H., 2006. Measuring the environmental load of household consumption using some methods based on input–output energy analysis: a comparison of methods and a discussion of results. Energy Policy 34, 2744–2761.

Lamb, R., 1983. The extent and form of exurban sprawl. Growth & Change 14, 40–47.

Lenzen, M., Dey, Christopher., Foran, B., 2004. Energy requirements of Sydney households. Ecological Economics 49, 375–399.

Millward, H., 2006. Metropolitan Form and the Environment. In: Bunting, T., Fillion, P. (Eds.), Cities in Transition, 3rd ed. Don Mills, Oxford, UK, Canadian, pp. 363–378.

Millward, H., Spinney, J., 2011a. Time use, travel behavior, and the rural-urban continuum: results from the Halifax STAR project. Journal of Transport Geography 19, 51–58.

Millward, H., Spinney, J., 2011b. "Active Living" related to the rural-urban continuum: a time-use perspective. Journal of Rural Health 27, 141–150.

Moll, H., Noorman, K., Kok, R., Engström, R., Throne-Holst, H., Clark, C., 2005. Pursuing more sustainable consumption by analyzing household metabolism in European countries and cities. Journal of Industrial Ecology 9, 259–278.

Nansai, K., Inaba, R., Kagawa, S., Moriguchi, Y., 2008. Identifying common features among household consumption patterns optimized to minimize specific environmental burdens. Journal of Cleaner Production 16, 538–548.

Natural Resources Canada (NRCAN), 2010. 2007 Survey of Household Energy Use, Office of Energy Efficiency.

Nelson, A., 1991. Toward a definition of exurbia. Journal of Planning Literature 6, 350–368.

Our HRM Alliance, 2012. Our Seven Solutions, Planning for Liveable Communities, 2nd edition, HRM Alliance ⟨http://www.ourhrmalliance.ca⟩.

Parshall, L., Gurney, K., Hammer, S., Mendoza, D, Zhou, Y., Geethakumar, S., 2010. Modeling energy consumption and CO2 emissions at the urban scale: Methodological challenges and insights from the United States. Energy Policy 38, 4765–4782.

Spinney, J., Millward, H., 2011. Weather impacts on leisure activities in Halifax, Nova Scotia. International Journal of Biometeorology 55, 133–145.

Statistics Canada, 2006. General Social Survey—Cycle 19: time use (2005) user's guide to the public use microdata file, Ottawa, ON.

Statistics Canada, 2012. 2011 Census, Population and dwelling counts. Catalogue number 98-310-XWE2011002, Ottawa, ON.

Taylor, L., 2011. No boundaries: exurbia and the study of contemporary urban dispersion. GeoJournal 76, 323–339.

Time Use Research Program (TURP), 2008. Halifax Regional Space Time Activity Research (STAR) survey: sampling strategy, Saint Mary's University, Time Use Research Program, Halifax, NS.

Time Use Research Program (TURP), 2010a. Halifax Regional Space Time Activity Research (STAR) survey: survey methods. Saint Mary's University, Time Use Research Program, Halifax, NS.

Time Use Research Program (TURP), 2010b. Halifax Regional Space Time Activity Research (STAR) survey: data users' guide, Saint Mary's University, Time Use Research Program, Halifax, NS.

VandeWeghe, J., Kennedy, C., 2007. A spatial analysis of residential greenhouse gas emissions in the Toronto census metropolitan area. Journal of Industrial Ecology 11, 133–144.

Weber, C., Matthews, H., 2008. Quantifying the global and distributional aspects of American household environmental impact. Ecological Economics 66, 379–391.

Weisz, H., Steinberger, J., 2010. Reducing energy and material flows in cities. Current Opinion in Environmental Sustainability 2, 1–8.

Wilson, J., Grant, J., 2009. Calculating ecological footprints at the municipal level: what is a reasonable approach for Canada? Local Environment 14, 963–979.

Wilson, J., Spinney, J., Tyedmers, P., 2013. An exploration of the relationship between socio-economic and wellbeing variables and household greenhouse gas emissions. Journal of Industrial Ecology, http://dx.doi.org/10.1111/jiec.12507.

Wilson, J., Tyedmers, P., Grant, J., 2013. Measuring environmental impact at the neighbourhood level. Journal of Environmental Planning and Management 56, 42–60.


View publication stats

# Skagit River Basin Climate Science Report

## Executive Summary

## Chapter 1. Skagit Basin Overview

The Skagit River basin in the northwestern Cascades extends from headwaters in southwestern British Columbia to the mouth of the river in the Puget Sound lowlands. The basin drains an area of about 3,115 square miles. There are three major tributaries to the Skagit River: the Sauk, Cascade and Baker Rivers. The Sauk and Cascade Rivers are largely undeveloped. Native American tribes have inhabited the basin for millennia, however since European-American settlement began in the mid-19$^{th}$ century, the Skagit River basin has been extensively altered by human activities such as logging and conversion of floodplain areas for agriculture and urban development (Figure ES.1). These activities continued through the early 20$^{th}$ century, resulting in the Skagit Valley including some of the richest farmland in the world as well as a number of small cities. In the second half of the 20$^{th}$ century, and particularly since the completion of Interstate-5 in the mid-1960s, urban/suburban development in the Puget Sound lowlands has led to continuing development in the basin. Figure ES.1 shows an aerial view of the extensive development in the lower basin. The construction of dikes, levees, and tide gates protect farm land and small cities such as Mount Vernon, Burlington, and Sedro Woolley from flooding, but failures often occur during a current 30-year flood event. Thus flooding and floodplain management are major issues in the basin. Five major dams were constructed in the Upper Skagit River and the Baker River in the 20$^{th}$ century. These projects generate hydropower and provide flood control, recreation opportunities, and diverse ecosystem services. Human development in the basin has created a strong local economy, but has also dramatically impacted the hydrology of the basin as a whole, the geomorphology of the Skagit Valley, and ecosystems, primarily in the lower basin. Headwater areas of the basin, although they have been logged and developed for water resources management in the past are relatively pristine, and provide many ecosystem services and recreation opportunities which also support the local economy.



Figure ES.1 An aerial view of the extensive development in the lower Skagit River basin.

## Chapter 2. Climate Variability

The decade-to-decade and year-to-year variability of climate and hydrology in the Pacific Northwest (PNW) and the Skagit River basin is strongly influenced by the El Niño-Southern Oscillation (ENSO) and the Pacific Decadal Oscillation (PDO). Warm phases of the PDO and ENSO generally produce warmer and drier winter/spring weather while cool phases of the PDO and ENSO produce cooler and wetter conditions. These variations in temperature and precipitation influence important hydrologic variables such as April 1 snow water equivalent (SWE), annual and seasonal streamflow, and hydrologic extremes (floods and low flows). For example, warm phases of the PDO and ENSO produce lower April 1 SWE and summer streamflows than cool phases of the PDO and ENSO (Figure ES.2). Flood risks are higher in cool ENSO years than in warm ENSO years. Variations in air temperature associated with the PDO and ENSO have also affected water temperature for the Skagit River basin. The patterns of climate variability and associated hydrologic variables and extremes are intensified when the PDO and ENSO are in phase (i.e. warm ENSO/warm PDO or cool ENSO/cool PDO). The

impacts of the PDO and ENSO on climatological and hydrological variables in the Skagit River basin are consistent with those experienced over the PNW as a whole, but because the hydrologic cycle in the Skagit is sensitive to temperature variations, the PDO and ENSO have a more pronounced influence on hydrologic variables such as snowpack and seasonal streamflow timing for the Skagit River in comparison with the region as a whole.

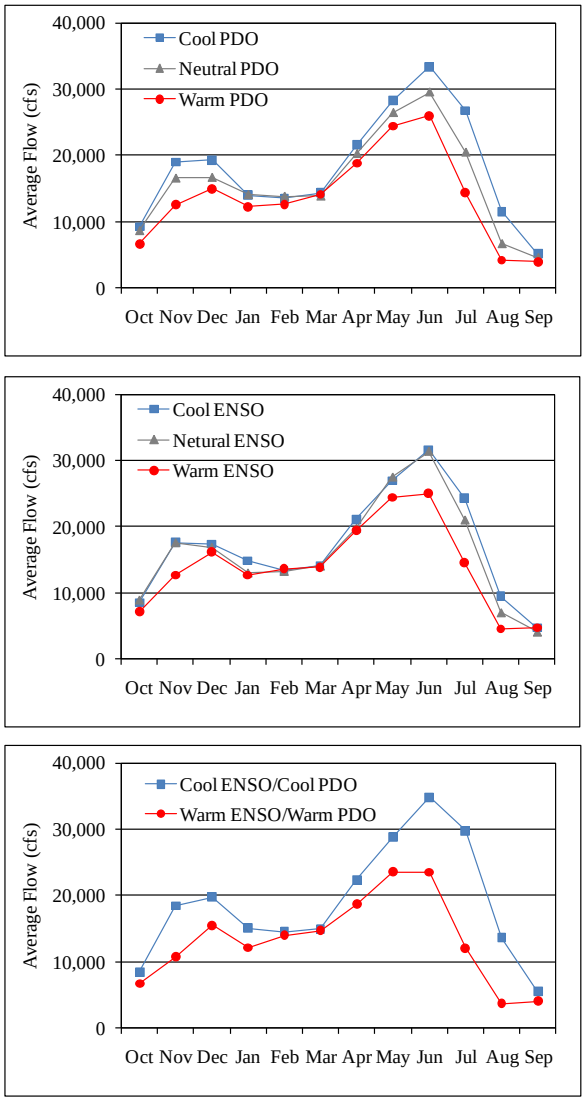



Figure ES.2 Composite monthly average simulated streamflow for the Skagit River near Mount Vernon (water years 1916 -2006) for the PDO phases based on the PDO index (top), ENSO phases based on Dec-Feb averaged Nino3.4 Index (middle) and the PDO and ENSO in phase (bottom) (see Chapter 2).

## Chapter 3. Climate Change Scenarios

Human caused climate change is projected to substantially influence the climate of the PNW and Skagit basin in the 21st century. Based on currently available climate change scenarios from the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report downscaled to the PNW, average temperatures for the PNW by the 2080s for the B1 and A1B emissions scenario are projected to be 4.7 - 7.0 °F warmer than a late 20th century baseline (see Figure ES.3). These changes are very large in comparison with year to year natural variability. Even by the mid-21st century, projected 5th percentile temperatures are larger than the 95th percentile temperatures for the 20th century baseline as shown in Figure ES.3. A smaller increase in temperature is expected for the Skagit basin in comparison with the PNW as a whole, partly because of the Skagit's proximity to the coast. For example, the temperature increase for the Skagit basin by the end of the 21st century is about 4.0 °F for B1 and 5.8 °F for A1B in comparison to historical average temperature (see Table ES.1).

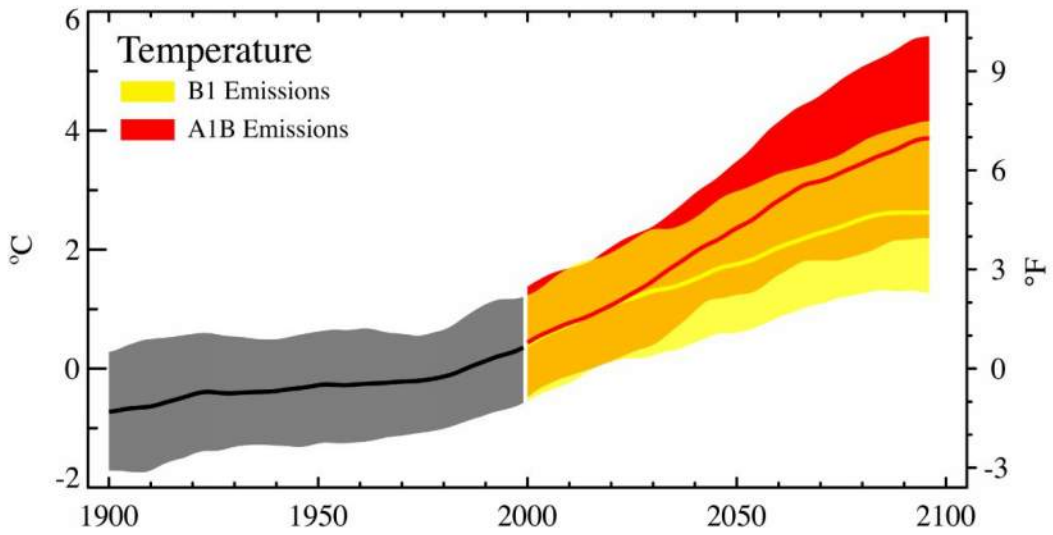



Figure ES.3 Summary of 20th and 21st century annual average temperature simulations from 20 GCMs over the PNW, relative to the 1970-99 mean, for two greenhouse gas emissions scenarios. Solid lines show the mean. The grey bands show the range (5th to 95th percentile) for the historical simulations, the colored bands show the range of future projections for each emissions scenario (Source: Mote and Salathé, 2010, see Chapter 3).

Table ES.1 Summaries of the 20th and 21st century annual and seasonal mean temperatures (in °F) for the A1B and B1 scenarios for the entire Skagit River basin upstream of Mount Vernon. (DJF=winter, MAM=spring, JJA=summer, and SON=fall, see Chapter 3).

| Scenarios | Annual | DJF | MAM | JJA | SON |
|---|---|---|---|---|---|
| Historical | 40.8 | 28.3 | 38.4 | 54.6 | 41.9 |
| 2020 A1B | 42.6 | 29.9 | 40.0 | 57.0 | 43.4 |
| 2020 B1 | 42.5 | 29.8 | 40.0 | 56.6 | 43.4 |
| 2040 A1B | 44.1 | 31.0 | 41.0 | 59.1 | 45.2 |
| 2040 B1 | 43.2 | 30.5 | 40.4 | 57.8 | 44.2 |
| 2080 A1B | 46.6 | 32.9 | 43.4 | 62.3 | 47.7 |
| 2080 B1 | 44.8 | 31.7 | 41.9 | 59.6 | 45.8 |

By comparison, projected systematic changes in annual mean precipitation are relatively small in comparison with natural variability from year to year, and will therefore be difficult to detect in observations (see Figure ES.4). Projected seasonal changes in precipitation are substantial, however. By the end of the 21st century, for example, average precipitation changes for the Skagit River basin are projected to increase by 9.8 % in winter, 8.0 % in spring and 19.2 % in fall but decrease by 27.6 % in summer (see Table ES.2). As discussed in subsequent sections, these projected changes in climate have major implications for long-term planning in the basin.

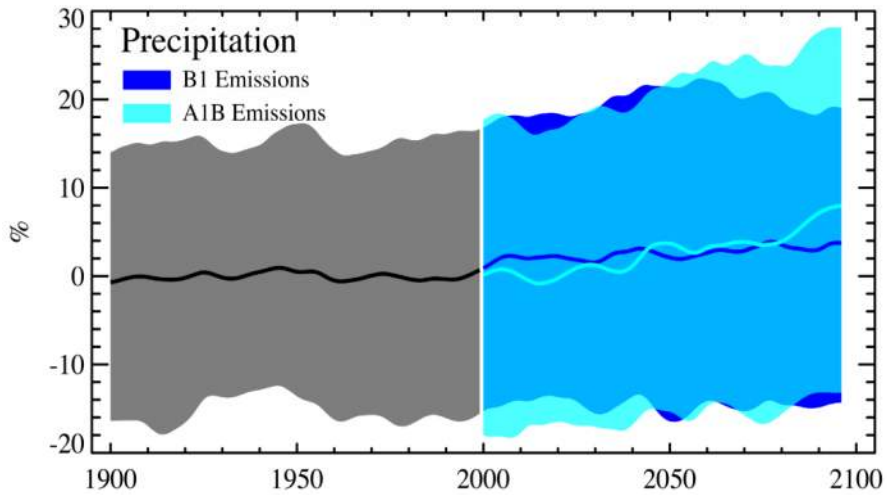



Figure ES.4 Summary of 20th and 21st century annual precipitation simulations from 20 GCMs for the PNW, relative to the 1970-99 mean, for two greenhouse gas emissions scenarios. Solid lines show the mean. The grey bands show the range (5th to 95th percentile) for the historical simulations and the colored bands show the range of future projections for each emissions scenario (Source: Mote and Salathé, 2010, see Chapter 3).

Table ES.2 Summaries of 20th and 21st century annual and seasonal precipitation (in inches) for A1B and B1 scenarios for the entire Skagit River basin upstream of Mount Vernon. (DJF=winter, MAM=spring, JJA=summer, and SON=fall, see Chapter 3).

| Scenarios | Annual | DJF | MAM | JJA | SON |
|---|---|---|---|---|---|
| Historical | 91.8 | 38.9 | 18.5 | 7.3 | 27.2 |
| 2020 A1B | 95.2 | 40.9 | 18.9 | 6.0 | 29.4 |
| 2020 B1 | 94.8 | 39.6 | 19.3 | 6.8 | 29.2 |
| 2040 A1B | 97.4 | 41.5 | 19.6 | 5.8 | 30.5 |
| 2040 B1 | 95.3 | 40.0 | 19.3 | 6.2 | 29.7 |
| 2080 A1B | 100.3 | 42.7 | 19.9 | 5.3 | 32.4 |
| 2080 B1 | 99.0 | 42.2 | 19.4 | 5.8 | 31.6 |

Sea level rise is also an important concern for the Skagit River basin because the majority of human development is located in low-lying areas near sea level. Global sea level has risen through the 20th century and is currently rising at an increasing rate, though sea level at local to regional scales can differ substantially from global changes over the short-term due to normal short-term fluctuations in global circulation patterns (e.g. changes in wind patterns). Sea level is projected to increase substantially by the end of the 21st century; global sea level rise projections reported by the IPCC's Fourth Assessment Report are between 18 and 38 cm (7.1 and 15.0 inches) for the lowest emissions scenario (B1) and between 26 to 59 cm (10.2 and 23.2 inches) for the highest emissions scenario (A1FI). The science behind sea level rise projections is progressing rapidly, and more recent global studies suggest much higher rates of sea level rise. For example, more recent projections from published studies suggest that global sea level is likely to rise by as much as 59 cm (23.2 inches), and could be as high as 179 cm (5.87 ft), by 2100 for the highest emissions scenario (A1FI) (see Figure ES.5). Projection of local sea level rise is affected by multiple factors such as atmospheric circulation and vertical land movement. For Puget Sound, sea level rise (SLR) by 2100 (based on the earlier IPCC projections) is estimated to range from about 16 cm (6 inches) for the B1 emissions scenario, to as much as 128cm (50 inches) for A1FI emissions scenario. Vertical land motion is also believed to be a significant factor contributing to relative sea level rise in the near coastal environment of Puget

Sound such as the low-lying areas of the Skagit basin, but more detailed monitoring is needed to more accurately estimate the importance of these changes. No detailed estimates of relative SLR for the Skagit lowlands are currently available, for example.

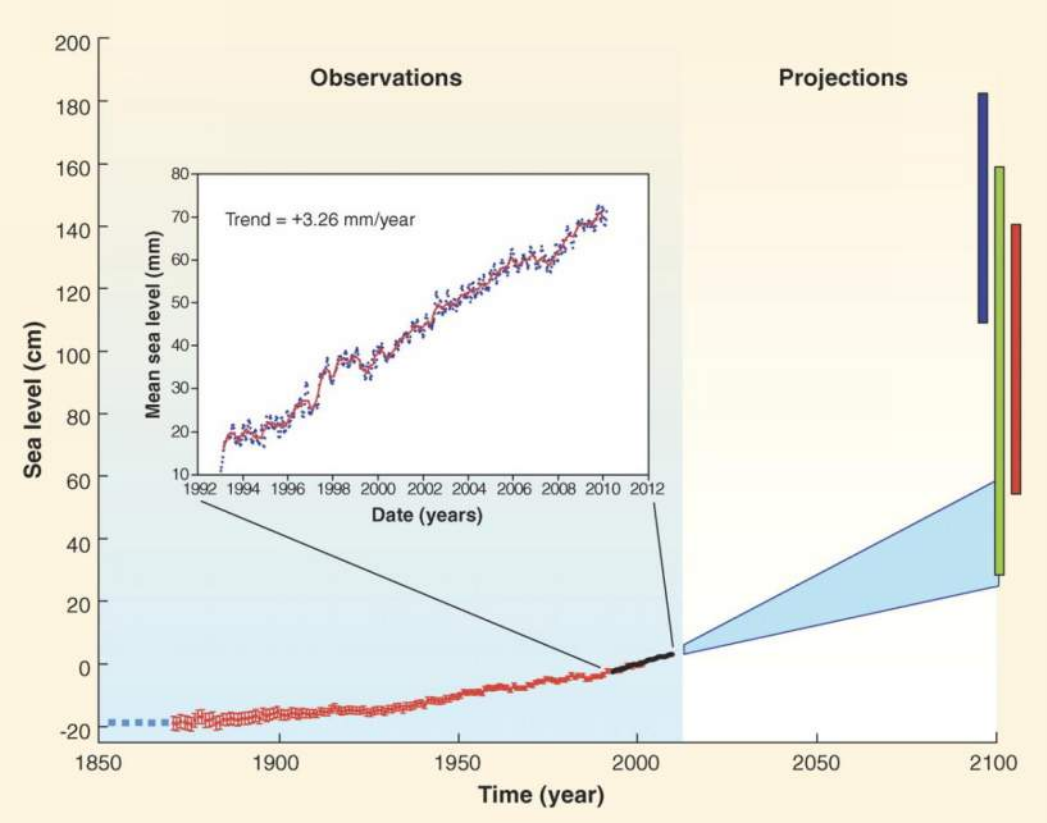



Figure ES.5 Global mean sea level evolution over the 20th and 21st centuries. The red curve is based on tide gauge measurements. The black curve is the altimetry record (zoomed over the 1993–2009 time span). Projections for the 21st century are also shown. The shaded light blue zone represents IPCC AR4 projections for the A1FI greenhouse gas emissions scenario. Bars are semi-empirical projections [red bar: (Rahmstorf, 2007); dark blue bar: (Vermeer and Rahmstorf, 2009); green bar: (Grinsted et al., 2010)] (Source: Nicholls and Cazenave, 2010, see Chapter 3).

For both the PNW and the Skagit River basin, projections of temperature and related variables such as sea level rise are higher for higher emissions scenarios (e.g. A1B or A1FI) than for a low emissions scenario (e.g. B1), showing that regional impacts of climate change on long time scales could be mitigated by reducing the concentration of greenhouse gases. The amount of warming over the next several decades, however, is insensitive to the emissions scenario,

supporting the argument that adaptation may be the only viable approach to avoiding impacts in the next several decades.

## Chapter 4. Glaciers

Glaciers are an important natural resource in the Skagit basin, providing an additional supply of cold water in the warmest part of the summer to support low flows. Glacier fed streams and lakes also provide important habitat for cold water fish species such as bull trout. At both regional and global scales, many glaciers have been retreating since the end of the Little Ice Age (~1550-1850). While a few specific glaciers have advanced during intervening relatively cool and wet periods, glacier retreat and mass losses have generally accelerated in response to post-1970 global warming.

These same patterns of glacial retreat are evident in the Skagit basin. For example, Figure ES.6 shows the retreat of Silver Glacier in the Upper Skagit River near Ross Lake. In comparison with the photo taken in 1958, the glacier feeding the head of the lake has completely disappeared by 2006, and the ice mass in the higher elevation areas is dramatically reduced. (Figure ES.6). The glacial area in North Cascades National Park Complex is estimated to have decreased by approximately 7 % between 1958 and 1998. Ongoing losses of glacial ice and ice caps are projected to continue in response to the regional expressions of global climate change. The disappearance or shrinkage of glaciers is expected to exacerbate summer low flow (particularly during droughts) and result in warmer water temperatures in watersheds with significant glacial coverage, impacting cold-water fish in the Skagit basin such as salmon, steelhead, and bull trout in headwater streams. The changes in summer melt in the Skagit basin are also likely to influence water resources management via reduced hydropower generation and instream flow in the late summer.



Figure ES.6 View to the west of Silver Glacier in 1958 (left, by Post) and 2006 (right, by Scurlock) (Source: http://northcascadia.org/workshops/noca/0955_Riedel_CC_Glaciers_0217.pdf, see Chapter 4).

## Chapter 5. Hydrology

Changes in temperature and precipitation, as simulated by global climate models for future greenhouse gas emissions scenarios (discussed above), are projected to significantly influence the hydrology of the PNW and Washington State (WA) as a whole. Despite increasing cool season (Oct-Mar) precipitation in many climate change scenarios, reductions in April 1 snow water equivalent (SWE) are projected over the PNW and WA. These reductions in natural storage are largest in the simulations for moderate elevation areas that are near freezing in mid-winter. Hydrologic model simulations show that warmer temperatures, more precipitation falling as rain in winter, and the resulting loss of snowpack will cause substantial shifts in streamflow timing and changes in flood and low flow risk. For the Skagit basin, these changes in streamflow timing are projected to be relatively small in the colder headwater areas (e.g. Skagit River at Ross Dam), and larger for sites in the lower river (e.g. Skagit River at Mt Vernon). Watershed characteristics for all sites in the Skagit River are likely to shift toward more rain dominant behavior by the end of the 21$^{st}$ century. In the lower basin, the changes in streamflow timing are very large, with peak flows shifting from June to December in the simulations (Figure

ES.7). An examination of the sensitivity of changes in SWE to projected temperature and precipitation changes shows that temperature plays a dominant role in comparison with precipitation in producing changes in SWE throughout the 21st century.

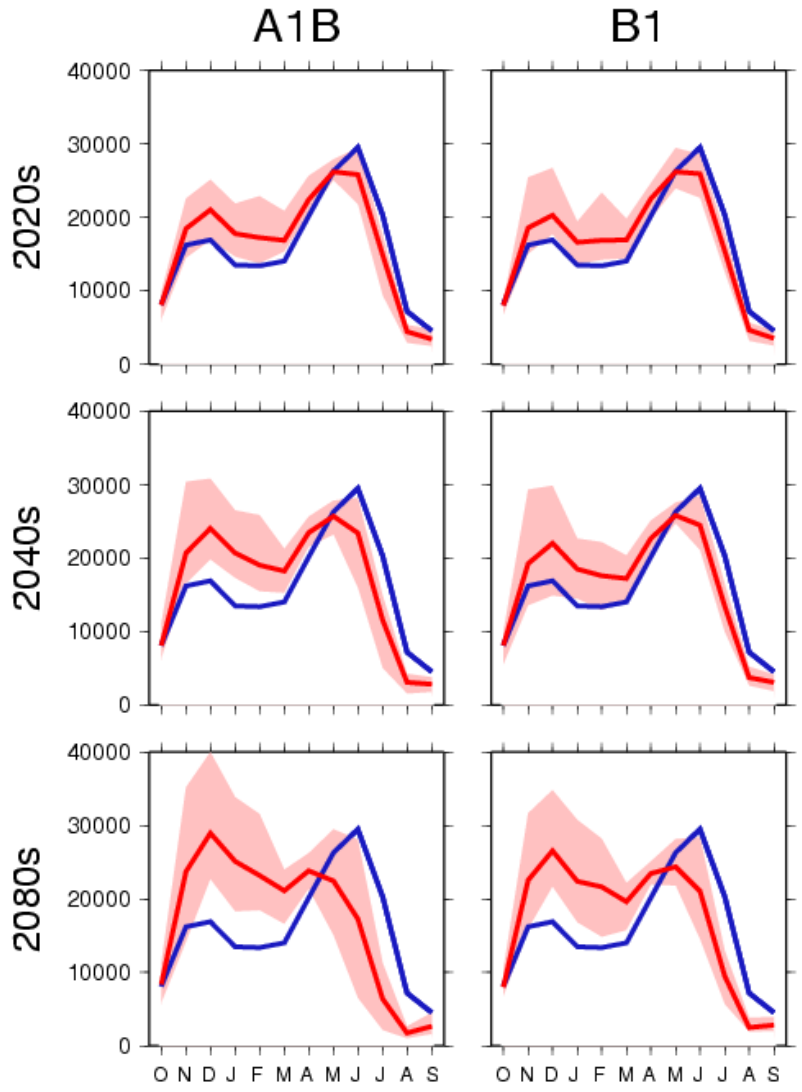



Figure ES.7 Simulated composite monthly average streamflow (in cfs) for the lower Skagit River near Mount Vernon. The blue line represents the historical mean (water years 1916-2006), while the red line represents projected monthly average streamflow across ~ 10 Hybrid Delta simulations. The red band represents the range of individual Hybrid Delta method scenario (Source: http://www.hydro.washington.edu/2860/, see Chapter 5).

More severe hydrologic extreme events (floods and low flows) are projected for the Skagit River basin. Floods are shown to become more intense due to increasing winter precipitation and

higher freezing elevations during winter storms that increase runoff production in moderate elevation areas. Estimates of flood risk under natural (i.e. unmanaged or unregulated) conditions at Mount Vernon averaged over 10 climate change scenarios, for example, show about a 30% increase in the 100-year flood by the 2040s (Figure ES.8). Low flow risks also increase in intensity in the simulations, due to loss of snowpack, drier summers, and resulting reduced late summer soil moisture that supplies baseflows. Projected loss of glaciers (which were not included in the analysis discussed above) is expected to result in even greater impacts to low flows in sub-basins with significant glacial coverage.

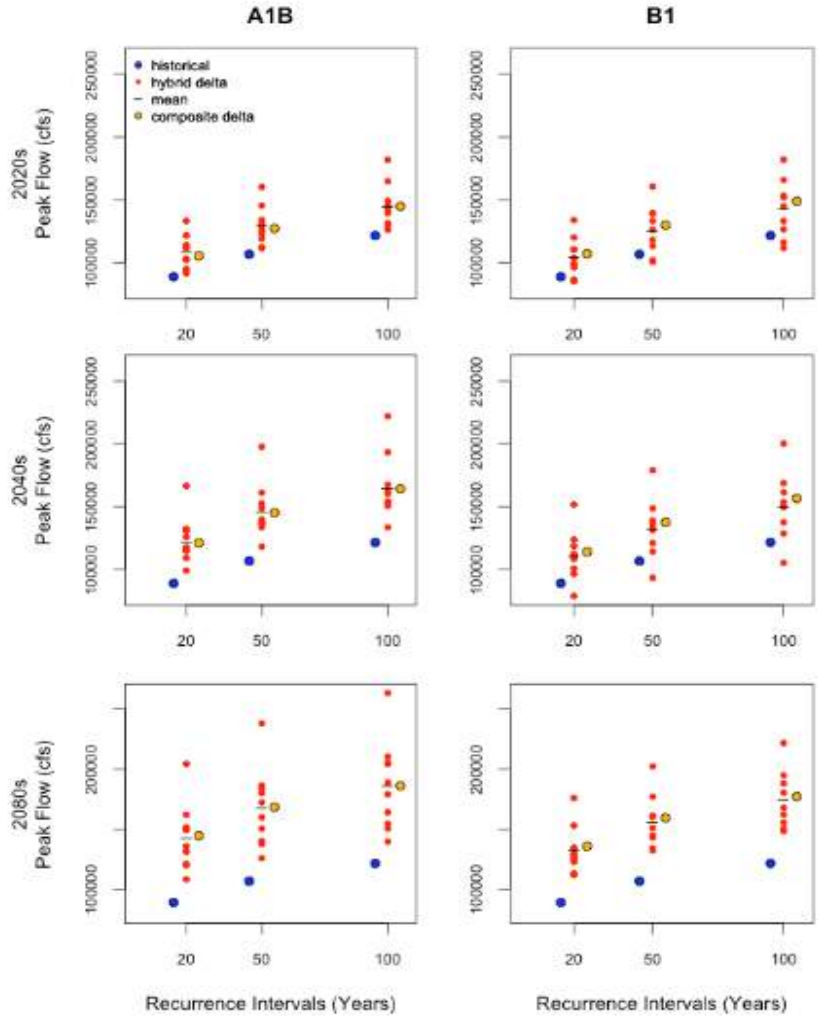



Figure ES.8 20-year, 50-year and 100-year flood statistics for the Skagit River near Mount Vernon under natural (i.e. unmanaged or unregulated) conditions for the historical(blue), Hybrid Delta runs (red), Hybrid Delta mean (horizontal tick) and Composite Delta(orange) runs (Source: http://www.hydro.washington.edu/2860/, see Chapter 5).

## Chapter 6. Geomorphology

The Skagit River delta has evolved over time due to both human and natural processes. Human activities such as construction of dikes and levees have influenced the formation of distributaries (dominant flow paths) that deliver most of the sediments and river flow to the delta, isolating numerous large historical distributaries in the Skagit River from riverine and tidal influence. As a result, more than 90 % of the Skagit delta has been isolated from riverine and tidal influence and the remaining distributaries are located at the outlet of the North and South Forks of the Skagit River. Sediment transported to the outlet of the North and South Forks has resulted in marsh accretion and the development of new (or altered) distributaries (see Figure ES.9). Marsh accretion has shifted to the North Fork after the dominant flow was shifted from the South Fork to the North Fork around 1937. Sediment supply to the basin has also been influenced by human activities: clearing of log jams, logging and road construction have increased sediment loads in the Skagit River while dams have trapped sediments originating in the headwaters, reducing overall sediment supply and transport to the basin from these areas. Human modification of the river channel has also altered sediment transport to the delta. Sediment reaching the delta largely bypasses the shoreline and tidal flats and accumulates on the face of the delta in deeper waters. Fine sediments mostly bypass the delta and are transported offshore (predominantly to the north) by surface currents. The offshore transport of fine sediments impacts important nearshore habitats through abrasion, fragmentation, substrate burial, and the effects of increased turbidity in the water column. Sediment loads would be expected to increase in the Skagit River due to climate change-related changes in glacier retreat, loss of interannual snowpack, projected increases in flooding, and increased coastal erosion due to sea level rise. A key uncertainty in projecting future conditions is whether expected increases in sediment loads and resulting marsh accretion will be able to keep pace with projected sea level rise, or whether sea level rise will ultimately result in a net loss of tidal marsh. Initial studies estimating net loss of salt marsh and estuarine beaches due to several competing factors suggest net losses in these near shore features.

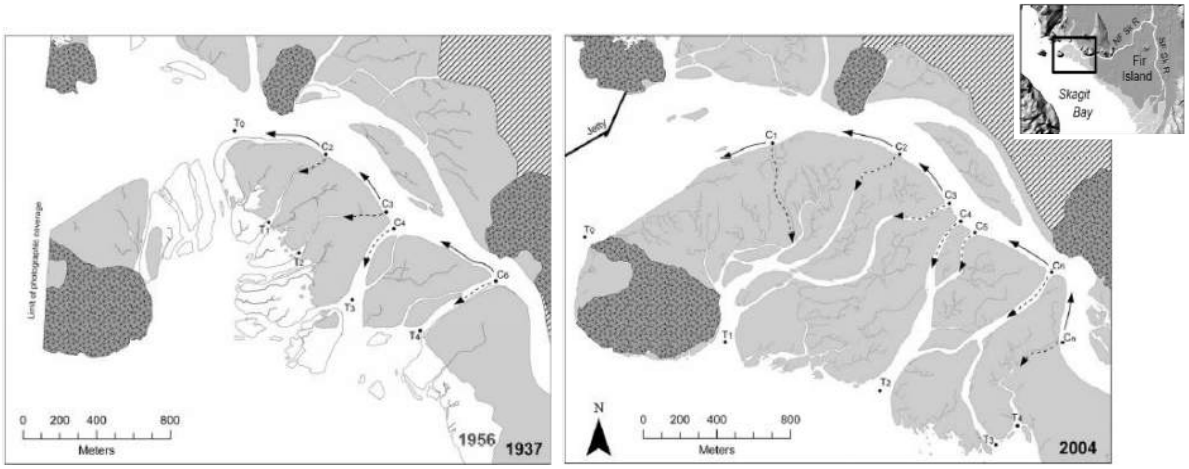



Figure ES.9 Planforms of the North Fork marsh/distributary system. Cross-hatched areas are farmland, checked areas are bedrock outcrops, light gray is tidal marsh, showing expansion from 1937 (left panel) to 2004 (right penal); gray outline in left panel indicates 1956 tidal marsh. White areas are channels and bay (Source: Hood, 2010a, see Chapter 5).

## Chapter 7. Ecosystems

Climate change is likely to result in profound impacts to terrestrial, freshwater, and marine ecosystems in the Skagit basin. Hydrologic changes such as increasing water temperature and hydrologic extreme events (floods and low flows) are likely to cause changes in water quantity (timing) and decreases in water quality, disturbing food webs and preventing access to habitat. Increased forest disturbance (e.g. from fire and insect impacts) is projected for a warmer 21$^{st}$ century climate, which often provides a competitive advantage for invasive species after disturbance. There are many uncertainties about the projection of sea level rise and its impacts on coastal habitats but there is little doubt that coastal habitat will be profoundly influenced by sea level rise. Such changes in fish and wildlife habitat are expected to have significant impacts on cold water fish such as salmon, steelhead, and bull trout (Figure ES.10), migratory birds, and other species.

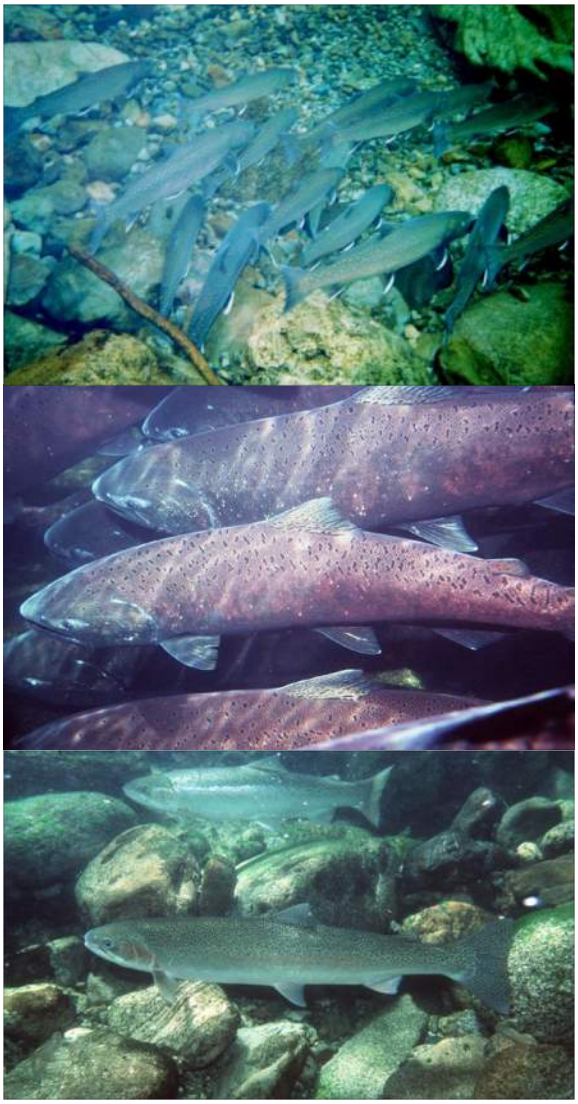


Figure ES.10 Cold water fish species in the Skagit basin likely to be impacted by climate change include bull trout (top), Chinook salmon (middle), steelhead (bottom) (Source: Ed Conner, Seattle City Light, *northcascadia.org/workshops/noca/1110_Connor_CC_Fish_0217.ppt*).

Climate change and its consequences are likely to alter the species composition in the Skagit's forests. Drier and warmer summers would cause decreases in drought-susceptible species such as western red cedar and even drought-tolerant species such as Douglas fir, which is an economically important species in the Skagit basin. It is difficult to translate the potential habitat changes into specific impacts on individual species, but generally these changes are likely to have negative impacts on terrestrial and aquatic species in the Skagit River basin, exacerbating impacts relating to human activities. Potential declines of economically valuable fish species

such as salmon and steelhead, and tree species such as Douglas fir would likely have negative impacts on the Skagit's current economy.

## Chapter 8. Human Systems

Climate change is likely to substantially impact human systems and many elements of the local economy in the Skagit basin. As mentioned above, warmer temperatures and changes in the seasonality of precipitation are projected to significantly alter the hydrology of the Skagit River on which water resources systems depend. Due to the altered hydrology of the Skagit basin, the seasonality of hydropower production is projected to change, increasing in winter and decreasing in summer. For the projected 2040s climate, for example, a 20% increase in winter power generation was simulated for the Seattle City Light (SCL) hydropower projects in the upper Skagit River. By the 2080s, peak hydropower generation in the SCL system shifts from July to January. The seasonal timing of peak flows in the Skagit River is also projected to shift from spring to fall/winter due to a warmer climate and associated rise in freezing level, increasing the risk of flooding in the Skagit basin. Dams in the upper Skagit River basin and Baker River can only impound the relatively small fraction of total flow from the headwaters above Ross Dam and Upper Baker Dam. Preliminary results from daily time step reservoir operations modeling (based on a single climate change scenario) suggest that the regulated 100-year flood will increase substantially in the future in comparison with historical baselines (20% by the 2040s and 24% by the 2080s). Proposed increases in flood storage are simulated to decrease the magnitude of the regulated 100-year flood by a small amount in comparison with current operations (3% reduction in the 100-year flood by the 2040s, and 7% reduction by the 2080s). Increasing flood storage would also likely result in important tradeoffs with other system objectives such as hydropower production and instream flow. Thus potential increases in flood storage would ultimately need to be weighed in the context of tradeoffs with other system objectives. Increasing winter precipitation will likely impact urban stormwater management systems, increase landslide risks, and impact public safety in the transportation sector. Decreasing mountain snowpack will likely impact both winter recreation opportunities such as skiing and white water recreation opportunities that depend on summer flow in rivers. These

combined impacts are likely to pose formidable challenges for water resources managers, utilities, and municipalities, particularly in the context of floodplain management.

Increased flood risks from the combination of sea level rise and projected increases in river flooding has the potential to cause major damage to low-lying farms and urban development in the floodplain, impacting homes, businesses, water treatment plants, and transportation infrastructure such as bridges and roads. For example, Figures ES.11 shows inundation of roads near La Conner during the flood of February 2006, impacting homes and businesses. Estimates of flood inundation based on combined sea level rise and increased river flows are needed to better quantify these impacts. Sea level rise may also impact the ability to drain low-lying farmland using traditional tide gates. Warmer water temperatures, more severe and prolonged low summer flows, and potential habitat loss associated with projected sea level rise are projected to negatively impact coldwater fish species such as salmon, steelhead, and trout.




Figure ES.11 Inundation of roads near La Conner due to storm/tidal surge of February 2006 , photos courtesy of John Doyle (Source: SITC, 2010, see Chapter 8).

Agriculture is the leading industry in Skagit County. About $300 million worth of crops, livestock, and dairy products are produced in approximately 100,000 acres of Skagit County (see Figure ES.12) Agriculture in Skagit County is expected to be influenced by climate change via longer growing seasons, warmer, drier summers, wetter winters, warmer temperatures, and changing risks for pests, invasive plants (weeds), and diseases. Warmer temperatures (in isolation) are expected to result in degraded quality and/or decreased productivity of some crops such as spinach seeds, raspberries, blueberries and potatoes. Elevated carbon dioxide levels, however, may compensate for these impacts by increasing net productivity in some crops in a warmer climate.



Figure ES.12 Major crops, livestock and dairy products produced in Skagit County (Source: Washington State University, 2007).

## Tara Satushek

**From:** Tim Trohimovich <Tim@futurewise.org>
**Sent:** Thursday, March 13, 2025 5:31 PM
**To:** PDS comments
**Subject:** Re: Comments on "2025 Skagit County Periodic Comprehensive Plan Update"
**Attachments:** 2024AdoptedSLRPolicyGuidanceUpdate.pdf

Dear Staff:

Here is the second set of enclosures.

Tim Trohimovich, AICP
Director of Planning & Law
Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org

---

**From:** Tim Trohimovich <Tim@futurewise.org>
**Sent:** Thursday, March 13, 2025 5:29 PM
**To:** Skagit County PD&S Comments <pdscomments@co.skagit.wa.us>
**Subject:** Re: Comments on "2025 Skagit County Periodic Comprehensive Plan Update"

Dear Staff:

Here is the first set of enclosures.

Tim Trohimovich, AICP
Director of Planning & Law
Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org

---

**From:** Tim Trohimovich
**Sent:** Thursday, March 13, 2025 5:23 PM
**To:** Skagit County PD&S Comments <pdscomments@co.skagit.wa.us>
**Subject:** Comments on "2025 Skagit County Periodic Comprehensive Plan Update"

Dear Staff:

Subject: Comments on the 2025 Skagit County Periodic Comprehensive Plan Update

Thank you for the opportunity to comment on the 2025 Skagit County Periodic Comprehensive Plan Update. Futurewise strongly supports the update. We have comments on the final draft below.

Futurewise works throughout Washington State to support land-use policies that encourage healthy, equitable and opportunity-rich communities, and that protect our most valuable farmlands, forests, and water resources. We have members across Washington State including Skagit County.

## Comments on the Preface

The first sentence under "2025 Forecast" on page 10 of the redlined version has the year 20~~4~~5. It appears that 2025 was intended.

**The Rural Growth Allocations, see redline pages 10 through 12.**

Futurewise has three concerns about the rural growth allocations. First, allocating 20 percent of the county's growth to the rural area will be costly for county taxpayers and ratepayers. A peer-reviewed study shows that "the cost of providing public services in rural areas is 39% greater than in cities." Ron Shani, Yaniv Reingewertz & Eran Vigoda-Gadot, *Far from-sight and expensive: additional costs of public services in rural areas* Local Government Studies p. 1, pp. 11 – 12 (22 Jun 2024), DOI: 10.1080/03003930.2024.2369784 last accessed on March 11, 2025, at: https://www.tandfonline.com/doi/pdf/10.1080/03003930.2024.2369784 and enclosed in another email with the filename: "Far-from-sight and expensive additional costs of public services in rural areas.pdf." The draft comprehensive plan in Appendix C the Transportation Element Technical Appendix on page 572 shows a transportation capital projects deficit of $150,689,518. Reallocating rural growth to cities and towns could reduce this $150 million transportation deficit.

Second, 501 rural housing units are intended to be affordable to households earning 51 to 80 percent of the area median income (AMI). The State of Washington Department of Commerce has documented that to provide housing affordable to families and individuals earning 80 percent or less of the area median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023) last accessed on March 11, 2025, at: https://deptofcommerce.app.box.com/s/1d9d5l7g509r389f0mjpowh8isjpirlh and enclosed in another email with the filename: "HB 1220_Book2_Housing Element Update_230823 Final_updated 240920.pdf." Low-rise multifamily and mid-rise multifamily housing are urban uses and require sewers and other urban services. RCW 36.70A.070(5) prohibits urban uses outside urban growth areas.

Third allocating 20 percent of the county's growth to the rural area will make it difficult to comply with RCW 36.70A.070(9)(d)(i) which provides that:

> The greenhouse gas emissions reduction subelement of the comprehensive plan, and its related development regulations, must identify the actions the jurisdiction will take during the planning cycle consistent with the guidelines published by the department pursuant to RCW 70A.45.120 that will:
>
> (A) Result in reductions in overall greenhouse gas emissions generated by transportation and land use within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state;
>
> (B) Result in reductions in per capita vehicle miles traveled within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; and

> (C) Prioritize reductions that benefit overburdened communities in order to maximize the cobenefits of reduced air pollution and environmental justice.

Adding twenty percent of the county's growth to rural Skagit County will likely increase greenhouse gas emissions, increase per capital vehicle miles traveled, and not benefit overburdened communities. Rural residents have substantially higher greenhouse gas emissions, particularly higher transport-related direct greenhouse gas emissions than residents in the urban growth areas. Jeffrey Wilson, Jamie Spinney, Hugh Millward, Darren Scott, Anders Hayden, and Peter Tyedmers, *Blame the exurbs, not the suburbs: Exploring the distribution of greenhouse gas emissions within a city region* 62 Energy Policy 1329, pp. 1334 – 35 (2013) enclosed in another email with the filename: "Blame_the_exurbs_not_the_suburbs_Explori.pdf." Energy Policy is a peer reviewed journal. Energy Policy Guide for authors webpage p. *14 last accessed on March 18, 2024, at: https://www.sciencedirect.com/journal/energy-policy/publish/guide-for-authors and in another email with the filename: "Guide for authors - Energy Policy.pdf." The transport-related direct emissions of rural residents are three times those in the inner city, and 1.5 times those in the suburbs. *Id.* p. 1335.

It is better to focus these housing types in cities, towns, and urban growth areas where the public facilities and services they require can be more affordably provided. This is important because if the planned, but not economically feasible, capacity for affordable housing in rural areas is counted towards the affordable housing need then the County and its cities and towns will not have the capacity for the affordable housing the county needs.

## Comments on Element 2: Urban, Open Space, and Land Use.

Futurewise supports the existing and proposed policies in this chapter.

We strongly support policy 2A-1.4 calling for the engagement of federally recognized Indian tribes before expanding urban growth areas.

We also support policies increasing development capacity in urban growth areas where sewer is available. This will increase housing affordability. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023).

## Comments on Element 3 the Rural Element.

**Rural Water on pages 82 and 83 of the Redline Version.**

While we recognize that this section is primarily a historical narrative, RCW 36.70A.070(1) provides that "[t]he land use element shall provide for protection of the quality and quantity of groundwater used for public water supplies." RCW 36.70A.070(5)(c)(iv) provides that "[t]he rural element shall include measures that apply to rural development and protect the rural character of the area, as established by the county, by: … Protecting surface water and groundwater resources." The Growth Management Act (GMA) in RCW 36.70A.590 also provides that:

> For the purposes of complying with the requirements of this chapter [the GMA] relating to surface and groundwater resources, a county or city may rely on or refer to applicable minimum instream flow rules adopted by the department of ecology under chapters 90.22 and 90.54 RCW. Development regulations must ensure that proposed water uses are consistent with RCW 90.44.050 and with applicable rules adopted pursuant to chapters 90.22 and 90.54 RCW when making decisions under RCW 19.27.097 and 58.17.110.

These policies and development regulations are required because overuse of surface or ground water often harms senior water rights holders and fish and wildlife habitat and consequently tribal treaty rights. Ecology has documented that lower streamflows in parts of the Skagit basin "have impacted important resources for fisheries and general stream health." State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023) last accessed on March 12, 2025, at: https://apps.ecology.wa.gov/publications/documents/2011003.pdf and enclosed in another email with the filename: "2011003.pdf."

> The reduced availability of surface water can have a negative impact on all stages of the salmonid life cycle. Water quality (e.g. temperature, flows) is affected by decreased inputs from groundwater. Lessened groundwater input concentrates pollutants, increases temperature, and diminish[es] dissolved oxygen. This is detrimental to salmonid migration, spawning and rearing.

*2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40 last accessed on March 12, 2025, at: https://nwifc.org/publications/state-of-our-watersheds/ and cited excerpts in another email with the filename: "state-of-our-watersheds-sow-2020-final-web excerpts.pdf."

Changes in Skagit County will directly impact the level of development that can be accommodated outside of urban growth areas. Most water in the Skagit "watershed is already legally spoken for or 'appropriated.'" State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023). Water is already limited and changes in hydrology will make water scarcer in the summer in the future. *Id.*; *Skagit River Basin Climate Science Report: Executive Summary* p. 9 last accessed on March 12, 2025, at: https://www.skagitcounty.net/EnvisionSkagit/Documents/ClimateChange/executive_summary.pdf and enclosed in another email with the filename: "executive_summary.pdf." Winter flooding will increase. *Skagit River Basin Climate Science Report: Executive Summary* pp. 9 – 11. These and other changes will make accommodating rural growth more difficult, more costly, and will adversely affect water available for salmon, wildlife, and irrigation. We recommend the County adopt policies consistent with RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590 to protect water quality and quantity.

**Goal 3A-2 revision on page 87 of the redline version.**

Goal 3A-2 is proposed to be amended to provide for a variety of "affordable housing types." The State of Washington Department of Commerce has documented that to provide housing affordable to families and individuals earning 80 percent or less of the county adjusted median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023). Low-rise multifamily and mid-rise multifamily housing are urban uses and require sewers and other urban services. RCW 36.70A.070(5) prohibits urban uses outside urban growth areas. Even if these housing types were allowed, it would not be affordable to provide the public facilities and services they need. A peer-reviewed study shows that "the cost of providing public services in rural areas is 39% greater than in cities." Ron Shani, Yaniv Reingewertz & Eran Vigoda-Gadot, *Far from-sight and expensive: additional costs of public services in rural areas* Local Government Studies p. 1, pp. 11 – 12 (22 Jun 2024), DOI: 10.1080/03003930.2024.2369784. The Appendix C, the Transportation Element Technical Appendix on page 572, shows a transportation capital projects deficit of $150 million.

There is also unlikely to be water available to serve these developments in the rural area. *2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40, p. 348. It is better to focus these housing types in cities, towns, and urban growth areas where the public facilities and services they require can be more affordably provided. This is important because if the planned, but not economically feasible, capacity for affordable housing in rural areas is counted towards the affordable housing need then the County and its cities and towns will not have the capacity for the affordable housing the county needs.

## Comments on Element 4: Natural Resource Lands.

**Policy 4A-1.1 on page 130 of the redline version.**

We appreciate that Policy 4A-1.1 is proposed to be amended to provide the "County may also consider unique farmlands soils and farmlands of statewide importance" in designating agricultural lands of long-term commercial significance. WAC 365-190-050(3)(c)(i) provides that in designating agricultural lands of long-term commercial significance "counties and cities should consider …: (i) The classification of prime and unique farmland soils, and farmlands of statewide importance, as mapped by the Natural Resources Conservation Service[.]" Consistent with WAC 365-190-050(3)(c) "should" should be substituted for "may" in Policy 4A-1.1.

We also support Policy 4A-1.1.(e) which requires that individual dedesignation requests must be deferred until a comprehensive countywide analysis is conducted. This policy is required by WAC 365-190-040 and WAC 365-190-050. These changes will better protect working farms and the county economy.

**Adopt a policy prohibiting the transfer of agricultural water for rural residential development.**

As was documented above, water is very limited in Skagit County. There will be pressure to transfer agricultural water to rural residential uses. Once this water is transferred, it will be lost to agriculture. While Skagit County cannot directly regulate water right transfers, it can use its zoning authority and subdivision authority to prohibit the use of agricultural water to mitigate rural residential and commercial developments. We urge the county to adopt a policy and regulation to prohibit the use of agricultural water to mitigate rural residential and commercial developments. It will aid the agricultural industry and the county economy long-term.

**Policy 4B-1.1 and Policy 4B-3.3 on pages 139 through 140 and page 144 of the redline version.**

We support the revisions to Policy 4B-1.1(e) and Policy 4B-3.3 so the policies comply with the amendments to WAC 365-190-040 and WAC 365-190-060. These amendments will help to conserve forest lands and forest industry jobs.

**New Policy on the Wildland Urban Interface and Policy 4B-2.11 on page 144 of the redline version.**

Wildfire is a significant and increasing risk in Skagit County. *Skagit County Community Wildfire Protection Plan 2019 Update* pp. 20 – 21 last accessed on March 12, 2025, at: https://skagitcounty.net/EmergencyManagement/Documents/Skagit%20County%20CWPP.pdf and enclosed in another email with the filename: "Skagit County CWPP.pdf." The Growth Management Act in RCW 36.70A.070(1) provides in part that:

> The land use element must reduce and mitigate the risk to lives and property posed by wildfires by using land use planning tools, which may include, but are not limited to, adoption of portions or all of the wildland urban interface code developed by the international code council or developing building and maintenance standards consistent with the firewise USA program or similar program designed to reduce wildfire risk, reducing wildfire risks to residential development in high risk areas and the wildland urban interface area, separating human development from wildfire prone landscapes, and protecting existing residential development and infrastructure through community wildfire preparedness and fire adaptation measures.

While we appreciate and support Policy 4B-2.11, RCW 36.70A.070(1) requires more. We recommend that development be directed away from the WUI. We also recommend the adoption and enforcement of the Firewise Principles which recommend "'two ways out' of the neighborhood for safe evacuation during a wildfire" along with other important measures to protect people and property. *Firewise USA® Program* p. *9 accessed on March 12, 2025, at: https://www.nfpa.org/en/education-and-research/wildfire/firewise-usa/firewise-usa-resources. We recommend that the following new policy be adopted as part of the Land Use Element or the Climate Change Element:

Policy X: Direct non-resource land uses and development away from the Wildland-Urban Interface (WUI), encourage the implementation of Firewise Principles for existing developments and uses, and require implementation of Firewise Principles for new developments and uses.

**Goal 4D-1 on page 153 of the redline version.**

We support the revisions to Goal 4D-1 to comply with WAC 365-190-040 and WAC 365-190-070. These changes will aid the construction industry and the county economy.

## Comments on Element 5: Environment.

**Designate and protect rare plant categories and listings from the Department of Natural Resources, Natural Heritage Program as the GMA requires. See pages 183 to 184 of the redline version.**

The "GMA requires the County to protect the functions and values of Critical Area Ecosystems." *Whidbey Environmental Action Network v. Island Cnty.*, Western Washington Region Growth Management Hearings Board (WWRGMHB) Case No. 14-2-0009, Final Decision and Order (June 24, 2015), at 21 of 49 last accessed on March 12, 2025, at: https://eluho2022.my.site.com/casemanager/s/case/50082000001BDWk/detail. This includes the "high quality ecosystem and rare plant categories and listings from the department of natural resources, natural heritage program." *Id.* at 32 – 35 of 49, see also WAC 365-190-040(4)(b). The *2024 Washington Vascular Plant Species of Conservation Concern* identifies rare plants in Skagit County. Jesse E. D. Miller, Sienna Wessel, and Walter Fertig, *2024 Washington Vascular Plant Species of Conservation Concern* pp. 8 – 44 (Washington Natural Heritage Program, Natural Heritage Report 2024-07: July 3, 2024) last accessed on March 12, 2025, at: https://www.dnr.wa.gov/publications/amp_nh_vascular_ets.pdf and enclosed in another email with the filename: "amp_nh_vascular_ets.pdf." These plants and ecosystems need to be designated as fish and wildlife habitats and conserved as the Growth Management Act requires.

**Do not change the "shalls" to "shoulds" in Policy 5A-5.1, Policy 5A-5.2, and Policy 5A-5.3 on pages 181 through 188 of the redline version.**

Policy 5A-5.1 is proposed to be amended to add that: "Critical areas shall be designated and protected to maintain no net loss of wetland functions and value." We strongly support this addition. It is also consistent with the Growth Management Act (GMA) which "requires that the regulations for critical areas must protect the 'functions and values' of those designated areas. [RCW 36.70A.172(1).] This means all functions and values." *Whidbey Env't Action Network v. Island Cnty.*, 122 Wn. App. 156, 174–75, 93 P.3d 885, 894 (2004). However, elsewhere in this policy the "shalls" are changed to "should." Shoulds are not consistent with the Growth Management Act requirement and should not be substituted for "shalls."

"Shoulds" are not consistent with the Growth Management Act requirement and also should not be substituted for "shalls in Policy 5A-5.2 and Policy 5A-5.3.

**Do not change "shall" to "should" in policy 5A-5.8 on page 191 of the of the redline version.**

For the same reason, do not change "shall" to "should" in policy 5A-5.8.

**Futurewise supports Goal 5B and its associated policies to address climate hazards and to reduced greenhouse gas pollution on pages 191 and 192 of the redline version.**

We support Goal 5B and its associated policies to address climate hazards and to reduced greenhouse gas pollution. This goal and the policies are required by RCW 36.70A.070(9). We have additional comments on the topic of climate below.

## Comments on Element 7: Housing.

**RCW 36.70A.070(2)(c) requires the housing element to identify sufficient land for affordable housing including STEP housing.**

RCW 36.70A.070(2)(c) requires the County housing element, and the housing elements of the cities, to identify "sufficient capacity of land for housing including, but not limited to, government-assisted housing, housing for moderate, low, very low, and extremely low-income households, manufactured housing, multifamily housing, group homes, foster care facilities, emergency housing, emergency shelters, [and] permanent supportive housing ...." Using the State of Washington Department of Commerce Housing for All Planning Tool (HAPT) methodology, the population targets are converted to needed housing units by income category and beds for permanent supportive housing. The County must then identify the land with the zoning capacities needed to accommodate these housing units by income band or category. We were unable to find the documentation of sufficient capacity in the housing element. It may be in Appendix E Housing Needs Assessment, but we were unable to find this appendix. If it is in the appendix, that is fine. If not, the housing element should document that the County has sufficient capacity for affordable housing types and indoor emergency shelters, transitional housing, emergency housing, and permanent supportive housing (STEP housing).

**Affordable housing should be focused in cities, towns, and urban growth areas.**

The Housing Element on page 226 states: "Skagit County plans to accommodate new housing within its existing land use designations by focusing on limited areas of more intense rural development, specifically the rural village residential zones. The rural village residential zone, which are part of the County's land use and zoning regulations, has been revised to allow for new housing types that are affordable to moderate- and low-income residents." The State of Washington Department of Commerce has documented that to provide housing affordable to families and individuals earning 80 percent or less of the area median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023). Middle housing is not affordable to families earning 80 percent or less of the area median income. In addition, as was documented above there is a significant water shortage and placing affordable housing in rural areas increases transportation costs for families and transportation and public service costs for the County. We do not believe this strategy will work and should be discarded. Instead, affordable housing should be focused in cities, towns, and urban growth areas where affordable housing types and densities can actually be constructed.

Similarly, the *Washington Farmworker Housing Needs Assessment* recommended that to provide more affordable farm worker housing cities should be encouraged "to increase zoning and infrastructure investments for multi-family housing within urban growth areas." BERK Consulting, *Washington Farmworker Housing Needs Assessment* p. 184 (The Washington State Department of Commerce: Jan. 2022) last accessed on March 12, 2025, at: https://www.commerce.wa.gov/wp-content/uploads/2022/04/CommerceReports_CSHD_FarmworkerHousing_Final_4.26.22.pdf and enclosed in a separate email with the filename: "CommerceReports_CSHD_FarmworkerHousing_Final_4.26.22.pdf." The assessment also recommended that cities remove "barriers to the development of rental housing." *Id*. "Encouraging cities to identify and remove barriers to rental housing development is an important strategy to address housing needs for farmworkers." *Id*.

**Comments on Element 12: Climate and Resiliency**

Overall, Futurewise strongly supports the Climate and Resiliency element. We do have some suggestions provided below.

**Futurewise supports Goal 12J on page 396 of the redline version.**

Goal 12J on page 396 calls for integrating climate change projections into land use, infrastructure planning, and development regulations, ensuring long-term safety from sea-level rise, flooding, wildfires, and other climate-exacerbated hazards while protecting natural ecosystems. We support this goal and its associated policies. The deadline for Skagit County to update its development regulations is December 31, 2025. RCW 36.70A.130(1)(a), (5)(b).

**Please clarify policy 12J-1.8 on page 397 of the redline version.**

Futurewise strongly supports policy 12J-1.8. It intends to cover sea level rise which we support. On addition, as the seas are rising and storms become more intense, coastal rivers and streams will be subject to more channel migration. We recommend that policy 12J-1.8 be clarified as follows with our additions underlined.

policy 12J-1.8 All residential and commercial development and accessory uses, port and water related industrial facilities, equipment, and works should be located, designed, and maintained to avoid, or if necessary, withstand 100-year flood frequency flooding, and/or storm tides or surges, channel migration, and tides and water levels likely over the next 100 years without becoming hazards and without the placement of flood hazard reduction measures or other hard structural shoreline stabilization. Incorporate climate projections to account for anticipated changes in flood frequency, storm intensity, and sea-level rise. Ensure that designs and maintenance plans adapt to these projections to enhance long-term resilience against evolving climate impacts.

**Include a policy including the California Coastal Commission recommendations for adapting to sea level rise.**

In addition, we suggest that the County incorporate a policy on adapting to sea level rise and its adverse impacts modeled on the process California's coastal counties and cities use. *California Coastal Commission Sea Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits* pp. 97 – 140 (2024 Update: Nov. 13, 2024) last accessed on March 13, 2025, at: https://www.coastal.ca.gov/climate/slrguidance.html and enclosed in another email with the filename: "2024AdoptedSLRPolicyGuidanceUpdate.pdf." The process includes seven steps and we recommend a policy incorporating these steps be adopted.

1. Initiate planning effort, identify key goals and stakeholders, and engage with environmental justice communities and Indian tribes.
2. Determine the range of sea level rise scenarios relevant to Skagit County's marine shorelines. The California Coastal Commission recommends analyzing intermediate and long-term projections because "development constructed today is likely to remain in place over the next 75-100 years, or longer." *Id.* p. 109.
3. Identify potential physical sea level rise impacts in Skagit County's unincorporated marine shorelines.
4. Assess potential risks from sea level rise to coastal resources, development, and environmental justice communities in unincorporated Skagit County.
5. Identify equitable adaptation measures. The *California Coastal Commission Sea Level Rise Policy Guidance* includes recommended adaptation strategies the County can consider. *Id.* pp. 179 – 226.
6. Adopt an updated comprehensive plan and development regulations incorporating the selected adaptation strategies.

7. Implement the updated comprehensive plan and development regulations and monitor and revise as needed. Because the scientific data on sea level rise is evolving, the California Coastal Commission recommends that "[i]t will likely be important to modify maps of current and future hazard areas on a five- to ten-year basis or as necessary to allow for the incorporation of new sea level rise science, monitoring results, and information on coastal conditions." *Id*. p. 139.

**The greenhouse gas emissions reduction subelement must quantify whether the element will reduce greenhouse gas emissions and reduce per capita vehicle miles traveled.**

RCW 36.70A.070(9)(d)(i) provides:

> (d)(i) The greenhouse gas emissions reduction subelement of the comprehensive plan, and its related development regulations, must identify the actions the jurisdiction will take during the planning cycle consistent with the guidelines published by the department pursuant to RCW 70A.45.120 that will:
>
> (A) Result in reductions in overall greenhouse gas emissions generated by transportation and land use within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; (B) Result in reductions in per capita vehicle miles traveled within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; and
>
> (C) Prioritize reductions that benefit overburdened communities in order to maximize the cobenefits of reduced air pollution and environmental justice.

Please note that subelement and its related development regulations "must identify the actions the jurisdiction will take … that will: … [r]esult in reductions in overall greenhouse gas emissions …. Similarly, the subelement and its related development regulations "must identify the actions the jurisdiction will take … that will: … [r]esult in reductions in per capita vehicle miles traveled ….." The element itself "must identify" the reductions.

Further, RCW 36.70A.070 provides that "[t]he plan shall be an internally consistent document and all elements shall be consistent with the future land use map." So these calculations must take into the planned growth over the next 20 years.

While we appreciate the three scenarios described on page 399, the reductions are not quantified and it is not clear if they take into account the proposed growth allocations. This information is needed to document compliance with RCW 36.70A.070(9)(d)(i). It would also be helpful to know if these reductions will over time put the County on a path to address the State's overall target of net-zero emissions by 2050. If this information is in an appendix that will be included with the comprehensive plan in the future that would be sufficient to document compliance.

**The Growth Management Act requires water quantity policies and regulations as part of the 2025 comprehensive plan and development regulations update.**

As was documented above, RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590 require Skagit County to adopt policies and regulations to protect water quality and quantity. These policies and development regulations are required because overuse of surface or ground water often harms senior water rights holders and fish and wildlife habitat and consequently tribal treaty rights. Most water in the Skagit "watershed is already legally spoken for or 'appropriated.'" State of Washington Department of Ecology Water Resources Program, WRIAs 3 & 4 Skagit Watershed Water Availability p. 3 (Publication 20-11-003: May 2023). The Washington State Department of Ecology has summarized water availability in the Skagit basin:

> Increasing demands for water over time, from ongoing population growth, agriculture, and other consumptive uses as well as associated land use practices, have resulted in lower streamflows in some areas. These decreases have impacted important resources for fisheries and general stream health. The

> impacts of climate change in WRIAs 3 and 4 are also yet to be fully realized. However, it is apparent that water availability is limited throughout the Skagit Watershed.

State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023). "The reduced availability of surface water can have a negative impact on all stages of the salmonid life cycle." *2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40.

To address current and future water shortages and to comply with RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590, the comprehensive plan and development regulations should adopt policies and regulations to ensure development complies with the water codes and the applicable instream flow rules.

RCW 36.70A.590 requires the development regulations to ensure that proposed water uses are consistent with RCW 90.44.050. When the County determines if a development, land division, or use qualifies for a residential permit-exempt well under RCW 90.44.050, the development regulations must require that the County limit the water used by the proposal and the parent parcel that existed in 2002, any lots created from the parent parcel, and any development built on or after 2002 on those lots to the no more than the 5,000 gallons a day allowed by RCW 90.44.050. Under the State Supreme Court's *Campbell and Gwinn* decision, each lot is entitled to one 5,000 gallon per day permit exempt withdrawal for single or group domestic uses under RCW 90.44.050. *State Dep't of Ecology v. Campbell & Gwinn, L.L.C.*, 146 Wn.2d 1, 14, 43 P.3d 4, 110 (2002). A "developer may not claim multiple exemptions for the homeowners." *Id.* So each lot that existed in 2002, the year the *Campbell and Gwinn* decision was decided, is entitled to one permit-exempt withdrawal under RCW 90.44.050 and is limited to 5,000 gallons per day.

As lots are subdivided or developed over time, part or all of the permit exempt withdrawals are used by the lots created or the development authorized. To qualify for a permit-exempt groundwater withdrawal authorized under RCW 90.44.050, the lot must have some remaining water from the parent parcel's single 5,000 gallon per day permit exempt withdrawal for single or group domestic uses.

Therefore, the required regulations can only authorize the use of a permit exempt-well for single or group domestic uses if the water use allowed under the permit-exemption does not exceed the 5,000 gallons a day allowed by RCW 90.44.050 including the parent parcel that existed in 2002, any lots created from the parent parcel, and any development built on or after 2002. To comply with RCW 36.70A.590, the proposed development regulations must include this important limitation.

Thank you for considering our comments. If you require additional information, please contact me at telephone (206) 343-0681 or email: tim@futurewise.org.

We will be providing the supporting documents in several emails.

Tim Trohimovich (he/him)
Director of Planning & Law

Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org
**futurewise.org**
connect:

# California Coastal Commission Sea Level Rise Policy Guidance

## *Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits*













Original Guidance unanimously adopted – August 12, 2015
Science Update unanimously adopted – November 7, 2018
2024 Update unanimously adopted – November 13, 2024

*This page intentionally left blank*

The **original** *California Coastal Commission Sea Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits* was unanimously adopted by the California Coastal Commission on August 12, 2015.

| | |
|---|---|
| **Commissioners:** | Steve Kinsey (Chair), Dayna Bochco (Vice Chair), Gregory Cox, Carole Groom, Erik Howell, Martha McClure, Wendy Mitchell, Mary K. Shallenberger, Effie Turnbull-Sanders, Roberto Uranga, Mark Vargas |
| **Alt. Commissioners:** | Olga Diaz, Belinda Faustinos, Sarah Glade Gurney, Steve Kram, Marciela Morales, Randy Pestor, Dr. Paul Song |
| **Ex Officio Members:** | John Laird/Janelle Beland, Lt. Gov. Gavin Newsom/Jennifer Lucchesi/ Kevin Schmidt, Brian P. Kelly/Dale Jones |

A **Science Update** to the *California Coastal Commission Sea Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits* was unanimously adopted by the California Coastal Commission on November 7, 2018.

| | |
|---|---|
| **Commissioners:** | Dayna Bochco (Chair), Effie Turnbull-Sanders (Vice Chair), Sara Aminzadeh, Donne Brownsey, Carole Groom, Erik Howell, Mary Luéveno, Steve Padilla, Aaron Peskin, Ryan Sundberg, Roberto Uranga, Roberto Uranga, Mark Vargas |
| **Alt. Commissioners:** | Linda Escalante, Belinda Faustinos, Zahirah Mann, Maricela Morales, Brian Pendleton, Bryan Urias, Christopher Ward |
| **Ex Officio Members:** | John Laird/Thomas Gibson, Betty Yee/Anne Baker/Nicole Jones, Brian Annis/ Jeremiah Ketchum |

A **2024 Update** to the *California Coastal Commission Sea Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits* was unanimously adopted by the California Coastal Commission on November 13, 2024.

| | |
|---|---|
| **Commissioners:** | Caryl Hart (Chair), Linda Escalante (Vice Chair), Paloma Aguirre, Dayna Bochco, Justin Cummings, Meagan Harmon, Susan Lowenberg, Ann Notthoff, Katie Rice, Effie Turnbull-Sanders, Roberto Uranga, Mike Wilson |
| **Alt. Commissioners:** | Raul Campillo, Gretchen Newsom, Rafael Mandelman**,** Matt O'Malley, David Ryu, Charles Striplen, Juan Uranga |
| **Ex Officio Members:** | Wade Crowfoot/Jenn Eckerle, Malia Cohen/Kristina Kunkel, Toks Omishakin/Scott Williams/Jeremiah Ketchum |

*This report was prepared with financial assistance from the National Oceanic and Atmospheric Administration under the Coastal Zone Management Act Section 309 Enhancement Grant Program.*

# SUMMARY OF DOCUMENT REVISIONS

The Coastal Commission intends to periodically update this policy guidance to reflect developing scientific research on sea level rise projections as well as the evolving understanding of adaptation options and planning practices. Updates will be roughly timed to follow updates of other state and national sea level rise reports or other significant changes in the field of sea level rise adaptation planning.

The first version of this Guidance was adopted by the Coastal Commission on August 12, 2015. That version of the guidance referenced the best available science on sea level rise available at the time, the National Research Council's 2012 Report, Sea-Level Rise for the Coasts of California, Oregon and Washington: Past, Present, and Future. In 2017, the Ocean Protection Council (OPC), acting on direction from Governor Brown, released a scientific report entitled Rising Seas in California: An Update on Sea-Level Rise Science, which synthesized the evolving research on sea level rise science. OPC then updated the State of California Sea-Level Rise Guidance to reflect this new science, and the Coastal Commission followed with a complementary update (adopted on November 7, 2018) to this Sea Level Rise Policy Guidance.

In 2019, the Coastal Commission adopted its Environmental Justice Policy to provide guidance for Commissioners, staff, and the public on how the Commission will implement its environmental justice authority and integrate the principles of environmental justice, equality, and social equity into all aspects of the Commission's program and operations. The Environmental Justice Policy contains a set of guiding principles, including one on climate change, and complements the Sea Level Rise Policy Guidance section on environmental justice and equity. This update to the Guidance builds upon the Commission's Environmental Justice Policy and intentionally integrates environmental justice and equity considerations to further inform recommendations that address sea level rise.

Most recently, in June 2024, the OPC adopted its most recent update to the State of California Sea Level Rise Guidance (OPC 2024), which reflects the previous five years of scientific research on sea level rise projections, including the IPCC's Sixth Assessment Report (2021) and NOAA's national report, Global and National Sea Level Rise Scenarios for the United States (Sweet et al., 2022). The Coastal Commission Guidance is now being updated to be consistent with the State Sea Level Rise Guidance (OPC 2024), provide additional detail specific to the Coastal Act, and address other developments that have occurred since 2018. Key updates include:

- Updates to sea level rise scenarios to reflect 1) more certainty about near-term sea level rise amounts as compared to the 2018 numbers, and 2) updated understanding of the potential timing of worst-case Antarctica ice sheet melt, which has the effect of slightly slowing the possible worst case SLR scenario.
- Discussion of SB 272 (Laird, 2023), which requires local governments to develop sea level rise adaptation plans as part of new or updated LCPs by January 1, 2034. The new information in this Guidance related to SB 272 is intended to fulfill the legislation's

requirement for the Coastal Commission to establish guidelines (by December 31, 2024) for the preparation of those plans.

- Integration of environmental justice principles as detailed in the Commission's Environmental Justice Policy, including additional information on consequences of sea level rise to environmental justice communities, the importance of meaningful engagement, how to consider and include environmental justice communities in the planning and permitting process, and equitable adaptation strategies. This work was supported by eight external subject matter experts in sea level rise science and environmental justice, who acted as project advisors. These advisors were consulted at the beginning of and throughout the process to ensure guidelines reflect the priorities of environmental justice communities.

# How to Use this Document

## What this document IS and IS NOT:

### This document is guidance, it is NOT regulations

This Guidance is advisory and not a regulatory document or legal standard of review for the actions that the Commission or local governments may take under the Coastal Act. Such actions are subject to the applicable requirements of the Coastal Act, the federal Coastal Zone Management Act, certified Local Coastal Programs, and other applicable laws and regulations as applied in the context of the evidence in the record for that action. This Guidance also fulfills the Commission's duty, pursuant to Public Resources Code Section 30985.2, to establish guidelines for the preparation of the sea level rise plans required pursuant to subdivision (a) of Public Resources Code Section 30985.

### This document is dynamic, it is NOT static

This Guidance will be updated periodically to address new sea level rise science, information, and approaches regarding sea level rise adaptation, and new legal precedent. Updates will occur with public notice, opportunities for public input, and public Commission meetings. The Commission will also continue working on SLR through other projects, as outlined in Chapter 9: Next Steps.

### This document is multi-purpose for multiple audiences, it is NOT meant to be read cover-to-cover

This Guidance is a comprehensive, multi-purpose resource and it is intended to be useful for many audiences. As such, it includes a high level of detail on many subjects. However, chapters were written as stand-alone documents to provide usable tools for readers.

### This document is a menu of options, it is NOT a checklist

Since this document is intended for use statewide, it is not specific to a particular geographic location or development intensity (e.g., urban or rural locations). Therefore, not all of the content will be applicable to all users, and readers should view the content as a menu of options to use only if relevant, rather than a checklist of required actions.

## Reading Tips

- Look carefully at the Table of Contents and identify sections of interest.
- Do not expect all of the content to apply to your particular situation. As a statewide document, a wide variety of information is included to address the concerns of various users.
- Navigate to your desired level of detail: The *Executive Summary* provides a basic summary of the content; the body of the document provides a detailed discussion; and the *Appendices* provide more scientific and technical detail and a variety of useful resources.

# TABLE OF CONTENTS

**EXECUTIVE SUMMARY** **13**
Principles for Addressing Sea Level Rise in the Coastal Zone 16
Best Available Science and Consequences of Sea Level Rise 18
Addressing Sea Level Rise in Local Coastal Programs 19
Addressing Sea Level Rise in Coastal Development Permits 22
Adaptation Strategies 24

**1. INTRODUCTION** **27**
Environmental, Economic, and Social Impacts of Sea Level Rise 28
Sea Level Rise and the California Coastal Act 31
The Importance of Addressing Sea Level Rise in Local Coastal Programs 33
Coastal Resiliency and Preparing for Sea Level Rise: The Federal and State Context 35
Federal and State Action on Environmental Justice and Sea Level Rise Planning 38
Coastal Commission Action on Environmental Justice 40
Looking Ahead: Planning and Project Design with Sea Level Rise 40

**2. PRINCIPLES FOR ADDRESSING SEA LEVEL RISE IN THE COASTAL ZONE** **43**
Use Science to Guide Decisions 44
Minimize Coastal Hazard Risks through Planning and Development Standards 47
Maximize Protection of Public Access, Recreation, and Sensitive Coastal Resources 48
Maximize Agency Coordination, Meaningful Engagement, and Public Participation 50
Prioritize Environmental Justice Communities 51

**3. SEA LEVEL RISE SCIENCE** **53**
Best Available Science on Sea Level Rise 54
Guidance for Application of Best Available Science 65
Physical Effects of Sea Level Rise 71
Storms and Extreme Events 74

**4. CONSEQUENCES OF SEA LEVEL RISE FOR COMMUNITIES, COASTAL RESOURCES, AND DEVELOPMENT** **77**
Sea Level Rise Adaptation Planning and Environmental Justice 78
Sea Level Rise Consequences Unique to Tribal Communities 84
Consequences of Sea Level Rise for Coastal Act Resources 86

**5. ADDRESSING SEA LEVEL RISE IN LOCAL COASTAL PROGRAMS** **93**
Step 1 – Initiate planning effort, identify key goals, engage with EJ communities 103
Step 2 – Determine range of sea level rise projections relevant to LCP planning area/segment 108
Step 3 – Identify potential physical sea level rise impacts in LCP planning area/segment 113
Step 4 – Assess potential risks from SLR to coastal resources, development, EJ communities 119
Step 5 – Identify equitable adaptation measures 128

Step 6 – Draft updated or new LCP for certification with the California Coastal Commission 132
Step 7 – Implement LCP and monitor and revise as needed 139

**6. ADDRESSING SEA LEVEL RISE IN COASTAL DEVELOPMENT PERMITS 148**
Step 1 – Initiate CDP application, gather project information, engage with EJ communities 152
Step 2 – Establish the projected sea level rise range for the proposed project 155
Step 3 – Determine how physical impacts from sea level rise may constrain the project site 159
Step 4 – Determine how the project may impact coastal resources, EJ communities 161
Step 5 – Identify project alternatives that avoid/minimize resource, EJ impacts and risks 167
Step 6 – Finalize project design and submit CDP application 171

**7. ADAPTATION STRATEGIES 181**
General Adaptation Approaches 183
Specific Adaptation Strategies 189
A. Coastal Development and Hazards 190
B. Public Access and Recreation 209
C. Coastal Habitats, ESHA, and Wetlands 213
D. Agricultural Resources 219
E. Water Quality and Supply 222
F. Archaeological, Tribal Cultural, and Paleontological Resources 226
G. Scenic and Visual Resources 227

**8. LEGAL CONTEXT OF ADAPTATION PLANNING 229**
Seawalls and Other Shoreline Protective Devices 230
Public Trust Boundary 235
Potential Private Property Takings Issues 236

**9. ADDITIONAL CCC EFFORTS TO ADDRESS SLR 239**

**GLOSSARY 245**

**REFERENCES 261**

**APPENDICES 277**
Appendix A. Sea Level Rise Science and Scenarios of Future Change 279
Appendix B. Developing Local Hazard Conditions Based on Regional or Local Sea Level Rise Using Best Available Science 299
Appendix C. Resources for Addressing Sea Level Rise 325
Appendix D. General LCP Amendment Processing Steps and Best Practices 333
Appendix E. Primary Coastal Act Policies Related to Sea Level Rise and Coastal Hazards 337
Appendix F. Sea Level Rise Scenarios for 14 California Tide Gauges 349
Appendix G. Coastal Commission Contact Information 365

# List of Figures

**Figure 1.** Flowchart for addressing sea level rise in Local Coastal Programs and other plans ..... 21
**Figure 2.** Flowchart for addressing sea level rise in Coastal Development Permits ..... 23
**Figure 3.** Climate-sensitive processes and components that can influence global and regional sea level. ..... 55
**Figure 4.** IPCC AR6 plausible range of future sea level rise. ..... 56
**Figure 5.** IPCC AR6 SLR projections by 2100 ..... 57
**Figure 6.** Global Sea Level Rise Scenarios from Sweet *et al.*, 2022. ..... 58
**Figure 7.** Sea level rise scenarios for the contiguous United States ..... 59
**Figure 8.** Photo of Esplanade Apartments threatened by cliff erosion 73
**Figure 9.** Photo of infrastructure at risk near Rincon Beach, Ventura, CA ..... 87
**Figure 10.** Summary of sea level rise impacts and consequences ..... 92
**Figure 11.** Sea level rise adaptation planning process for new and updated Local Coastal Programs ..... 98
**Figure 12.** Agencies, organizations, and planning efforts related to sea level rise adaptation . 102
**Figure 13.** Example of analysis of SLR impacts. ..... 116
**Figure 14.** Flowchart for addressing sea level rise in Local Coastal Programs and other plans . 147
**Figure 15.** Process for addressing sea level rise in Coastal Development Permits ..... 151
**Figure 16.** Flowchart for steps to address sea level rise in Coastal Development Permits ..... 174
**Figure 17.** The effects of coastal squeeze (Graphic by Jeremy Smith) ..... 184
**Figure 18.** Photo depicting passive erosion. ..... 185
**Figure 19.** Photo depicting “managed retreat” and restoration ..... 187
**Figure 20.** Examples of general adaptation strategies ..... 187
**Figure 21.** Photo depicting a development setback in Pismo Beach ..... 193
**Figure 22.** Photo depicting eroding bluff and exposed caissons in Encinitas, CA ..... 196
**Figure 23.** Photo depicting dune restoration at Surfer’s Point, Ventura ..... 200
**Figure 24.** Photo depicting removal of shoreline protective structure ..... 204
**Figure 25.** Photo depicting planned retreat for major public infrastructure ..... 207
**Figure 26.** Photo depicting the preservation and conservation of open space along an urban-rural boundary ..... 216
**Figure 27.** Photo depicting habitat protection at Salinas River State Beach ..... 218
**Figure 28.** Photo depicting protection of visual resources and public access ..... 228

**Figure A-1.** IPCC AR6 plausible range of future SLR ..... 285

**Figure A-2.** Global SLR Scenarios from Sweet *et al*., 2022 ..... 287

**Figure A-3.** SLR Scenarios for the contiguous United States ..... 288

**Figure A-4.** Schematic showing construction of the sea level scenarios based on SSPs ..... 289

**Figure B-1.** Diagram showing beach erosion from both sea level rise and winter storm conditions ..... 303

**Figure B-2.** Changes to the intertidal zone with sea level rise and erosion, without wave impacts ..... 305

**Figure B-3.** Photo series documenting rapid bank and wetland erosion in Elkhorn Slough ..... 306

**Figure B-4.** Illustration of differences between a hydrodynamic model and a "bathtub" model ..... 308

**Figure B-5.** Illustration of components of coastal total water levels ..... 309

**Figure B-6.** Diagram illustrating the compounding effects of sea level rise on coastal wave hazards ..... 311

**Figure B-7.** Diagram illustrating how sea level rise can influence fluvial flooding upstream ..... 312

**Figure B-8.** Photo of pluvial flooding at an undercrossing in San Mateo, CA ..... 314

**Figure B-9.** Diagram illustrating current groundwater table and saline groundwater wedge in blue and future groundwater table and saline groundwater wedge in pink ..... 315

**Figure B-10.** Screenshot of ASCE Tsunami Hazard Tool ..... 316

**Figure F-1.** Map of tide gauge locations (from OPC 2018) ..... 350

**Figure G-1.** Location of Coastal Commission Offices ..... 366

## List of Tables

**Table 1.** Sea Level Rise Scenarios for California ..... 19

**Table 2.** Sea Level Rise Scenarios for California ..... 46

**Table 3.** Sea Level Rise Scenarios for California ..... 60

**Table 4.** Exceedance probabilities for the sea level scenarios based on IPCC warming level-based global mean sea level projections ..... 63

**Table 5.** Sea Level Rise Scenarios for California ..... 110

**Table 6.** Sea Level Rise Mapping Tools ..... 117

**Table 7.** Sea Level Rise Scenarios for California ..... 158

**Table A-1.** Sea Level Rise Scenarios for California ..... 292

**Table A-2.** Exceedance probabilities for the sea level scenarios based on IPCC warming level–based global mean sea level projections ..... 293
**Table B-1.** Factors that Influence Local Water Level Conditions ..... 317
**Table B-2.** General Resources for Developing Local Hazard Conditions ..... 318
**Table F-1.** Sea Level Scenarios for Crescent City ..... 351
**Table F-2.** Sea Level Scenarios for North Spit, Humboldt Bay. ..... 352
**Table F-3.** Sea Level Scenarios for Arena Cove. ..... 353
**Table F-4.** Sea Level Scenarios for Point Reyes ..... 354
**Table F-5.** Sea Level Scenarios for San Francisco ..... 355
**Table F-6.** Sea Level Scenarios for Alameda ..... 356
**Table F-7.** Sea Level Scenarios for Port Chicago ..... 357
**Table F-8.** Sea Level Scenarios for Monterey ..... 358
**Table F-9.** Sea Level Scenarios for Port San Luis ..... 359
**Table F-10.** Sea Level Scenarios for Santa Barbara ..... 360
**Table F-11.** Sea Level Scenarios for Santa Monica ..... 361
**Table F-12.** Sea Level Scenarios for Los Angeles ..... 362
**Table F-13.** Sea Level Scenarios for La Jolla ..... 363
**Table F-14.** Sea Level Scenarios for San Diego ..... 364

## Commonly Used Acronyms and Agency Names

(See the Glossary for definitions and explanations of key terms)

**Terms:**

AR6 – IPCC Sixth Assessment Report

CDP – Coastal Development Permit

CoSMoS – Coastal Storm Modeling System

EJ – Environmental Justice

ENSO – El Niño Southern Oscillation

ESHA – Environmentally Sensitive Habitat Area

GHG – Greenhouse gas

IP – Implementation Plan

IPCC – Intergovernmental Panel on Climate Change

LCP – Local Coastal Program

LUP – Land Use Plan

PDO – Pacific Decadal Oscillation

SLR – Sea level rise

**Agency Names:**

BCDC – San Francisco Bay Conservation and Development Commission

BOEM – Bureau of Ocean Energy Management

Cal OES – California Governor's Office of Emergency Services

Caltrans – California Department of Transportation

CCC/Commission – California Coastal Commission

CDFW – California Department of Fish and Wildlife

CNRA – California Natural Resources Agency

Conservancy – California State Coastal Conservancy

DTSC – Department of Toxic Substances Control

EPA – Environmental Protection Agency

FEMA – Federal Emergency Management Agency

NAHC – California Native American Heritage Commission

NASA – National Aeronautics and Space Administration

NERR – National Estuarine Research Reserve

NMS – National Marine Sanctuary

NOAA – National Oceanic and Atmospheric Administration

OPC – California Ocean Protection Council

OPR – California Governor's Office of Planning and Research

State Lands – California State Lands Commission

State Parks – California Department of Parks and Recreation

SWRCB – State Water Resources Control Board

USACE – United States Army Corps of Engineers

USFWS – United States Fish and Wildlife Service

USGS – United States Geological Survey



# Executive Summary

Climate change is upon us, affecting almost every facet of California's natural, social, and built environment. Rising global temperatures are causing significant effects at global, regional, and local scales. In the past century, average global temperature has increased by about 0.8°C (1.4°F), and average global sea level has increased by nearly 8 inches (20 cm; Fox-Kemper *et al*., 2021). According to the most recent best available science, by the year 2100, sea levels in California may rise by 1 to 6.6 feet (0.3 to 2.0 meters) depending on emissions levels (OPC 2024). While the California coast regularly experiences erosion, flooding, and significant storm events, sea level rise will exacerbate these natural forces, leading to significant social, environmental, and economic impacts.

Importantly, sea level rise will exacerbate burdens already felt among environmental justice and tribal communities who experience a higher vulnerability to climate change. In California, generations of discriminatory land use policies and practices have resulted in an inequitable distribution of environmental burdens, including a lack of investments in creating or maintaining natural resource benefits within these communities. Meaningful engagement[1] and equitable planning that centers environmental justice and tribal communities are important for addressing these specific burdens while seeking to holistically address sea level rise risks and vulnerabilities across the state.

The evidence of the value of proactive planning to prepare for sea level rise is compelling. The Third National Climate Assessment notes that there is strong evidence showing that the cost of doing nothing to prepare for the impacts of sea level rise exceeds the costs associated with adapting to them by about 4 to 10 times (Moser *et al*., 2014). Similarly, several studies show that the cumulative costs of keeping infrastructure safely in place within areas vulnerable to sea level rise could eventually outweigh the costs of relocation (Cutler *et al*., 2020; Turner *et al*., 2007; King *et al*. 2011). Therefore, it is critically important that California proactively plan and prepare for the impacts of sea level rise to ensure a resilient California coast for present and future generations.

The California Coastal Act is one of the state's primary coastal management laws for addressing land use, public access and recreation, and the protection of coast and ocean resources in the coastal zone. It is also the primary coastal hazards law governing development along the coast. Using the Coastal Act, the Coastal Commission and local governments have nearly five decades of experience managing coastal development, including addressing the challenges presented by coastal hazards like storms, flooding, and erosion as well as responses to these hazards such as armoring. However, sea level rise and the changing climate present management challenges of a new magnitude, with the potential to significantly threaten many coastal resources, including shoreline development, coastal beach access and recreation, habitats, agricultural lands, cultural resources, and scenic resources, all of which are subject to specific protections and

[1] Meaningful engagement is the intentional outreach, inclusion, and consideration of the voices and perspectives from presently and historically underserved and marginalized communities in the design, development, implementation, and policies that may impact the health, environment, and livelihood of their communities. For more information about meaningful engagement best practices and resources, see Chapter 4.

regulations in the Coastal Act. Therefore, effective implementation of the Coastal Act and the protection of California's coast must address global sea level rise and the greater management challenges it will bring. In recognition of this fact, the California Legislature added Section 30270 to the Coastal Act in 2021, which requires the Commission to take the effects of sea level rise into account in its policies and activities.[2]

This document focuses specifically on how to apply the Coastal Act to the challenges presented by sea level rise through Local Coastal Program (LCP) certifications and updates and Coastal Development Permit (CDP) decisions. It organizes current science, technical, and other information and practices into a single resource to facilitate implementation of the Coastal Act by coastal managers at the state and local level. This Guidance also includes environmental justice perspectives that build upon the Commission's existing Environmental Justice Policy, and provides information on how to address impacts to, benefits for, and engagement with environmental justice communities[3] when planning and analyzing for sea level rise.

Additionally, this document provides guidance on how local governments can comply with their obligations under SB 272 (Laird, 2023)[4,5], which requires local governments in the Coastal Zone to submit an LCP, or amendment to their existing LCP, that contains a sea level rise plan. However, while the document is intended to guide LCP planning and development decisions to ensure effective coastal management actions, it is advisory and does not alter or supersede existing legal requirements, such as the policies of SB 272, the Coastal Act, and certified LCPs. One of the Commission's priority goals continues to be coordinating with local governments to complete and update LCPs in a manner that adequately addresses sea level rise within the context of local conditions and reflects the recommendations in this Guidance.

This Guidance document is also part of a larger statewide strategy to respond to climate change that includes both emissions reductions and adaptation planning to address the impacts of a changing climate. Recent efforts include the California Climate Adaptation Strategy (2021) (an update to the 2014 Safeguarding California plan and the 2009 California Climate Adaptation Strategy), the California Air Resources Board's Scoping Plan for Achieving Carbon Neutrality

[2] Senate Bill (SB) 1 (Atkins, 2021).

[3] The term "environmental justice communities" is used in this Guidance to refer low-income communities, communities of color, and other historically marginalized communities that have been disproportionately burdened by or less able to prevent, respond to, and recover from, adverse environmental impacts and discriminatory land use practices.

[4] SB 272 added Division 20.6.9 (Section 30985 et seq.) to the California Public Resources Code. This document uses "SB 272" and "Section 30985 et seq." interchangeably.

[5] Note that SB 272 also includes a requirement for local jurisdictions within San Francisco Bay to develop plans that are subject to review by the Bay Conservation and Development Commission (BCDC). The basic requirements are the same for both agencies/plan types, and Commission and BCDC staff have coordinated to develop guidelines pursuant to the requirements of SB 272; however, some specific details and best practices will vary based on differences between relevant enacting legislation (the Coastal Act versus the McAteer-Petris Act) and planning contexts. More information on BCDC's work to implement SB 272 can be found through the BCDC Regional Shoreline Adaptation Plan.

(2022), the California Natural Resources Agency's Environmental Justice Policy (2020), the General Plan Guidelines (Cal OPR 2023), the California State Hazard Mitigation Plan (2023), and several documents developed by the Ocean Protection Council (OPC) in collaboration with other state agencies, including the State Sea Level Rise Guidance (2024), Making California's Coast Resilience to Sea Level Rise: Principles for Aligned State Action (2020), and the State Agency Sea-Level Rise Action Plan for California (2022).

The Commission has also been providing, and will continue to provide, funding for SLR adaptation planning through its LCP Local Assistance Grant Program, and Commission staff participate in multi-agency partnerships, including the Sea Level Rise State and Regional Support Collaborative, formerly known as the Sea Level Rise Leadership Team, convened by the OPC. For more detail on these efforts, see the Introduction.

### PRINCIPLES FOR ADDRESSING SEA LEVEL RISE IN THE COASTAL ZONE

This Guidance is rooted in certain fundamental guiding principles, many of which derive directly from the requirements of the Coastal Act. These Principles broadly lay out the common ideas and a framework by which sea level rise planning and permitting actions can be assessed, and as such represent the goals to which actions should aspire. Individual actions and outcomes may vary based on a variety of factors, including applicable policies and location- or project-specific factors that may affect feasibility. The Guiding Principles are summarized below and discussed in greater detail in Chapter 2.

**Use Science to Guide Decisions** [Coastal Act Sections 30006.5; 30335.5; 30270]

1. Recognize and address sea level rise as necessary in planning and permitting decisions.
2. Use the best available science to determine locally relevant and context-specific sea level rise scenarios and potential impacts for all Coastal Act planning processes, project design, and permitting reviews.
3. Recognize scientific uncertainty by using scenario planning and adaptive management techniques.
4. Use a precautionary approach by planning and providing adaptive capacity for the higher end of the range of possible sea level rise.
5. Design adaptation strategies according to local conditions and existing development patterns, in accordance with the Coastal Act.

**Minimize Coastal Hazard Risks through Planning and Development Standards** [Coastal Act Sections 30253; 30235; 30270; 30001; 30001.5]

6. Avoid significant coastal hazard risks to new development where feasible.
7. Minimize hazard risks to new development over the life of authorized structures.
8. Minimize coastal hazard risks and resource impacts when making redevelopment decisions.

9. Account for the social and economic needs of the people of the state, including environmental justice and tribal priorities; assure priority for coastal-dependent and coastal-related development over other development.
10. Ensure that property owners understand and assume the risks, and mitigate the coastal resource impacts, of new development in hazardous areas.

**Maximize Protection of Public Access, Recreation, and Sensitive Coastal Resources** [Coastal Act Chapter 3 policies]

11. Provide for maximum protection of coastal resources in all coastal planning and regulatory decisions.
12. Maximize natural shoreline values and processes; avoid expansion and minimize the perpetuation of shoreline armoring.
13. Recognize that sea level rise will cause the public trust boundary to move inland. Protect public trust lands and resources, including as sea level rises. New shoreline protective devices should not result in the loss of public trust lands.
14. Address other potential coastal resource impacts (to wetlands, habitat, agriculture, scenic, *etc.*) from hazard management decisions, consistent with the Coastal Act.
15. Address the cumulative impacts and regional contexts of planning and permitting decisions.
16. Require mitigation of unavoidable coastal resource impacts related to permitting and shoreline management decisions.
17. Consider best available information on resource valuation when mitigating coastal resource impacts.

**Maximize Agency and Tribal Coordination, Meaningful Engagement, and Public Participation** [Coastal Act Chapter 5 policies; Sections 30006; 30320; 30339; 30500; 30503; 30711]

18. Coordinate planning and regulatory decision making with other appropriate local, state, and federal agencies; support research and monitoring efforts.
19. Collaborate with local governments to plan for and adapt to sea level rise.
20. Coordinate with tribes to address tribal priorities and concerns when making planning decisions.
21. Consider conducting vulnerability assessments and adaptation planning at the regional level.
22. Provide for maximum public participation and meaningful engagement in planning and regulatory processes.

**Prioritize Environmental Justice Communities** [California Coastal Commission Environmental Justice Policy; Coastal Act Sections 30006; 30013; 30320; 30339; 30500; 30503; 30604(h); 30711]

23. Consider environmental justice when making planning and permitting decisions. Evaluate and address any disproportionate environmental and public health burdens these communities may experience as a result of sea level rise impacts.

### BEST AVAILABLE SCIENCE AND CONSEQUENCES OF SEA LEVEL RISE

The Coastal Act directs the Coastal Commission and local governments to use the best available science in coastal land use planning and development. This Guidance recommends using the best available science on sea level rise scenarios to inform planning decisions and project design.

The State of California has long supported the preparation and provision of scientific information on climate change and sea level rise to help guide appropriate and resilient planning, permitting, investment, and other decisions. For example, California Fourth Climate Change Assessment advances actionable science on the impacts of climate change, including sea level rise, that serves the needs of state and local-level decision-makers.[6] The Ocean Protection Council updates the State Sea Level Rise Guidance roughly every five years to synthesize best available science on sea level rise. The 2024 State Sea Level Rise Guidance contains a set of sea level rise scenarios for statewide use (which reflects a statewide average rate of vertical land motion), as well as sets for each of the 14 tide gauges throughout California. The Coastal Commission recommends using these scenarios and related information as best available science on sea level rise in California (see Table 1 for the statewide scenarios and Appendix F for scenarios for other tide gauges). It is understood that sea level rise science will continue to evolve, and the Coastal Commission will re-examine best available science periodically and as needed with the release of new information.

In addition to sea level rise scenarios, the State Sea Level Rise Guidance (OPC 2024) and many other publications provide information on the impacts of sea level rise in California. According to these reports, sea level rise will cause flooding and inundation, increased coastal erosion, changes in sediment supply and movement, and saltwater intrusion to varying degrees along the California coast. These effects in turn could have a significant impact on the coastal economy and could put important coastal resources and development at risk, including ports, marine terminals, commercial fishing infrastructure, public access, recreation, wetlands and other coastal habitats, water quality, biological productivity in coastal waters, coastal agriculture, and archaeological and paleontological resources. These impacts and their consequences for coastal resources and communities are discussed in more detail in Chapters 3 and 4.

[6] Fifth California Climate Assessment research is underway and will be released in 2026. Some of the new data products, including SLR projections data, are already available via the Cal-Adapt Analytics Engine.

Table 1. Sea Level Rise Scenarios for California [7]

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 |
| **2040** | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
| **2050** | 0.5 | 0.6 | 0.8 | 1.0 | 1.2 |
| **2060** | 0.6 | 0.8 | 1.1 | 1.5 | 2.0 |
| **2070** | 0.7 | 1.0 | 1.4 | 2.2 | 3.0 |
| **2080** | 0.8 | 1.2 | 1.8 | 3.0 | 4.1 |
| **2090** | 0.9 | 1.4 | 2.4 | 3.9 | 5.4 |
| **2100** | 1.0 | 1.6 | 3.1 | 4.9 | 6.6 |
| **2110** | 1.1 | 1.8 | 3.8 | 5.7 | 8.0 |
| **2120** | 1.1 | 2.0 | 4.5 | 6.4 | 9.1 |
| **2130** | 1.2 | 2.2 | 5.0 | 7.1 | 10.0 |
| **2140** | 1.3 | 2.4 | 5.6 | 7.7 | 11.0 |
| **2150** | 1.3 | 2.6 | 6.1 | 8.3 | 11.9 |

### ADDRESSING SEA LEVEL RISE IN LOCAL COASTAL PROGRAMS

This document provides a step-by-step process for addressing sea level rise and adaptation planning in new and updated Local Coastal Programs in a manner that prioritizes the needs of environmental justice communities. These Steps, summarized below in text and in Figure 1, can be tailored to fit the needs of individual communities and address the specific coastal resource and development issues of a community, such as dealing with bluff erosion or providing for effective redevelopment, urban infill, and concentration of development in already developed areas. Ideally, Commission and local government staff will establish regular coordination and work together in the early steps of any LCP planning process. For a detailed explanation of these LCP planning Steps, see Chapter 5. Communities in areas where sea level rise vulnerability assessment work is already underway can start later in the process, at Step 5, or other relevant Step(s).

[7] This table provides median values for sea level scenarios for California, in feet, relative to a year 2000 baseline. These statewide values all incorporate an average statewide value of vertical land motion – a negligible rate of 0.1 mm (0.0003 ft) per year uplift (OPC 2024). The red box highlights the three scenarios that the State Sea Level Rise Guidance and this guidance recommend for use in various planning and project contexts.

**Step 1.** **Initiate planning effort**, identify key goals and stakeholders, and engage with environmental justice communities.

**Step 2.** **Determine a range of sea level rise scenarios relevant to LCP planning area/segment** using best-available science, which is currently the State Sea Level Rise Guidance (OPC 2024).

**Step 3.** **Identify potential physical sea level rise impacts in the LCP planning area/segment**, including inundation, storm flooding, wave impacts, erosion, and/or saltwater intrusion into freshwater resources.

**Step 4.** **Assess potential risks from sea level rise to coastal resources, development, and environmental justice communities in the LCP planning area/segment,** including those resources addressed in Chapter 3 of the Coastal Act.

**Step 5.** **Identify equitable adaptation measures** to address identified risks in the planning area, considering different coastal resource needs and local and statewide goals.

**Step 6.** **Draft updated or new LCP for certification by California Coastal Commission**, incorporating updates to the Land Use Plan and Implementing Ordinances.

**Step 7.** **Implement the LCP and monitor and re-evaluate strategies as needed** to address new circumstances relevant to the area.

## Planning Process for Local Coastal Programs and Other Plans

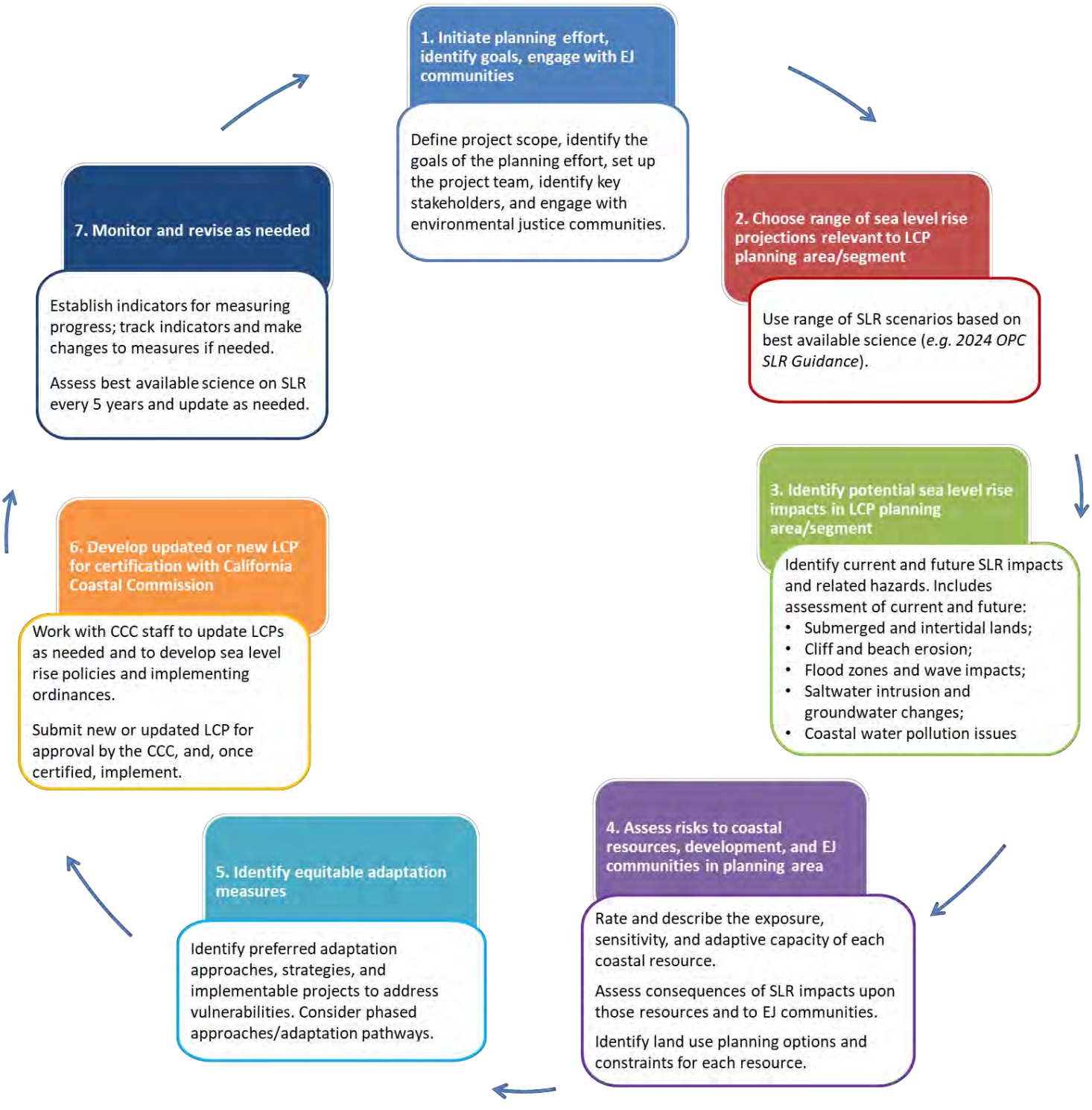



Figure 1. Flowchart for addressing sea level rise in Local Coastal Programs and other plans.

### ADDRESSING SEA LEVEL RISE IN COASTAL DEVELOPMENT PERMITS

New development within the coastal zone generally requires a Coastal Development Permit (CDP). Many projects reviewed through the CDP application process already examine sea level rise impacts as part of the hazards analysis, though not every CDP application will need to consider sea level rise. In general, sea level rise is only likely to affect those projects that are on low-lying land, on eroding coastal bluffs, in close proximity to water, or rely upon a shallow aquifer for water supply. This document offers a step-by-step outline, summarized below in text and in Figure 2, for how to conduct such an analysis as a standard part of the CDP application process. The goal of these Steps is to ensure careful attention to minimizing risk to development and avoiding, minimizing, and mitigating impacts to coastal resources, including any coastal resource-related impacts to environmental justice communities, over the life of the project. Early coordination with Coastal Commission staff is highly recommended, and staff will be available to consult with applicants during this process. Adopting or updating LCPs as recommended in this Guidance should facilitate subsequent review of CDPs. LCPs can identify areas where a closer review of sea level rise concerns is necessary. If kept up to date, they can also provide information for evaluation at the permit stage and specify appropriate mitigation measures for CDPs to incorporate. For a detailed explanation of these steps, see Chapter 6 of this Guidance.

**Step 1.** **Initiate CDP application**, gather proposed project information, and engage with environmental justice communities.

**Step 2.** **Establish the projected sea level rise range for the proposed project**'s planning horizon using the best available science, which is currently the State Sea Level Rise Guidance (OPC 2024).

**Step 3.** **Determine how physical impacts from sea level rise may constrain the project site,** including erosion, structural and geologic stability, flooding, and inundation.

**Step 4.** **Determine how the project may impact coastal resources, including as they relate to environmental justice communities, considering the influence of future sea level rise upon the landscape** as well as potential impacts of sea level rise adaptation strategies that may be used over the lifetime of the project.

**Step 5.** **Identify alternatives to both avoid resource and related environmental justice impacts and minimize risks** throughout the expected life of the development.

**Step 6.** **Finalize project design and submit CDP application.**

## Planning Process for Coastal Development Permits

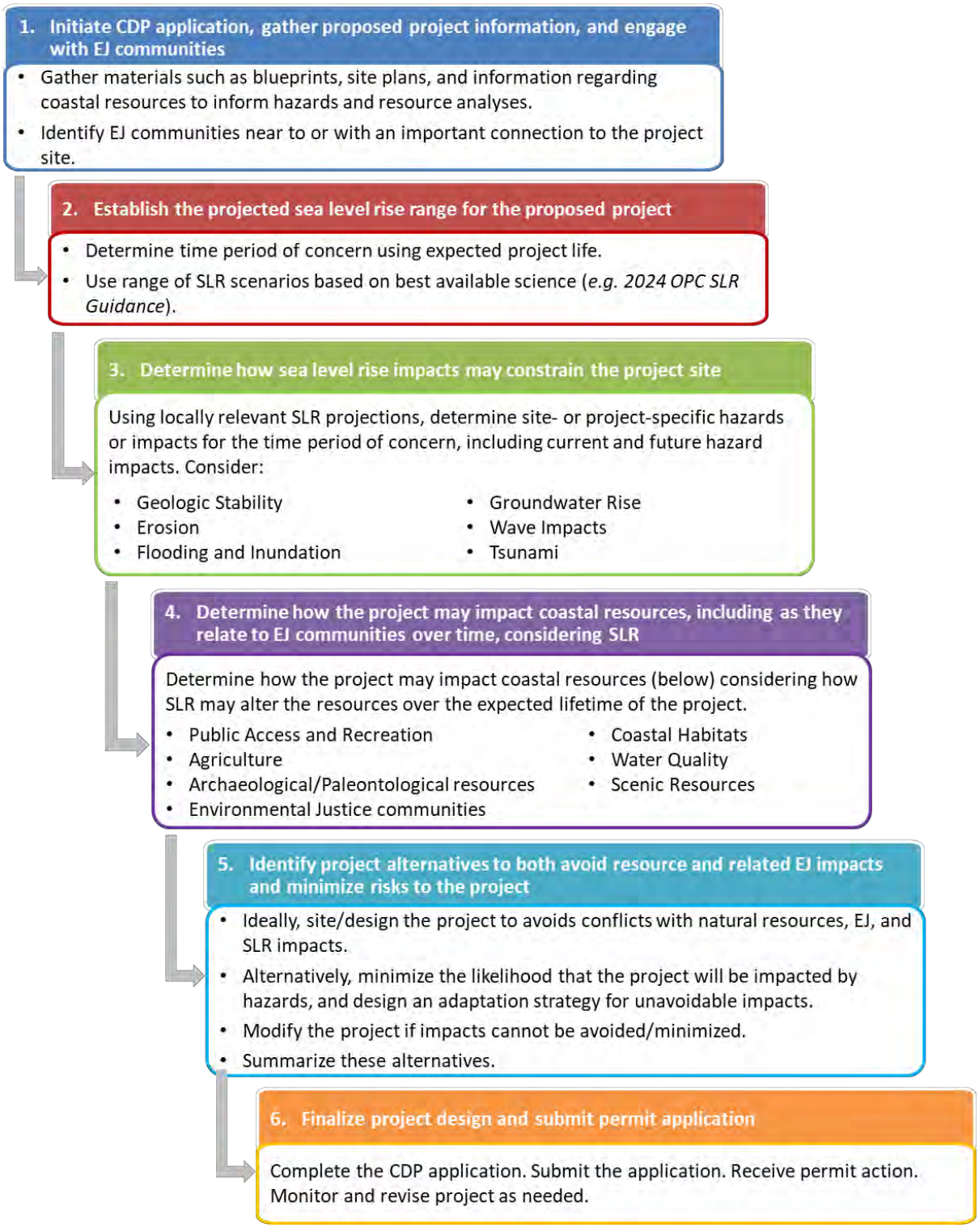



Figure 2. Flowchart for addressing sea level rise in Coastal Development Permits

### ADAPTATION STRATEGIES

Steps 1 through 4 of the processes for addressing sea level rise in LCPs and CDPs will help planners and project applicants identify particular vulnerabilities to the planning region and specific project sites. Such vulnerabilities may include impacts to communities, including environmental justice communities, as well as a number of resources identified in the Coastal Act, including development and infrastructure; public access and recreational opportunities; beaches, wetlands, environmentally sensitive habitat areas (ESHA), and other coastal habitats; agricultural resources; water quality; archaeological and paleontological resources; and scenic and visual resources. Planners and project applicants will need to identify, develop, and implement various adaptation strategies designed to protect or enhance coastal resources that do not exacerbate burdens to environmental justice communities. These strategies should fulfill the hazard minimization and resource protection policies of the Coastal Act and should account for local conditions and environmental justice concerns. In many cases, strategies will need to be implemented incrementally (or in a phased approach) as conditions change, and planners, project applicants, and partners will need to think creatively and progressively to ensure that coastal resources and development are protected over time. Chapter 7 of this Guidance summarizes a number of strategies to protect different coastal resources and meet the goals and requirements of the Coastal Act, as well as different approaches to adaptation planning such as phased adaptation.

### ADDITIONAL INFORMATION

In addition to providing a summary of best available science on sea level rise, step-by-step approaches for addressing sea level rise in LCPs and CDPs, and a discussion of numerous adaptation strategies, the Guidance includes the following supplemental information:

- Chapter 8: A brief discussion of the legal context of adaptation
- Chapter 9: Next steps for Commission staff in coordination with other relevant partners and research institutions, based on objectives and actions from the Commission adopted California Coastal Commission Strategic Plan 2021-2025 (2021)
- Appendix A: Detailed information on the drivers of sea level rise and sea level rise scenarios
- Appendix B: Technical information for how to assess local hazard conditions based on regional sea level rise scenarios, which is applicable to both LCPs and CDPs
- Appendix C: Lists of useful resources and references, including examples of sea level rise adaptation documents from other state agencies
- Appendix D: General steps for processing an LCP amendment
- Appendix E: Key Coastal Act policies relevant to sea level rise and coastal hazards
- Appendix F: Sea level rise scenarios for the 14 California tide gauges
- Appendix G: Coastal Commission contact information

## CONTEXT OF THIS DOCUMENT

This Guidance is part of a larger body of work on climate change by State agencies, regional collaborations, local leadership, academic research, and other organizations. Many of these efforts are included as resources in Appendix C. Users of the document should take advantage of these existing resources, collaborate with others, and share best practices as much as possible.

**Finally, this document is intended to function as interpretive guidance for effective implementation of the Coastal Act and LCPs in light of sea level rise. It also provides the guidance to local governments that is required pursuant to Public Resources Code Section 30985.2 regarding the preparation of sea level rise plans. It is not a regulatory document and does not contain any new regulations. Further, it does not amend or supersede existing legal authorities or the standard of review for Local Coastal Programs and Coastal Development Permit decisions pursuant to the Coastal Act. Those actions are subject to the applicable requirements of the Coastal Act, the Coastal Zone Management Act, certified LCPs, and other applicable laws and regulations as applied in the context of the evidence in the records for those actions. The Commission is adopting this Guidance as interpretive guidelines pursuant to its authority under Public Resources Code Sections 30620.**

*This page intentionally left blank*



# Chapter 1. Introduction

Climate change is happening now. Rapidly melting ice caps, rising sea levels, floods, extreme heat waves, droughts, and fires are just a few of the effects of climate change. These effects are having profound impacts on our coast and are changing coastal management planning and decision making at global, national, state, regional, local, and individual scales.

Given current trends in greenhouse gas emissions, sea levels are expected to rise at an accelerating rate in the future, and scientists project an increase in California's sea level in coming decades. Until mid-century, the most damaging events for the California coast will likely be dominated by large El Niño-driven storm events in combination with high tides and large waves. Eventually, sea level will rise enough that even small storms will cause significant damage, and large events will have unprecedented consequences (Caldwell *et al*. 2013; Vitousek *et al*., 2017).

With a 1,270-mile coastline, adequately planning for sea level rise in California is a challenging but vital task. Underlying this complexity are generations of discriminatory land use practices and policies and loss of native sacred lands and cultural resources, which has resulted in an inequitable distribution of environmental burdens and benefits among different groups of people (US EPA, 2022). At its core, the California Coastal Act of 1976 is a statute inherently grounded in the principle of equality. Yet, despite numerous victories, the statute's vision of coastal protection and access for all people has not been fully realized. Further, the long-term legacy of institutional racism in land use planning, public policy, lending institutes, and policing continues to be reflected in the built environment and demographic and socioeconomic make-up of the California coast today. As a result, sea level rise will affect different communities throughout California disproportionately based on several factors such as geography, geology, hydrology, ecology, land use, and social characteristics.

This Guidance provides a framework for addressing sea level rise in Local Coastal Programs (LCPs) and Coastal Development Permits (CDPs). Importantly, environmental justice and equity principles, as described in the Commission's Environmental Justice Policy, have been integrated into this Guidance with the goal that the impacts of climate change are addressed in a way that is fair and equitable, particularly for communities that have been disproportionately impacted by climate-related hazards. The intended audience for this document includes the Commission and Commission staff, local governments, other public agencies, permit applicants, community-based organizations, environmental justice communities, tribal governments, members of the public, and others who are interested in how to implement and comply with the California Coastal Act (Coastal Act) while taking steps to address sea level rise.

## ENVIRONMENTAL, ECONOMIC, AND SOCIAL IMPACTS OF SEA LEVEL RISE

**Environmental Impacts:** The environmental impacts of sea level rise in California are both extensive and multifaceted, demanding a nuanced understanding to inform effective land use and conservation strategies. As sea level rise continues, key habitats such as coastal wetlands and beach ecosystems face significant threats, which in turn affect the biodiversity and

ecological services they provide. Coastal wetlands, for example, serve as crucial buffers against storm surges and flooding, while also acting as vital carbon sinks. Similarly, beaches, which offer vital nesting grounds for wildlife and recreational spaces for communities, risk severe erosion and habitat degradation due to encroaching seas, undermining their protective and ecological functions. However, rising sea levels could inundate these areas, leading to habitat loss and diminished capacity to support wildlife and mitigate climate impacts.

The degradation of coastal habitats due to rising sea levels poses a direct threat not only to California's ecological systems but also forecasts broader economic and social repercussions. The erosion of beaches and the inundation of wetlands, which provide critical ecosystem services, foreshadow potential disruptions across various sectors reliant on these natural resources. The looming threats extend beyond environmental loss, predicting significant impacts on tourism, recreation, and the livelihoods of communities that depend heavily on these coastal resources.

**Economic and Social Impacts**: The potential economic and social impacts of sea level rise in California underscore the importance of addressing the issue in land use planning and regulatory work. According to the NOAA Office for Coastal Management, just over 26 million people lived in California's coastal counties as of 2015. In 2020, California's marine economy supported over 26,000 businesses employing over 470,000 people, which accounted for $23.1 billion in wages and $41.9 billion in gross domestic product (NOAA, 2023).

Many aspects of the coastal economy, as well as California's broader economy, are at risk from sea level rise, including coastal-related tourism, beach and ocean recreational activities, transfer of goods and services through ports and transportation networks, coastal agriculture, and commercial fishing and aquaculture facilities. Importantly, many of these industries include historically marginalized groups that are reliant on coastal resources for their livelihood, and safeguards for their job security are critical for the coastal economy.

In addition to potential losses in revenue, the U.S. Geological Survey's Hazard Exposure Reporting and Analytics (HERA) tool estimates that parcels valued at $176 billion total are at risk from 2 meters of sea level rise, which represents almost 200,000 housing units, over 440,000 residents, and over 470,000 employees (Wood et al., 2020). This property also includes over 3,500 miles of roads, 289 miles of railroad, 24 wastewater treatment plants, 32 drinking water plants, and 18 solid waste landfills (Wood et al., 2020). The Fourth California Climate Assessment found that statewide damages could reach nearly $17.9 billion from inundation of development with ~20 inches of sea level rise, and those damages would double with the addition of a 100-year flood (Bedsworth et al., 2018). Furthermore, a USGS study found that in Southern California alone, sea level rise of 3 to 6 feet could cause up to two-thirds of beaches to disappear (Vitousek et al., 2017) if no actions are taken. Some common adaptation actions include armoring with seawalls and revetments, which have commonly been employed to protect infrastructure. Other strategies include implementing nature-based adaptation strategies such as restoring coastal wetlands and using native vegetation that could mitigate erosion and enhance the resilience of coastal ecosystems.

Sea level rise will also have far-reaching effects for coastal communities and populations beyond direct economic impacts. This is particularly true for communities dependent on at-risk industries that are reliant on being adjacent to the coastline, those already facing economic hardship, and populations with limited capacity to adapt, including lower-income, linguistically isolated, elderly, and other vulnerable populations. Sea level rise presents paramount environmental and social justice challenges in a manner that may unequally burden different communities, and it is important to examine social vulnerability to fully understand the community and human livelihood components of climate change and sea level rise vulnerability.

Social vulnerability focuses on the susceptibility of a given community or population to harm from exposure to a hazard and affects the ability of that population to prepare for, respond to, and recover from the hazard (Cutter *et al*., 2009). This is partly influenced by existing social inequities among various groups of people (Cutter *et al*., 2003). Socially vulnerable communities experience heightened risk and increased sensitivity to climate change and have less capacity and fewer resources to cope with, adapt to, or recover from climate impacts. These disproportionate effects are caused by physical (built and environmental), social, political, and/or economic factor(s), such as race, class, sexual orientation and identification, national origin, and income inequality, and disability (Governor's Office of Planning and Research, 2024). For example, low-income residents in the coastal zone or those who reside in affordable housing near the coast may have a higher vulnerability to sea level rise and coastal flooding as they have fewer financial resources to protect against and recover from flood damage or property loss (US EPA, 2021).

Discussed further in Chapter 4, the loss of coastal areas will also adversely affect tribal communities for whom these lands support ancestral and cultural practices. The projected impacts of rising seas threaten to inundate sacred sites and disrupt traditional activities, exacerbating historical injustices faced by these communities. Addressing sea level rise in areas significant to tribal communities requires tailored strategies that prioritize the protection of these culturally significant sites and support the continuation of traditional ecological knowledge and practices. This nuanced approach is essential for ensuring that adaptation efforts respect and integrate the unique needs and rights of tribal communities within broader environmental justice frameworks.

Environmental justice is inclusive of tribal and indigenous communities due to their disproportionate exposure to environmental burdens, lack of access to environmental benefits, and systemic oppression. However, it is imperative to recognize both the overlap and the distinction between environmental justice and tribal issues, especially since the lack of meaningful involvement, accountability, and transparency from government has resulted in inequities for both groups. The Commission's Tribal Consultation Policy provides guidance to Commission staff for maintaining effective communication with tribes, including for LCPs and CDPs that may have a sea level rise component affecting tribal communities and tribal cultural resources. It outlines procedures for government-to-government consultation and meaningful engagement between staff and tribes to strengthen the agency's relationships with California

Native American Tribes, while encouraging further outreach and collaboration. It is highly recommended and encouraged that local governments and project applicants review the Tribal Consultation Policy for specific information regarding meaningful engagement, outreach, and inclusion of tribal communities.

Proactive steps are needed to prepare for sea level rise and to protect the coastal economy, California livelihoods, and coastal resources and the ecosystem services they provide. The magnitude of the challenge is clear – not only might the impacts of sea level rise be severe, the costs, complexity, and time associated with planning for them can be daunting. The third National Climate Assessment, released in May 2014, notes that there is strong evidence to suggest that the costs of inaction are 4 to 10 times greater than the costs associated with proactive adaptation and hazard mitigation (Moser *et al*. 2014). It is critical for California to take proactive steps, with a concerted focus on equity and justice, to address the impacts sea level rise may have on the state's economy, natural systems, built environment, human health, and ultimately, its way of life.

## SEA LEVEL RISE AND THE CALIFORNIA COASTAL ACT

The potential impacts of sea level rise fall directly within the Coastal Commission's (and coastal zone local governments') planning and regulatory responsibilities under the Coastal Act. Sea level rise increases the risk of flooding, coastal erosion, and saltwater intrusion into freshwater supplies, which have the potential to threaten many of the resources[8] that are integral to the California coast, including coastal development, coastal access and recreation, habitats (e.g., wetlands, coastal bluffs, dunes, and beaches), coastal agricultural lands, water quality and supply, cultural resources, community character, and scenic quality. In addition, many possible responses to sea level rise, such as construction of barriers or armoring, can have adverse impacts on coastal resources. For example, beaches, wetlands, and other habitat backed by fixed or permanent development will not be able to migrate inland as sea level rises, and will become permanently inundated over time, which in turn presents serious concerns for future public access and habitat protection.

The Coastal Act mandates the protection of public access and recreation along the coast, coastal habitats, and other sensitive resources, as well as providing priority visitor-serving and coastal-dependent or coastal-related development while simultaneously minimizing risks from coastal hazards. This Guidance document has been created to help planners, project applicants, and other interested parties continue to achieve these goals in the face of sea level rise by addressing its effects in Local Coastal Programs and Coastal Development Permits. Although the focus of the Guidance is on LCPs and CDPs, much of the information contained herein can be

[8] The term "coastal resources" is used throughout this Guidance and is meant to be a general term for those resources addressed in Chapter 3 of the California Coastal Act including but not limited to beaches, wetlands, agricultural lands, and other coastal habitats; coastal development; public access and recreation opportunities; cultural, archaeological, and paleontological resources; and scenic and visual qualities.

useful for other planning documents such as Port Master Plans,[9] Long Range Development Plans, and Public Works Plans. For example, the science applies regardless of the planning documents, and the discussions of how to analyze sea level rise impacts as well as a number of adaptation options may be applicable. In all cases, specific analyses performed and actions implemented will vary based on relevant policies, local conditions, feasibility, and other factors as described throughout the rest of this document.

**Coastal Commission reports and briefings on sea level rise:** Sea level rise is not a new concern for the Commission. The Coastal Act policies on hazard avoidance and coastal resource protection provide the basis for the Commission to consider the impacts of sea level rise (see Appendix E: Coastal Act Policies Relevant to Sea Level Rise and Coastal Hazards), and the Commission has long considered sea level rise, erosion rates, and other effects of a dynamic climate in its analysis of permits and LCPs, staff recommendations, and Commission decisions. In 1992, Section 30006.5 was added to the Coastal Act which, among other things, directs the Commission to both develop its own expertise and interact with the scientific community on various technical issues, including coastal erosion and sea level rise. In 2021, the California legislature added Section 30270 to the Coastal Act, which requires the Commission to take into account the effects of sea level rise in its policies and activities. The Commission's staff also coordinates its work on sea level rise with other state and federal agencies, local governments, academic institutions, non-profit organizations, citizen groups, permit applicants, property owners, and others.

The Commission has documented its sea level rise adaptation and climate change efforts in numerous papers and briefings, including:

- 1989 Report: Planning for Accelerated Sea Level Rise along the California Coast
- 2001 Report: Overview of Sea Level Rise and Some Implications for Coastal California
- 2006 Briefing: Discussion Draft: Global Warming and the California Coastal Commission
- 2008 Briefing: A Summary of the Coastal Commission's Involvement in Climate Change and Global Warming Issues for a Briefing to the Coastal Commission
- 2008 White Paper: Climate Change and Research Considerations
- 2010 Briefing: A Summary of the Coastal Commission's Involvement in Sea Level Rise Issues for a Briefing to the Coastal Commission[10]
- 2016 Report: CCC Statewide Sea Level Rise Vulnerability Synthesis

[9] Ports are generally subject to Chapter 8 of the Coastal Act. The policies of Chapter 8 acknowledge the special role and needs of ports and differ in significant ways from the Chapter 3 policies of the Act. Significant categories of development in ports, however, remain subject to Chapter 3, including categories of development listed as appealable pursuant to Section 30715 and development located within specified wetlands, estuaries, and recreation areas.

[10] Verbal presentation to the Coastal Commission on December 17, 2010 by Susan Hansch (Item 4.5). This presentation can be viewed at the Cal-Span website from approximately minute 22.00 to 24:30.

- 2016 Briefing: Implementation of the Adopted Sea Level Rise Policy Guidance
- 2019-2020 Commission Sea Level Rise Briefing Series: A series of presentations on the status of local sea level rise adaptation planning efforts at Commission meetings (August 2019, September 2019, October 2019, November 2019, March 2020, September 2020)
- 2021 Report: Critical Infrastructure at Risk: Sea Level Rise Planning Guidance for California's Coastal Zone
- 2023 Report: Public Trust Guiding Principles and Action Plan: Carrying out the California Coastal Act and Public Trust Doctrine in an era of climate change and sea level rise

### THE IMPORTANCE OF ADDRESSING SEA LEVEL RISE IN LOCAL COASTAL PROGRAMS

The impacts of sea level rise will be felt at the local level, and therefore local responses will necessarily be part of effective management of these impacts. Fortunately, the California Coastal Act lays out a legal and planning framework for community climate preparedness and resiliency planning. LCPs, in combination with Coastal Development Permits (CDPs), provide the implementing mechanisms for addressing many aspects of climate change within coastal communities at the local level. Notably, the State recognized the importance of both sea level rise adaptation planning and the role of LCPs with the passage of SB 272 (Laird) in 2023. This bill requires local governments in the coastal zone to develop (and submit to the Commission) a sea level rise plan as part of an LCP by January 1, 2034.[11] Specific requirements and guidance for ensuring consistency with SB 272 are highlighted in Chapter 5.

The goal of updating or developing a new LCP to prepare for sea level rise is to ensure that adaptation occurs in a way that protects both coastal resources and public safety and allows for sustainable economic growth. This process includes identifying how and where to apply different adaptation mechanisms based on Coastal Act requirements, SB 272 and other relevant laws and policies, acceptable levels of risk, and community priorities. LCP and Coastal Act policies are also reflected in CDPs, which implement sea level rise management measures and adaptation strategies through individual development decisions. By planning ahead, communities can reduce the risk of costly damage from coastal hazards, can ensure the coastal economy continues to thrive, and can protect coastal habitats, public access and recreation, and other coastal resources for current and future generations.

The Coastal Commission has continued to make it a priority to support the update of LCPs to address climate change, as demonstrated by Goals 4 and 6 of the Commission's Strategic Plan (CCC 2021), which are to "support resilient coastal communities in the face of climate change

[11] Note that SB 272 also includes a requirement for local jurisdictions within San Francisco Bay to develop plans that are subject to review by the Bay Conservation and Development Commission (BCDC). The basic requirements are the same for both agencies/plan types, and Commission and BCDC staff have coordinated to develop guidelines pursuant to the requirements of SB 272; however, some specific details and best practices will vary based on differences between relevant enacting legislation (the Coastal Act versus the McAteer-Petris Act) and planning contexts. More information on BCDC's work to implement SB 272 can be found through the BCDC Regional Shoreline Adaptation Plan.

and sea level rise" and to "continue to enhance LCP planning program and refine implementation of regulatory program." Specifically, Objective 4.1 directs the Commission to "address climate change risks in the Commission's planning and permitting work through stakeholder collaboration and integration of sea level rise hazards into Local Coastal Programs (LCPs)."

In furtherance of these goals, the Coastal Commission has been working with a Local Government Working Group (LGWG) since 2019 to develop solutions to better address sea level rise adaptation planning and LCP updates. In November 2020, the LGWG, which consists of representatives from the California State Association of Counties (CSAC), the League of California Cities (Cal Cities), Coastal Commission staff, and a Coastal Commission subcommittee including two Coastal Commissioners, presented (and the Commission adopted) a Joint Statement on Adaptation Planning. The Joint Statement includes a set of guiding principles, challenges, opportunities, and actions associated with proactive and effective sea level rise adaptation for California's coastal communities. In December 2021, the Commission adopted deliverables related to specific requests for tools and coordination improvements (including a "Quick Links" guide and an "Elevation and Concurrence Process) as well as broader-scale recommendations and guidance for LCP updates (including a call for "Regional Approaches to Resiliency and Adaptation" and a "Framework for a Phased Approach to SLR LCP Updates"). The LGWG is continuing to work to better understand the policy conflicts and other challenges facing communities as they attempt to update LCPs to address sea level rise, and developing possible approaches for addressing some of these challenges.

LCPs are also an important tool to help local governments formally acknowledge environmental justice through development of local policies to address equity-related issues in land use planning and in analyses of proposed development in the coastal zone. However, taking steps to consider and address environmental justice requires institutions to challenge the status quo, which can be uncomfortable but crucial if government is to shift its role from perpetuating systemic inequities to addressing them and building a more just and equitable society. Building awareness of and implementing environmental justice principles, proactively engaging with and including environmental justice communities in decision making, and thinking about ways to modify current approaches to land use planning and environmental analysis as it relates to sea level rise are all necessary to achieve environmental justice. The Commission and local governments have an opportunity to act on this by updating LCPs with policies to address environmental justice principles and concerns. Proactive planning can provide decision makers and the public with a framework for talking about and addressing these issues up front, which can significantly reduce conflicts later in the process. Given this, the Commission strongly encourages local governments to develop environmental justice policies and amend their LCPs accordingly.

**Funding for LCP updates:** Several funding programs are available to support California local governments in updating LCPs to address sea level rise. These grant programs have partially overlapping objectives, as described below.

- **Coastal Commission LCP Local Assistance Grant Program:** This grant program provides funding to local governments to complete the certification of new and updated LCPs, with an emphasis on addressing impacts from sea level rise and climate change. Grant-funded work has included the completion of sea level rise vulnerability assessments, technical studies, economic analyses, adaptation planning and reports, public outreach and engagement, and LCP policy development. Importantly, the evaluation criteria and program priorities for this grant program have been refined over time to recognize environmental justice as its own criterion. Specific changes have clarified that while public outreach and environmental justice are sometimes related, they are not one and the same, and grant changes encourage grant applicants to address environmental justice issues beyond outreach and engagement. Between 2013 and 2024, this program awarded approximately $20 million in grants to over 40 jurisdictions. As of the publication of this guidance, the program has significant funding available to continue supporting local government work. For up-to-date information regarding this program, including program priorities, eligibility, and selection criteria, please visit the Local Assistance Grant Program page on the Coastal Commission website.

- **Ocean Protection Council SB1 Grant Program:** OPC's SB 1 SLR Adaptation Planning Grant Program (SB 1 Grant Program) aims to provide funding for coastal communities to develop consistent SLR adaptation plans and projects to build resilience to SLR along the entire coast of California and San Francisco Bay. One track funds projects in the pre-planning, data collection, and planning phases, and another funds projects in the implementation phase. For more information, please visit the OPC SB 1 grant program website.

- **State Coastal Conservancy Grant Programs:** The Coastal Conservancy has a variety of grant programs to support increased public access to and along the coast, protection and restoration of natural lands and wildlife habitat, preservation of working lands, and increased community resilience to climate change. Funding can support a variety of project stages including feasibility studies, property acquisition, community engagement, environmental review, and monitoring. More information on Conservancy grants can be found on their website.

### COASTAL RESILIENCY AND PREPARING FOR SEA LEVEL RISE: THE FEDERAL AND STATE CONTEXT

Sea level rise planning efforts are currently taking place at the local, regional, state, and national levels. Framing the efforts in California is a federal strategy to address climate change by both reducing greenhouse gas emissions and adapting to climate change impacts. In January 2015, President Obama's Executive Order 13960 modified Executive Order 11988, Floodplain Management, by expanding the federal approach for establishing flood risk to include the consideration of climate change. Specifically, it recommends using a new flood standard that accounts for climate change in establishing flood elevation and hazard areas when federal funds are used to build, significantly retrofit, or repair structures.

Additionally, Governor Brown, Supervisor Carbajal (Santa Barbara County), Mayor Garcetti (Los Angeles), and Mayor Johnson (Sacramento) were on President Obama's State, Local, and Tribal Leaders Task Force on Climate Preparedness and Resilience, which gave recommendations in 2014 for how to modernize programs and policies to incorporate climate change.[12] The Coastal Commission's Guidance document implements many of the Task Force's recommendations by providing tools and assistance to support sea level rise decision making, by establishing a framework for state, local, and federal partnership and coordination on sea level rise, and by providing guidance on how to improve the resilience of California's coastal infrastructure, natural resources, human communities, and coastal industries.

The State of California has long been a leader in preparing for sea level rise, and in 2008, Governor Schwarzenegger issued an Executive Order (S-13-08) directing state agencies to prepare guidance on sea level rise and to address sea level rise in any state projects located in vulnerable areas. Since then, state agencies have worked collaboratively to accomplish a variety of different actions related to sea level rise adaptation, many of which are listed below. Ten state and federal agencies[13] also commissioned the National Research Council's report, Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future (2012), to improve understanding of sea level rise projections for California.

In April 2015, Governor Brown's Executive Order B-30-15 addressed climate change and sea level rise adaptation, stating that state agencies shall take climate change into account in their planning and investment decisions. The order requires agencies to ensure that priority is given to actions that build climate preparedness and reduce greenhouse gas emissions, provide flexible and adaptive approaches, protect the state's most vulnerable populations, and promote natural infrastructure solutions. Additionally, AB 2516, authored by Assemblymember Gordon and approved in September 2014, established a Planning for Sea Level Rise Database, now called the Adaptation Clearinghouse. The database provides the public with a searchable library of resources from which to learn about the actions taken by cities, counties, regions, and various public and private entities to address sea level rise and other climate change impacts.

In the 2010s, much of the state's climate change adaptation work was coordinated with the Coast and Ocean Workgroup of the Climate Action Team (CO-CAT), of which the Commission was a member. In addition, Commission staff has been involved in the State Coastal Leadership Group on Sea-Level Rise (now the California Sea Level Rise State and Regional Support Collaborative), which was established in early 2014 to develop and implement coordinated approaches to address sea level rise across state agencies. The partnership includes staff from the Coastal Zone Management Agencies (Coastal Commission, San Francisco Bay Conservation

[12] https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/resilience/taskforce

[13] The assessment of sea level rise was commissioned by California Department of Water Resources, California Energy Commission, California Department of Transportation, California State Water Resources Control Board, California Ocean Protection Council, Oregon Watershed Enhancement Board, Washington Department of Ecology, National Oceanic and Atmospheric Administration (NOAA), US Army Corps of Engineers (USACE), and US Geological Survey (USGS).

and Development Commission, and State Coastal Conservancy) and land management agencies (State Lands Commission and State Parks) along with the Ocean Protection Council and Natural Resources Agency and others. Under CNRA's leadership, this group co-developed Making California's Coast Resilient to Sea Level Rise: Principles for Aligned State Action (2020) and the State Agency Sea-Level Rise Action Plan for California (2022).

The content of this Guidance is also aligned with several key concepts in the California Climate Adaptation Strategy, including hazard avoidance for new development, increasing meaningful engagement and partnerships with underserved communities to develop adaptation strategies, encouraging innovative designs and nature-based adaptation strategies for areas vulnerable to sea level rise hazards, and addressing climate impacts in coastal adaptation plans, Local Coastal Programs, and General Plan updates, among many others. As the Climate Adaptation Strategy promotes, this Guidance will be a living document that will be updated and revised as sea level rise science advances and new insights are gained regarding adaptation.

**State agency policies and guidance on climate change and sea level rise:** As a result of the Executive Order S-13-08 and agency needs for guidance, many state agencies have developed climate change and sea level rise policies and guidance documents. For example:

- The California Natural Resources Agency (CNRA) developed the 2009 California Climate Adaptation Strategy and the 2014, 2018, and 2021 updates
- CNRA and the Governor's Office of Emergency Services (Cal OES) collaboratively developed and updated the California Climate Adaptation Planning Guide (2020)
- The Governor's Office of Planning and Research developed and updated its General Plan Guidelines (2023) to address climate change
- The Ocean Protection Council established *State Sea-Level Rise Guidance* (interim, 2010, 2013, 2018, and 2024) and developed both the Making California's Coast Resilient to Sea Level Rise: Principles for Aligned State Action (2020) and the State Agency Sea-Level Rise Action Plan for California (2022)
- The San Francisco Bay Conservation and Development Commission (BCDC) amended the San Francisco Bay Plan (1968) to update its policies regarding sea level rise (2011) and to integrate environmental justice and social equity considerations (2019). The agency's San Francisco Bay Plan Climate Change Policy Guidance was adopted in 2021. The agency has also been working on actions to reduce vulnerability to sea level rise throughout the San Francisco Bay through the Adapting to the Rising Tides (ART) program, the Adaptation Roadmap, and the Bay Adapt Joint Platform. BCDC is also developing a Regional Shoreline Adaptation Plan which will provide information on complying with SB 272 within BCDC's jurisdiction.
- The California State Coastal Conservancy (Conservancy) established climate change policies (2011), a sea level rise vulnerability assessment checklist (2019), and a number of grant programs.
- Cal OES updated the California State Hazard Mitigation Plan in 2023.

- The California Department of Transportation (Caltrans) developed a number of resources and reports available here and here, including a Caltrans Climate Change Vulnerability Assessment Summary Report (2021) and Climate Change Vulnerability Assessments (2019) and Adaptation Priorities Reports (2020) for each Caltrans District (which will be updated in 2024 along with the District Adaptation Priorities Investment Strategy (DAPIS) for each District). Caltrans also produced the State Climate Resilience Improvement Plan for Transportation (2024), Adaptation Strategies for Transportation Infrastructure (2023), Climate Change Emphasis Area Guidance for Corridor Planning (2022), as well as guidance on incorporating sea level rise risk analysis into the planning documents and project designs (2011, with an update coming soon). The California State Transportation Agency (CalSTA) also published the Climate Action Plan for Transportation Infrastructure (CAPTI, 2021). The 2023 State Highway System Management Plan (SHSMP) (Caltrans 2023) also includes a sea level rise adaptation needs assessment for roadways and bridges which estimates a need for $15.4 billion by 2033 and $56 billion by 2100 to address impacts. To begin to address these needs, an investment of $1.8 billion was made within this ten-year plan for the state highway system.
- The California State Lands Commission offers resources for addressing SLR here, including an AB 691 Synthesis Report (2022) and individual Sea Level Rise Impact Assessments by local trustees, and has adopted a report entitled, Shoreline Adaptation and the Public Trust: Protecting California's Public Trust Resources from Sea Level Rise (2023).
- California Department of Parks and Recreation have adopted a Sea Level Rise Adaptation Strategy and provide a number of other resources here.
- The California Department of Fish and Wildlife, the Division of Boating and Waterways, and the Department of Water Resources are all actively addressing sea level rise and have taken steps to conduct research on sea level rise impacts, integrate sea level rise into planning documents, and educate staff on climate change impacts.

### FEDERAL AND STATE ACTION ON ENVIRONMENTAL JUSTICE AND SEA LEVEL RISE PLANNING

There is a growing body of literature examining the disproportionate burdens that climate change places on environmental justice communities throughout the United States. Simultaneously, there is an increase in the frequency of water-related natural disasters such as hurricanes, heavy rainstorms, and coastal flooding. This has led to an increased awareness of the intersection of environmental justice and sea level rise in the United States' political and regulatory landscape. The federal government's recognition of this issue area has resulted in additional studies, policy recommendations, mapping and other digital tools, and increased allocation of funding to environmental justice communities.

In 2021, the Biden Administration signed Executive Order 14008 on Tackling the Climate Crisis at Home and Abroad, which marked a watershed moment for the environmental justice movement and its integration into the federal government. Executive Order 14008 highlights

that all Americans deserve to live in healthy, thriving communities, but that many people lack the ability to access safe places to live, work, play, grow, and learn (The White House, 2021). It also established a White House Environmental Justice Interagency Council (IAC), the first-ever advisory committee on environmental justice called the White House Environmental Justice Advisory Council (WHEJAC), and a government-wide environmental justice initiative called Justice40 (The White House, 2022). Justice40 establishes a goal that 40% of the overall benefits of certain federal climate, clean energy, affordable and sustainable housing, and other investments flow to disadvantaged communities that are marginalized by underinvestment and overburdened by pollution. In 2023, the Biden Administration reaffirmed its commitment to environmental justice and its intersection with climate change by signing Executive Order 14096, Revitalizing Our Nation's Commitment to Environmental Justice for All. This executive order includes an emphasis on building climate resiliency within vulnerable populations (The White House, 2023). Major funding opportunities to increase climate resilience within underserved populations, including separate funding for tribal communities, continue to come online to support the capacity building of these communities.

In California, government officials and agencies have taken many steps to elevate and prioritize the issue of environmental justice and sea level rise. In 2017, the Climate Justice Working Group, including environmental justice, public health, and climate equity leaders, convened to develop recommendations for ensuring that the 2017 update of Safeguarding California — California's climate change adaptation strategy — is responsive to environmental justice and climate equity concerns. The final report, Advancing Climate Justice in California: Guiding Principles and Recommendations for Policy and Funding Decisions, includes a number of recommendations regarding sea level rise, such as ensuring that environmental justice communities are actively involved in the development process to identify adaptation co-benefits related to sea level rise, and defining and identifying where environmental justice communities are along the coast in relation to the location of major energy facilities such as power plants, refineries, toxic facilities, and oil drilling sites that may release toxic pollution to surrounding neighborhoods (Climate Justice Working Group, 2019).

Notably, Senate Bill 1 (Atkins), which was signed into state law in 2021, expands funding to assist additional disadvantaged communities along the coast that are vulnerable to the impacts of sea level rise and are actively working to address environmental justice issues related to sea level rise impacts.[14,15] This same bill also added Section 30270 to the Coastal Act, directing the Coastal Commission to take sea level rise into account in its planning, policies, and activities, and established the California Sea Level Rise State and Regional Support Collaborative, a cross-government group tasked with educating the public and advising local, regional, and state government on feasible sea level rise mitigation efforts. Most recently, SB 272 (Laird, 2023), which requires local governments to incorporate a sea level rise plan into an LCP, recognizes

[14] See Senate President pro Tempore Toni G. Atkins' statement on Senate Bill 1.

[15] Senate Bill 1 uses the same definition for disadvantaged communities as California Health and Safety Code § 39711.

the importance of environmental justice by explicitly calling for considerations of equity in developing vulnerability assessments and adaptation strategies.

### COASTAL COMMISSION ACTION ON ENVIRONMENTAL JUSTICE

In 2016, Governor Brown signed Assembly Bill 2616, authored by former Assembly Member Autumn Burke and co-authored by former Assembly Member Mark Stone, enabling the Coastal Commission and local governments to consider environmental justice in permits and appeals by adding several new provisions to the Coastal Act. The bill cross-referenced existing civil rights and environmental justice laws (Public Resources Code (PRC) section 30013) in the Coastal Act, added the existing state definition of "environmental justice" in PRC section 30107.3, and required the governor to appoint one environmental justice commissioner to the Coastal Commission. The bill also authorized the Commission and local governments to consider environmental justice in coastal development permit (CDP) decisions (PRC section 30604(h)).

> **30604**(h) *When acting on a coastal development permit, the issuing agency, or the commission on appeal, may consider environmental justice, or the equitable distribution of environmental benefits throughout the state.*

In 2019, the Coastal Commission adopted an Environmental Justice Policy to provide guidance for its Commissioners, staff, and the public on how the Commission will implement its environmental justice authority under the Coastal Act. The Environmental Justice Policy contains a set of guiding principles, including on evaluating and addressing the disproportionate environmental and public health burdens environmental justice communities experience from climate change. With the adoption of this policy in 2019, the Commission has continued to fold the foundations of environmental justice and equitable planning into its sea level rise adaptation work through LCP policies and CDP findings. Since adopting the Environmental Justice Policy, the Commission has been evaluating project proposals for potential impacts that may disproportionately harm overburdened communities or exacerbate long-standing inequities previously overlooked in Coastal Act analyses. By proactively considering potential impacts, the Commission has been able to identify and address environmental justice concerns associated with new development, as appropriate, through the addition of environmental justice findings in staff reports, working with applicants to modify project proposals, and conducting outreach and engagement with environmental justice partners.

### LOOKING AHEAD: PLANNING AND PROJECT DESIGN WITH SEA LEVEL RISE

The coast has always been a place of change due to land modifications such as erosion and vertical land motion, and to water variability such as tides, waves, and storms. Despite this dynamic nature, many areas of the California coast have been developed with an expectation that there will be some permanence to the land area and site safety. Development efforts have used such techniques as setbacks, avoidance of existing floodplain areas, elevation above some base flood level, and compliance with design standards to reduce or minimize coastal risks and to ensure an acceptable level of safety.

However, hazards are rarely eliminated or avoided completely. Sea level rise will exacerbate existing hazards and reduce the period of time over which some existing development can remain relatively safe. As noted in Governing California through Climate Change, "The notion of stable, predictable geography in which to live, work and build permanent buildings will be off the table in decades ahead" (Little Hoover Commission 2014, p. 2). Locations that might have seemed relatively safe from erosion or flooding 20 or 30 years ago may now be shown to have greater vulnerability due to sea level rise. Sites that might have seemed safe for 80 or 100 years might now only be safe for 40 or 50 years.

As coastal change accelerates, it will become more apparent that development close to the coast cannot be treated in the same way as more inland development, where hazardous conditions may be less dynamic. Coastal dynamics have long been part of land use planning considerations and project design; however, the focus on this change will grow in importance with rising sea level. This may mean that as properties are evaluated for proposed development, the type and intensity of the proposed development may need to change to address the dynamic nature of the property and changing nature of the hazards. As coastal areas erode, the carrying capacity of the area may need to be revised. The trend of redeveloping with additions and larger structures may need to change to one of maintaining what is there or redeveloping with smaller structures that better suit site constraints. A variety of nature-based adaptation strategies and other more innovative adaptation strategies must be considered as well. The changing expectations are an important aspect of sea level rise adaptation and are an important part of the following discussions on how to include sea level rise in Local Coastal Programs, applications for Coastal Development Permits, and adaptation planning.

Sea level rise is one of many climate change effects that will have impacts on coastal resources and development along the California coast. Accelerated coastal erosion, changing precipitation patterns, increasing temperatures, and more extreme storms will pose planning challenges in concert with sea level rise. There are other climate change impacts in the coastal zone, such as changes in water supply, terrestrial habitats, and fire hazards, that are also important to consider in decision making, and the Commission intends to provide guidance on a range of anticipated climate change impacts in the future.

Beyond these physical changes, sea level rise poses a significant threat to human livelihoods. Decades of racism, discrimination, and exclusionary policies and practices mean environmental justice communities will face an inequitable burden from sea level rise impacts (Roos, 2018). Planning for sea level rise and coastal resilience should include environmental justice communities as part of the planning and decision-making process to ensure that environmental burdens and benefits in their communities are properly considered and addressed in an equitable manner. Recognizing the need to integrate environmental justice and equity into sea level rise adaptation planning, the Coastal Commission will continue to work with environmental justice communities and leaders to improve and uplift these communities in coastal resilience planning efforts.

*This page intentionally left blank*



# Chapter 2. Principles for Addressing Sea Level Rise in the Coastal Zone

This chapter summarizes the Coastal Commission's framing principles for addressing sea level rise, many of which derive directly from the requirements of the Coastal Act. These principles broadly lay out the common ideas and a framework by which sea level rise planning and permitting actions can be assessed, and as such, represent the goals to which actions should aspire. Individual actions and outcomes may vary based on a variety of factors, including applicable policies and location- or project-specific factors that may affect feasibility. There are five categories of principles: using science to guide decisions; minimizing coastal hazards through planning and development standards; maximizing protection of public access, recreation, and sensitive coastal resources; maximizing agency coordination, meaningful engagement, and public participation; and prioritizing environmental justice communities. Each category groups important and related concepts that are central to addressing the challenge of rising sea levels. Building on the cumulative knowledge and experience of the Commission, subsequent chapters of this Guidance use these principles to frame practical guidance for addressing sea level rise through planning and permitting decisions in the coastal zone, consistent with the statewide policies of the California Coastal Act and SB 272, and the vision of climate resilience outlined in the State Sea Level Rise Guidance (OPC 2024), the California Climate Adaptation Strategy (2021), Making California's Coast Resilient to Sea Level Rise: Principles for Aligned State Action, and the State Agency Sea-Level Rise Action Plan for California (2022), among other guiding state documents.

## USE SCIENCE TO GUIDE DECISIONS [Coastal Act Sections 30006.5; 30335.5; 30270]

1. **Recognize and address sea level rise as necessary in planning and permitting decisions.** Address sea level rise science in all applicable coastal management and decision-making processes, including Local Coastal Programs (LCPs), Port Master Plans (PMPs), Public Works Plans (PWPs), Long Range Development Plans (LRDPs), Coastal Development Permits (CDPs), federal consistency reviews, and other Coastal Act decision processes. Sea level rise should be addressed in both hazard analyses and identification of adaptation strategies/alternative analyses, consistent with the policies of the Coastal Act and LCPs as applicable.[16]

[16] This Guidance document is intended to help implement the Coastal Act and LCPs in the context of sea level rise concerns. However, the standard of review for Commission actions remains the California Coastal Act or applicable certified LCPs. In particular, the recommendations of this Guidance do not constitute "enforceable policies" for purposes of CZMA federal consistency reviews. The enforceable policies for conducting federal consistency reviews will remain the policies of Chapter 3 of the Coastal Act. Also, for federal agency activities, the standard is consistency "to the maximum extent practicable," with Chapter 3, i.e., federal agency activities must be fully consistent unless existing law applicable to the federal agency prohibits full consistency. See 15 CFR. §§ 930.32 and 930.43(d). However, the Commission looks at sea level rise as one part of determining the coastal effects from an activity through CZMA federal consistency reviews and the use of this Guidance by all parties should help determine what those coastal effects may be or how effects from sea level rise may be mitigated. Pursuant to 15 CFR § 930.11(h), implementation of this guidance would not be grounds for an objection (because it is not an "enforceable policy") but it might be one means that "would allow the activity to be conducted consistent with the enforceable policies of the program" in order to avoid an objection. Implementation of this guidance would not be grounds for an objection (because it is not an "enforceable policy") but it might be one means that "would allow

2. **Use the best available science to determine locally relevant (context-specific) sea level rise scenarios and potential impacts for all Coastal Act planning processes, project design, and permitting reviews.** Sea level rise science continues to evolve, and some processes that are not fully understood (e.g., ice sheet dynamics) could potentially have large effects on future sea level rise. At the time of this 2024 update, the best available science on sea level rise in California is the State of California Sea Level Rise Guidance: 2024 Science and Policy Update (OPC 2024) (See Table 2 and Appendix F). As discussed in greater detail in Chapter 3 of this Guidance, these scenarios should be used in a scenario-based analysis to identify potential local impacts from sea level rise, incorporating storms, extreme water levels, and shoreline change. Other authoritative sea level rise science and projections may also be used, in part or in full, provided they are peer-reviewed, widely accepted within the scientific community, and locally relevant. The Commission will re-examine the best available science periodically and as needed with the release of new information on sea level rise.[17]

3. **Recognize and address scientific uncertainty using scenario planning and adaptive management techniques.** Given the uncertainty in the magnitude and timing of future sea level rise, particularly over longer time periods, planners and project designers should use scenario-based analysis to examine a range of possible shoreline changes and sea level rise risks to shape LCPs and other plans and project development designs. As appropriate, development projects, resource management plans, and LCP and other planning updates should incorporate an adaptive, or phased, management framework with regular monitoring, reassessments, and dynamic adjustment in order to account for uncertainty.

4. **Use a precautionary approach by analyzing, planning, and providing adaptive capacity for the higher end of the range of possible sea level rise.** LCPs and CDPs should analyze the Intermediate, Intermediate-High, and/or High sea level rise scenarios, as appropriate, in order to understand the implications of a worst case scenario.[18] In some cases, it may be appropriate to *design* for the local hazard conditions that will result from more moderate sea level rise scenarios, as long as decision makers and project applicants *plan* for adaptation pathways that would allow for the implementation of alternative strategies if conditions change more than anticipated in the initial design. Looking at both high and low scenarios allows users to build an understanding of the overall risk sea level rise poses to the region or site. Chapters 3, 5, and 6 have additional detail regarding how to choose appropriate sea level rise scenarios.

---

the activity to be conducted consistent with the enforceable policies of the program" in order to avoid an objection.

[17] Major scientific reports include the release of National and State Climate Assessments, IPCC Assessment Reports, and/or State guidance.

[18] The High scenario in the 2024 OPC State Sea Level Rise Guidance is considered a reasonable worst case scenario to inform adaptation planning. While even higher SLR projections are possible, as reflected in the IPCC's Sixth Assessment Report, those projections rely on a combination of assumptions about the climate future that are deemed too unlikely to inform planning at this time.

5. **Design adaptation strategies according to local conditions and existing development patterns, in accordance with the Coastal Act.** Design adaptation strategies using best management practices for adaptation, and tailor the design to the specific conditions and development patterns of the area, in accordance with the Coastal Act and certified LCPs. LCPs should continue to serve as a key implementing mechanism for these adaptation strategies. Adaptation strategies should be evaluated for their ability to both minimize hazards and protect coastal resources.

Table 2. Sea Level Rise Scenarios for California [19]

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 |
| **2040** | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
| **2050** | 0.5 | 0.6 | 0.8 | 1.0 | 1.2 |
| **2060** | 0.6 | 0.8 | 1.1 | 1.5 | 2.0 |
| **2070** | 0.7 | 1.0 | 1.4 | 2.2 | 3.0 |
| **2080** | 0.8 | 1.2 | 1.8 | 3.0 | 4.1 |
| **2090** | 0.9 | 1.4 | 2.4 | 3.9 | 5.4 |
| **2100** | 1.0 | 1.6 | 3.1 | 4.9 | 6.6 |
| **2110** | 1.1 | 1.8 | 3.8 | 5.7 | 8.0 |
| **2120** | 1.1 | 2.0 | 4.5 | 6.4 | 9.1 |
| **2130** | 1.2 | 2.2 | 5.0 | 7.1 | 10.0 |
| **2140** | 1.3 | 2.4 | 5.6 | 7.7 | 11.0 |
| **2150** | 1.3 | 2.6 | 6.1 | 8.3 | 11.9 |

[19] This table provides median values for sea level scenarios for California, in feet, relative to a year 2000 baseline. These statewide values all incorporate an average statewide value of vertical land motion – a negligible rate of 0.1 mm (0.0003 ft) per year uplift (OPC 2024). The red box highlights the three scenarios that the *State Sea Level Rise Guidance* and this guidance recommend for use in various planning and project contexts.

**MINIMIZE COASTAL HAZARD RISKS THROUGH PLANNING AND DEVELOPMENT STANDARDS** [Coastal Act Sections 30253, 30235, 30270, 30001, 30001.5]

6. **Avoid significant coastal hazard risks to new development where feasible.** Section 30253 of the Coastal Act requires new development to minimize risks to life and property in areas of high geologic and flood hazard. Read together with Section 30270, the Act requires that sea level rise is accounted for when risks are assessed and minimized. The strongest approach for minimizing hazards is to avoid siting new development within areas vulnerable to flooding, inundation, and erosion over the full life of the development, thus ensuring stable site conditions without the need for long-term financial and resource commitments for protective devices. Methods to direct new development away from hazardous locations are included in Chapter 7 of this Guidance.

7. **Minimize hazard risks to new development over the life of the authorized development.** Coastal Act Section 30253 requires that new development minimize coastal hazard risks without the use of bluff retaining or shoreline protection devices that would substantially alter natural landforms along bluffs and cliffs. When hazards from sea level rise cannot be avoided, new development should include provisions to ensure that hazard risks are minimized for the life of the development without shoreline protection, including through future modification, relocation, or removal when development becomes threatened by natural hazards, including as exacerbated by sea level rise.

8. **Minimize coastal hazard risks and resource impacts when making redevelopment decisions.** LCPs should encourage and require, as applicable, existing at-risk structures to be brought into conformance with current standards when redeveloped. Improvements to existing at-risk structures should be limited to basic repair and maintenance activities and not extend the life of such structures or expand at-risk elements of the development, consistent with the Coastal Act.

9. **Account for the social and economic needs of the people of the state, including environmental justice and tribal priorities; assure priority for coastal-dependent and coastal-related development over other development.** In planning and project development concerning sea level rise, assure that the social and economic needs of the people of the state are accounted for in accordance with Coastal Act Section 30001.5(b), with special consideration for working persons employed within the coastal zone (Coastal Act Section 30001(d)). Recognize that environmental justice and tribal communities are less equipped to prepare for and respond to the impacts of sea level rise. Ensure that LCP and CDP decisions account for environmental justice and tribal concerns and engage with these communities early, often, and meaningfully in planning efforts.

10. **Ensure that property owners understand and assume the risks and mitigate the coastal resource impacts of new development in hazardous areas.** Property owners should assume the risks of developing in a hazardous location (often referred to as internalizing risk). They should be responsible for modifying, relocating or removing new development if it is

threatened or damaged in the future. Any actions to minimize risks to new development should not result in current and/or future encroachment onto public lands or in impacts to coastal resources inconsistent with the Coastal Act and Public Trust Doctrine. LCPs and Coastal Development Permits should require recorded assumptions of risk, "no future seawall" conditions, and/or other appropriate mitigation measures to internalize risk decisions with the private landowner.

**MAXIMIZE PROTECTION OF PUBLIC ACCESS, RECREATION, AND SENSITIVE COASTAL RESOURCES**
[Coastal Act Chapter 3 policies]

11. **Provide for maximum protection of coastal resources in all coastal planning and regulatory decisions.** New and existing development, redevelopment, and repair and maintenance activities as well as associated sea level rise adaptation strategies should avoid or minimize impacts to coastal resources, including public access, recreation, marine resources, agricultural areas, sensitive habitats, archaeological resources, and scenic and visual resources in conformity with Coastal Act requirements. Impacts from development and related activities should be avoided or minimized; unavoidable impacts should be mitigated as necessary.

12. **Maximize natural shoreline values and processes; avoid expansion and minimize the perpetuation of shoreline armoring.** If existing development (both private and public) is threatened by sea level rise hazards, it should employ the least environmentally damaging feasible adaptation alternatives and minimize hard shoreline protection. Priority should be given to options that enhance and maximize coastal resources and access, including innovative nature-based approaches such as living shoreline techniques or managed/planned retreat. If traditional hard shoreline protection is necessary and allowable under the Coastal Act, use the least-environmentally damaging feasible alternative, incorporate projections of sea level rise into the design of protection, and limit the time-period of approval, for example, to the life of the structure the device is protecting. Major renovations, redevelopment, or other new development should not rely upon existing shore protective devices for site stability or hazard protection. Where feasible, existing shoreline protection that is no longer being relied upon in this way, or no longer needed otherwise, should be phased out.

13. **Recognize that sea level rise will cause the public trust boundary to move inland. Protect public trust lands and resources, including as sea level rises. New shoreline protective devices should not result in the loss of public trust lands.** Where allowed under the Coastal Act or the relevant LCP, shoreline protective devices should be sited, designed, and conditioned to ensure that they do not result in the loss of public trust lands[20] or encroach

[20] The State holds and manages all tidelands, submerged lands, and beds of navigable waterways for the benefit of all people of the State for statewide purposes consistent with the common law Public Trust Doctrine ("public trust"). In coastal areas, the landward location and extent of the State's trust lands are generally defined by reference to the ordinary high water mark, as measured by the mean high tide line. Public trust uses include such

onto public trust lands without the permission of the appropriate trustee agency. When sea level rise causes the public trust boundary to move inland such that a protective device that was located on uplands becomes subject to the public trust, the permittee should either obtain permission from the appropriate trustee agency for the encroachment or apply for a permit to remove any encroachments.

14. **Address potential secondary coastal resource impacts (to wetlands, habitat, agriculture, scenic and visual resources, *etc.*) from hazard management decisions, consistent with the Coastal Act.** Actions to address sea level rise in LCPs or permits should not exacerbate other climate-related vulnerabilities or undermine conservation/protection goals and broader ecosystem sustainability. For example, siting and design of new development should not only avoid sea level rise hazards, but also ensure that the development does not have unintended adverse consequences that impact sensitive habitats or species in the area.

15. **Address the cumulative impacts and regional contexts of planning and permitting decisions.** Sea level rise will have impacts at both the site-specific and regional scales. In addition to the evaluation of site-specific sea level rise impacts, LCPs and projects should include an evaluation of the broader region-wide impacts, in two different contexts. First, the LCP or project should consider how sea level rise impacts throughout an entire littoral cell or watershed could affect the LCP jurisdiction or project. Second, the LCP or project should consider how options to adapt to sea level rise could result in cumulative impacts to other areas in the littoral cell or watershed. Actions should be taken to minimize any identified impacts.

16. **Require mitigation of unavoidable coastal resource impacts related to permitting and shoreline management decisions.** Require mitigation for unavoidable public resource impacts over the life of the structure as a condition of approval for the Coastal Development Permit. For example, for impacts to sand supply or public recreation due to armoring and the loss of sandy beach from erosion in front of shoreline protection devices, require commensurate in-kind mitigations, a sand mitigation fee, and other necessary mitigation fees (for example, public access and recreation mitigation). Because the longer term effects can be difficult to quantify, especially given uncertainty about the exact rate of future sea level rise, consider requiring periodic re-evaluation of the project authorization and mitigation for longer term impacts.

17. **Consider best available information on resource valuation when planning for, managing, and mitigating coastal resource impacts.** Planning, project development, and mitigation planning should evaluate the societal and ecosystem service benefits of coastal resources at risk from sea level rise or actions to prepare for sea level rise. These benefits can include flood protection, carbon sequestration, water purification, tourism and recreation

uses as maritime commerce, navigation, fishing, boating, water-oriented recreation, and environmental preservation and restoration.

opportunities, and community character. Resource values can be quantified through restoration costs or various economic valuation models.

### MAXIMIZE AGENCY AND TRIBAL COORDINATION, MEANINGFUL ENGAGEMENT, AND PUBLIC PARTICIPATION [Coastal Act Chapter 5; Sections 30006; 30320; 30339; 30500; 30503; 30711]

18. **Coordinate planning and regulatory decision making with other appropriate local, state, and federal agencies; support research and monitoring efforts.** Given the multitude of sea level rise planning, research, and guidance efforts occurring in California, it is critical for agencies and organizations to share information, coordinate efforts, and collaborate where feasible to leverage existing work efforts and improve consistency. Additionally, since many sea level rise hazards affect multiple jurisdictions, their management may also need to be coordinated through multi-agency reviews and coordinated decision making. The Commission will continue to meet this goal through coordination, engagement with stakeholders, and trainings. However, ongoing financial support for these Commission efforts is critical.

19. **Collaborate with local governments to plan for and adapt to sea level rise.** Implementation of sea level rise adaptation strategies will largely happen at the local level, and local governments are critical partners in adaptation planning. Ensuring adequate protection of coastal resources across the California coast and over time will require development of adaptation strategies that are flexible and responsive to unique local contexts as conditions change, while still ensuring statewide consistency. The Commission will continue to work with local governments and the Local Government Working Group to support sea level rise adaptation planning efforts through technical and policy guidance, funding, and other means.

20. **Coordinate with tribes to address tribal priorities and concerns when making planning decisions**. The Commission will, and local governments should, consult with tribes to evaluate and address tribal cultural resources, practices, and traditions that may be affected as a result of sea level rise. The Commission's Tribal Consultation Policy (2018) provides recommendations for government-to-government coordination with tribes and a more specific process to work cooperatively, communicate effectively, and consult with tribes for the mutual benefit of protecting coastal resources.

21. **Consider conducting vulnerability assessments and adaptation planning at the regional level**. Where feasible, local governments should coordinate vulnerability assessments and adaptation planning with other jurisdictions in the region that face common threats from sea level rise. A regional vulnerability assessment provides an opportunity to evaluate impacts that span multiple jurisdictions, assess and implement regional adaptation strategies, coordinate responses, and leverage research and planning funds.

22. **Provide for maximum public participation and meaningful engagement in planning and regulatory processes.** The Coastal Commission will continue to provide avenues for maximum public participation in planning and regulatory processes, and will continue to establish and/or expand non-traditional alliances (e.g., between/among public and private resource managers, tribes, community-based organizations, non-profits, environmental justice leaders, scientists, decision makers), share knowledge openly and actively, and regularly and clearly communicate to the public on the science as well as on a range of solutions to prepare for sea level rise.

#### PRIORITIZE ENVIRONMENTAL JUSTICE COMMUNITIES

[California Coastal Commission Environmental Justice Policy; Coastal Act Sections 30006, 30013, 30320, 30339, 30500, 30503, 30604(h), 30711]

23. **Consider environmental justice when making planning decisions**. The Commission will, and local governments should, evaluate and address any disproportionate environmental and public health burdens these communities may experience as a result of sea level rise impacts. This includes identifying potentially impacted environmental justice communities and conducting meaningful engagement with these communities throughout the planning process.

This document and its guiding principles both reflect and complement the priorities outlined in the California Climate Adaptation Strategy (2021), Making California's Coast Resilient to Sea Level Rise: Principles for Aligned State Action (2021), and the State Agency Sea-Level Rise Action Plan for California (2022), among other guiding state documents. While this Guidance specifically focuses on the California Coastal Act and the regulatory work of the Coastal Commission, it also echoes key concepts in these statewide documents. For example, a central goal of the California Climate Adaptation Strategy is to strengthen protections for climate vulnerable communities (Goal A) and Principle 7 of the Principles for Aligned State Action on sea level rise is to integrate and prioritize equity and environmental justice, which is addressed here in Guiding Principle #9. Similarly, this Guidance, the Climate Adaptation Strategy, and the Principles for Aligned State Action all emphasize the use of best available science (Guiding Principle #2, Priority 5, and Principle 1, respectively) and the need for communication, outreach, and public participation to increase understanding of climate risks and adaptation options (Guiding Principle #22 and Principle 3, respectively).

These guiding principles, and the document as a whole, are also aligned with the Shared Principles to Guide Adaptation Planning and Projects that are included in the Coastal Commission and Local Government Working Group's 2020 Joint Statement on Adaptation Planning. Those principles include concepts related to using best available science, developing creative solutions and phased adaptation approaches, addressing impacts in a flexible manner that reflects local goals while ensuring statewide consistency, working together with a range of stakeholders to ensure equitable planning and decision-making, striving for agency procedures that support efficient planning and encourage progress, and similar ideas, all of which are woven throughout this Guidance.

*This page intentionally left blank*



# Chapter 3. Sea Level Rise Science

This chapter covers the following subjects:

- The best available science on sea level rise
- Guidance on the application of best available science for activities subject to Coastal Act review
- Using scenario-based analysis and adaptation pathways in response to the uncertainty regarding anticipated amounts of sea level rise
- The physical impacts of sea level rise
- Storms and extreme events

Sea level rise science continues to evolve, and the discussion below reflects the best available science at the time this document was published.

## BEST AVAILABLE SCIENCE ON SEA LEVEL RISE

Scientists widely agree that the climate is changing and that it has led to global increases in temperature and sea level. In the past century, global mean sea level (GMSL) has increased by nearly 8 inches (20 cm; Fox-Kemper *et al*., 2021). The Intergovernmental Panel on Climate Change's (IPCC) most recent report, the *Sixth Assessment Report* (AR6), states that human activities have unequivocally caused global warming, with global surface temperatures in 2011–2020 reaching 1.1°C above temperatures observed in 1850–1900. It also states that human influence was very likely the main driver of sea level rise since at least 1971, and that GMSL has risen faster since 1900 than over any preceding century in at least the last 3000 years (IPCC 2021).

Observations of sea level rise rates have also shown that global sea level rise has been accelerating in recent decades. While tide gauge measurements show roughly 5 inches of global mean sea level rise during the entirety of the 20$^{th}$ century (Frederikse *et al*., 2020), satellite altimeters have measured an additional 4 inches of sea level rise since 1993, a period of only 30 years (Willis, Hamlington, Fournier, 2023). The current rate of GMSL rise (1.7 inches/decade) is triple the 20$^{th}$ century rate (Dangendorf *et al*., 2019; Nerem *et al*., 2018).

Scientists measure and project sea level change at a variety of scales, from the global down to the local level. The global sea level rise projections in IPCC reports are based on large-scale models as well as scientific understanding of the historical climate and best available information regarding climate sensitivity (IPCC 2021). Global average sea level rise is driven by the expansion of ocean waters as they warm (thermal expansion), the addition of freshwater to the ocean from melting ice sheets and glaciers, and from extractions in groundwater (Figure 3).

However, regional and local factors such as tectonics and ocean and atmospheric circulation patterns can cause different parts of the globe to experience relative sea level rise rates that may be higher or lower than the global average. As such, global-scale models are often "downscaled" through a variety of methods to provide locally relevant data.

For California, the Ocean Protection Council's 2024 State of California Sea Level Rise Guidance, described below (with additional detail in Appendix A), provides both statewide average sea level rise scenarios as well as scenarios that have been refined for 14 tide gauges throughout California.[21] While these tide gauge-specific sea level rise scenarios are fairly similar throughout the state, the physical impacts experienced in each location may be quite different, and locally-specific analysis of impacts will be very important. Detail on physical impacts and how to assess them is provided in this chapter and in Appendix B.

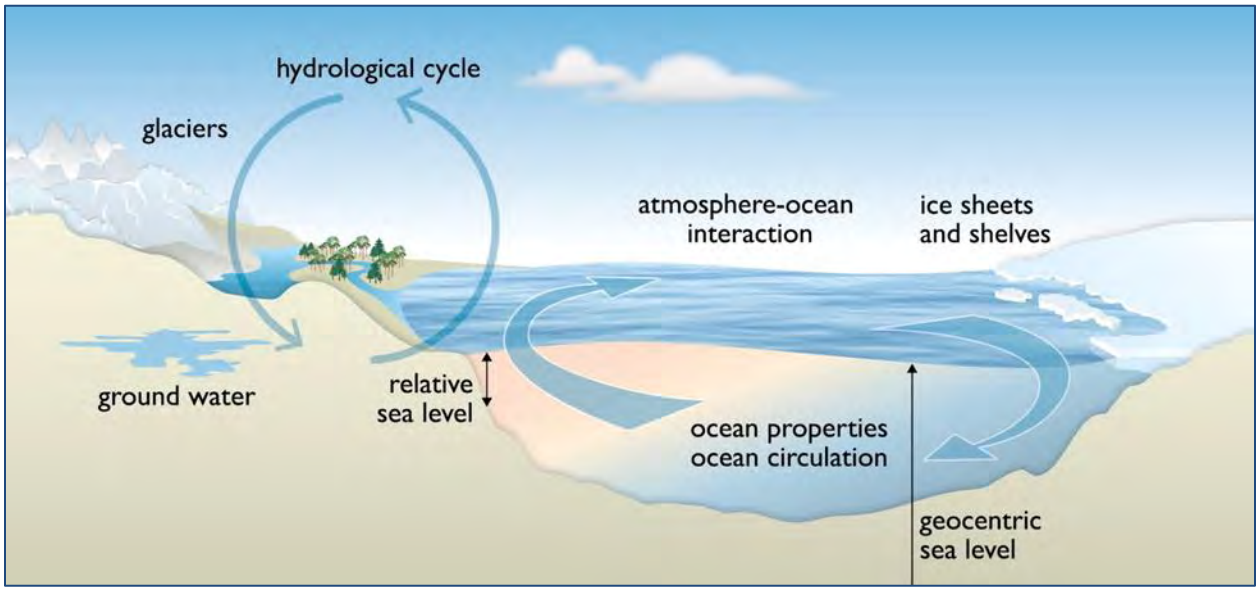



Figure 3. Climate-sensitive processes and components that can influence global and regional sea level. Changes in any one of the components or processes shown will result in a sea level change. The term "ocean properties" refers to aspects such as temperature, salinity, and density, which influence and are dependent on ocean circulation. (*Source*: IPCC 2013, Figure 13.1)

### Global Sea Level Rise Projections

The IPCC Sixth Assessment Report, Climate Change 2021: the Physical Science Basis (AR6) was released in 2021 (IPCC 2021). AR6 describes both a *plausible range* of potential future sea level rise, as well as a more narrow *likely range*. IPCC's full *plausible range* of future sea level rise reflects how sea level rise would vary under the IPCC's range of conceivable global development, emissions, and warming futures (which are called Shared Socioeconomic Pathways, or SSPs[22]) as well as the possibility of rapid ice sheet disintegration. Below is a graph

[21] For any given analysis, sea level rise scenarios for the closest of the 14 tide gauges can be used, or where very localized GPS data is available allowing more resolved estimates of vertical land motion, these can be added to the statewide average scenario values provided in this chapter and in Appendix G.

[22] The Scenario Model Intercomparison Project (ScenarioMIP) for the Coupled Model Intercomparison Project Phase 6 (CMIP6) developed five different Shared Socioeconomic Pathways (SSP1 through SSP5) (O'Neill *et al.*, 2016). These SSPs capture different ways the world could evolve in terms of population, economic growth, education, urbanization, and technological development, which would each result in various amounts of radiative

generated by NASA and the IPCC's Sea Level Projection Tool that depicts all of AR6's global mean sea level rise projections (Figure 4).

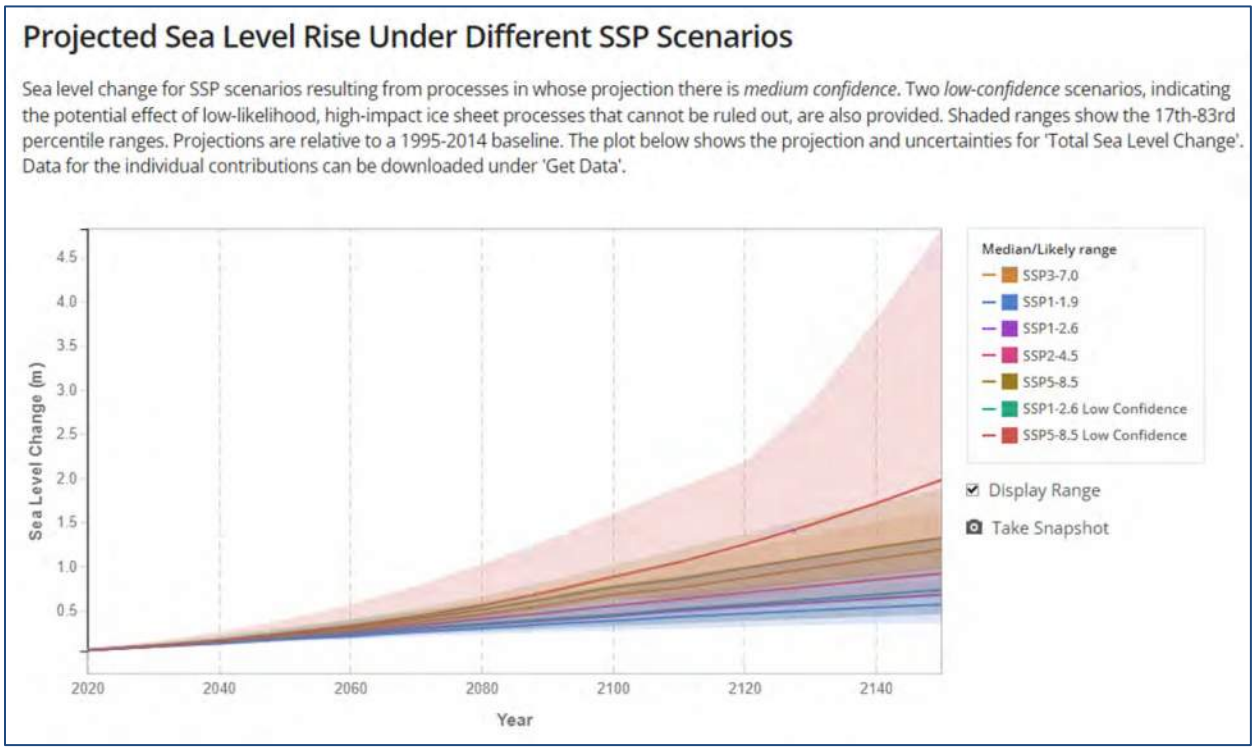



Figure 4. IPCC AR6 plausible range of future sea level rise. A graph generated by NASA and the IPCC's Sea Level Projection Tool that depicts the global mean sea level rise projections under all five SSPs, plus the two additional projections that incorporate additional low confidence ice sheet processes.

In addition to the full plausible range of sea level rise, AR6 identifies a narrower *likely range* of future sea level rise. It distinguishes the projections that are based on processes in which the authors have at least medium confidence (e.g., thermal expansion of seawater and some ice sheet and glacier melt processes) from those in which they have "low confidence" due to a present lack of sufficient research (i.e., processes that would lead to rapid ice sheet disintegration). IPCC therefore describes the shaded regions of Figure 5 below as the likely range of sea level rise by 2100 and the dashed line as a low-likelihood, high impact scenario that includes ice sheet instability processes and cannot be ruled out due to deep uncertainty in those processes.

forcing (a measure of warming), which is expressed in the second half of the SSP name. For example, SSP3-7.0 comes from SSP3 and results in 7.0 Watts/$m^2$ of radiative forcing.

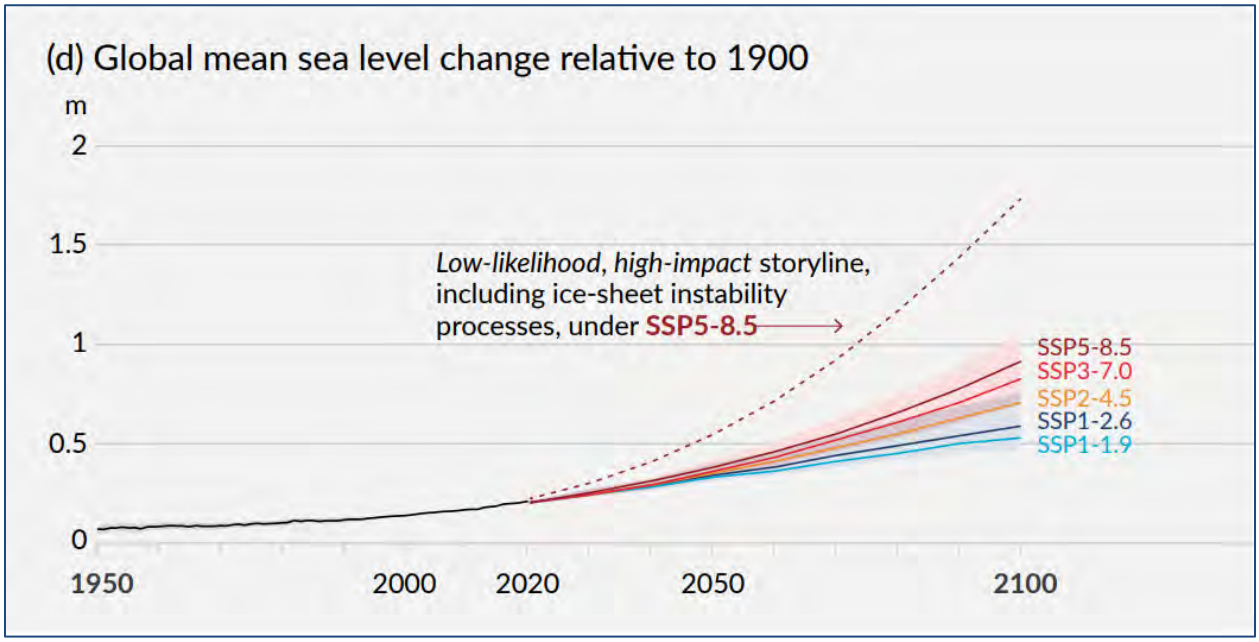



Figure 5. IPCC AR6 SLR projections by 2100. This figure is figure SPM.8(d) in AR6 Summary for Policymakers, and its caption reads, in part, "Only likely ranges are assessed for sea level changes due to difficulties in estimating the distribution of deeply uncertain processes. The dashed curve indicates the potential impact of these deeply uncertain processes. It shows the 83rd percentile of SSP5-8.5 projections that include low-likelihood, high-impact ice-sheet processes that cannot be ruled out; because of low confidence in projections of these processes, this curve does not constitute part of a likely range."

After the publication of sea level rise projections in AR6 in 2021, NOAA's Global and Regional Sea Level Rise Scenarios for the United States (Sweet *et al*., 2022) provided a set of five global mean sea level rise scenarios – hypothetical trajectories of future sea level rise spanning the scientifically plausible range defined by the IPCC[23]. These five scenarios were benchmarked to 0.3, 0.5, 1.0, 1.5, and 2.0 meters-in-2100 and were called the Low, Intermediate-Low, Intermediate, Intermediate-High and High, respectively. Below is a graph generated by NASA Interagency Sea Level Rise Scenario Tool that depicts these five sea level rise scenarios (Figure 6).

NOAA deemed the High scenario, which includes 2.0 meters of sea level rise in the year 2100, to be a reasonable high-end sea level rise scenario for the year 2100 due to updated research on potential mechanisms of rapid ice sheet disintegration. Namely, DeConto *et al*., 2021 used updated regional climate model forcing to find that air temperatures may trigger mechanisms of rapid retreat of the Antarctic Ice Sheet[24] by about the year 2125 – and the associated extreme sea level rise trajectory could reach approximately 2.0 meters in 2100.

[23] For an explanation of the difference between sea level rise projections and sea level rise scenarios, please see Appendix A.

[24] DeConto *et al*., 2021 updated DeConto *et al*., 2016, which provided the basis for the H++ sea level rise scenario included in the past iteration of the OPC *State Sea Level Rise Guidance* and the past iteration of this policy guidance document. DeConto *et al*., 2021 found that, when considering updated climate models, the processes of

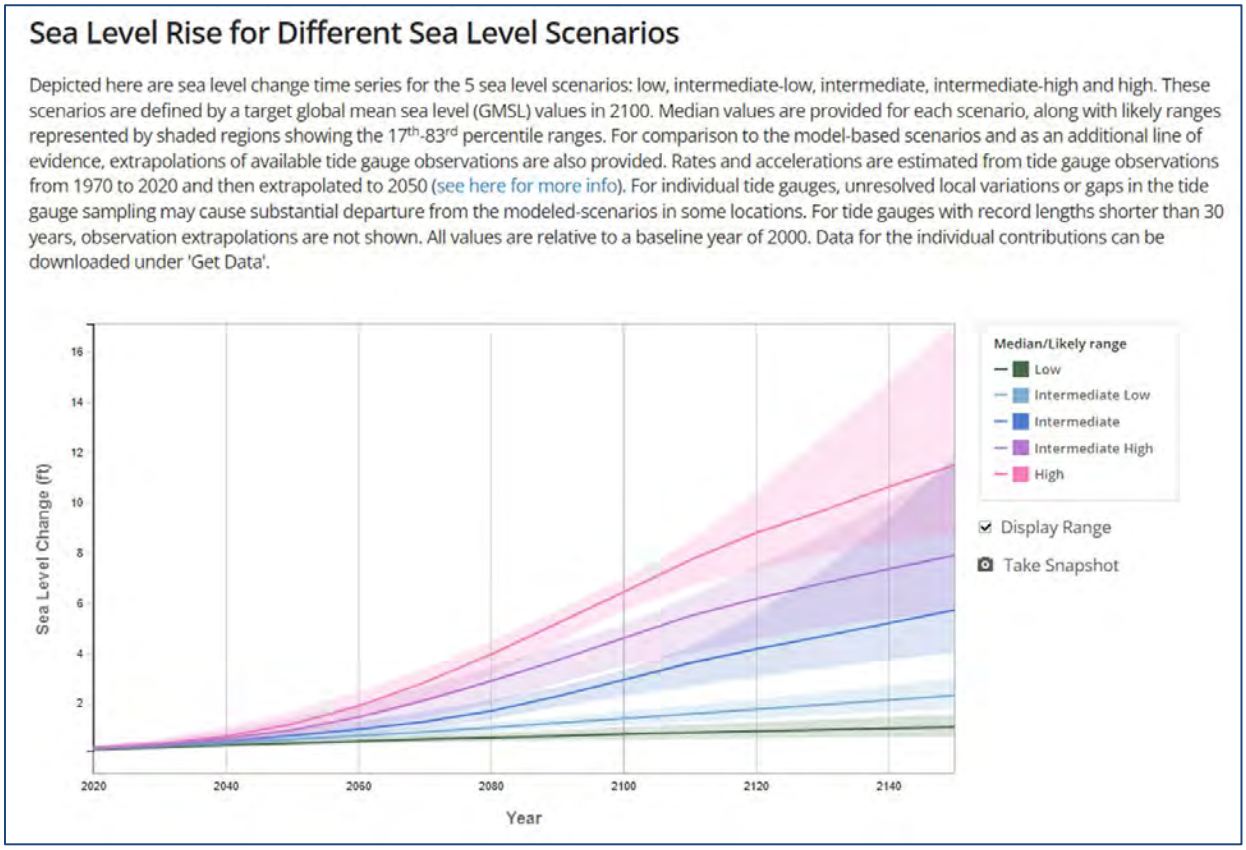



Figure 6. Global Sea Level Rise Scenarios from Sweet *et al*., 2022. This graph was generated by NASA Interagency Sea Level Rise Scenario Tool and depicts Sweet *et al*., 2022's five global mean sea level rise scenarios.

### National Sea Level Rise Projections

In addition to providing global mean sea level rise scenarios, Global and Regional Sea Level Rise Scenarios for the United States (Sweet *et al*., 2022) provided scenarios for the contiguous United States by regionalizing its five global scenarios. These regionalized scenarios reflect how sea level rise around the United States may differ from the global average due to ocean dynamics (i.e., changes to the ocean's currents and density due to climate change), large scale vertical land motion (i.e., glacial isostatic adjustment (GIA), tectonics, sediment compaction, and/or groundwater and fossil fuel withdrawals), and the impacts of gravitational, rotational, and deformational (GRD) changes (i.e., ice sheet fingerprinting). In general, sea level rise scenarios for the United States are similar to or higher than global mean sea level rise due to effects from these regional influences on sea level (Sweet *et al*., 2022). Below is a graph generated by NASA Interagency Sea Level Rise Scenario Tool that depicts the five sea level rise scenarios regionalized for the contiguous United States (Figure 7).

rapid ice sheet disintegration would be delayed about 25 years relative to DeConto et al 2016. (DeConto et al., 2021 states, "With more extreme RCP8.5 warming, thinning and hydrofracturing of buttressing ice shelves becomes widespread, triggering marine ice instabilities in both West and East Antarctica. The RCP8.5 median contribution to GMSL is 34 cm by 2100. This is substantially less than reported by ref. 8 [DeConto & Pollard 2016] (64–105 cm), owing to a combination of improved model physics and revised atmospheric forcing (Methods) that delays the onset of surface melt by about 25 years.")

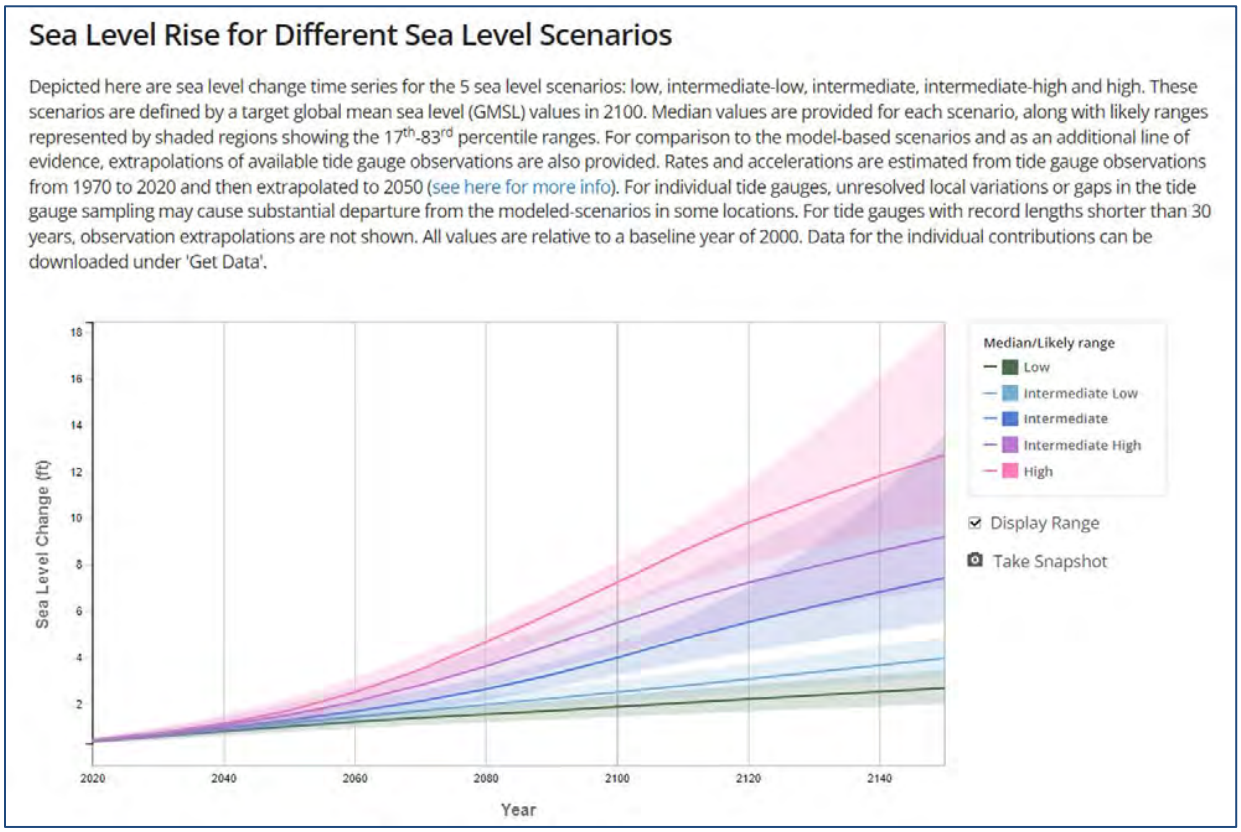



Figure 7. Sea level rise scenarios for the contiguous United States from Sweet *et al*., 2022. This graph was generated by NASA Interagency Sea Level Rise Scenario Tool and depicts Sweet *et al*., 2022's five sea level rise scenarios for the contiguous United States.

### Sea Level Rise Projections for California

The State of California has long supported the development of scientific information on climate change and sea level rise to help guide planning and decision-making. Several iterations of the *State Sea Level Rise Guidance* have been informed by key research that, at the time, provided the best available science on sea level rise projections:

- The 2013 State Sea-Level Rise Guidance (OPC 2013) was informed by the 2012 National Research Council (NRC) report, Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future.
- The 2018 State Sea Level Rise Guidance (OPC 2018) was informed by Rising Seas in California: An Update on Sea-Level Rise Science (Griggs et al., 2017).
- The 2024 State Sea Level Rise Guidance (OPC 2024) was informed by Global and Regional Sea Level Rise Scenarios for the United States (Sweet et al., 2022).

The California Coastal Commission has historically aligned its *Sea Level Rise Policy Guidance* with the best available science provided in each iteration of the *California State Sea Level Rise Guidance*, as has been done here.

The 2024 State Sea Level Rise Guidance (OPC 2024) provides the same five sea level rise scenarios as Sweet *et al*., 2022[25] with further downscaling to reflect regional and local influences on sea level rise in California. Scenarios are provided for California as a whole, reflecting statewide average vertical land motion, as well as for each of the 14 tide gauge locations in the state to reflect local vertical land motion. The median statewide values are shown below in Table 3. The tide gauge-specific scenarios are provided in Appendix 2 of the State Sea Level Rise Guidance (2024) and in Appendix F of this document.

Table 3. Sea Level Rise Scenarios for California [26]

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 |
| **2040** | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
| **2050** | 0.5 | 0.6 | 0.8 | 1.0 | 1.2 |
| **2060** | 0.6 | 0.8 | 1.1 | 1.5 | 2.0 |
| **2070** | 0.7 | 1.0 | 1.4 | 2.2 | 3.0 |
| **2080** | 0.8 | 1.2 | 1.8 | 3.0 | 4.1 |
| **2090** | 0.9 | 1.4 | 2.4 | 3.9 | 5.4 |
| **2100** | 1.0 | 1.6 | 3.1 | 4.9 | 6.6 |
| **2110** | 1.1 | 1.8 | 3.8 | 5.7 | 8.0 |
| **2120** | 1.1 | 2.0 | 4.5 | 6.4 | 9.1 |
| **2130** | 1.2 | 2.2 | 5.0 | 7.1 | 10.0 |
| **2140** | 1.3 | 2.4 | 5.6 | 7.7 | 11.0 |
| **2150** | 1.3 | 2.6 | 6.1 | 8.3 | 11.9 |

[25] Please see Chapter 2 of the 2024 State Sea Level Rise Guidance to read the report's full summary of how the sea level rise scenarios were generated.

[26] This table provides median values for sea level scenarios for California, in feet, relative to a year 2000 baseline. These statewide values all incorporate an average statewide value of vertical land motion – a negligible rate of 0.1 mm (0.0003 ft) per year uplift (OPC 2024). The red box highlights the three scenarios that the *State Sea Level Rise Guidance* and this guidance recommend for use in various planning and project contexts.

To describe the likelihood of each scenario occurring in the future, the State Sea Level Rise Guidance (OPC 2024) compares each scenario to AR6 to derive information about what would have to happen in the future climate for each one to come to pass. The State Guidance presents these "storylines" as follows:

- **"Low Scenario**: The target of 1 foot of increase in global sea level rise by 2100 is set under the assumption of the current rate of sea level rise continuing on into the future. This assumption is inconsistent with current observations of an acceleration in sea level rise, but could still be considered plausible under the most aggressive emission reduction scenarios. As a result, the Low Scenario provides the lower bound for plausible sea level rise in 2100 and sits below the median value for all AR6 scenarios at all times between 2020 to 2150. The likelihood of exceeding this Sea Level Scenario is greater than 90% at all warming levels.
    - SUMMARY: Aggressive emissions reductions leading to very low future emissions; the scenario is on the lower bounding edge of plausibility given current warming and sea level trajectories, and current societal and policy momentum.

- **Intermediate-Low Scenario:** This scenario arises under a range of both future warming levels and possible SSPs, spanning low, intermediate and high emissions pathways, and integrates many of the AR6 SSP pathways as a result (see Figure 2.2). This scenario is consistent with the median projected sea level rise in a 2°C world, which means there is a 50% probability of exceeding this scenario with 2°C of additional warming by 2100. At a warming level of 3°C in 2100, the probability of exceeding this scenario is 82%. Given the extrapolation of GMSL to 2100 (approximately 2.2 feet), the current projection of future warming of 3°C, and the range of sea level rise across the IPCC AR6 scenarios (Figure 2.4), the Intermediate Low Scenario provides a reasonable lower bound for the most likely range of sea level rise by 2100. Since the low confidence processes are not important to this scenario, the range of possible sea level rise after 2100 does not expand significantly.
    - SUMMARY: A range of future emissions pathways; a reasonable estimate of the lower bound of most likely sea level rise in 2100 based on support from sea level observations and current estimates of future warming.

- **Intermediate Scenario**: The Intermediate Scenario is driven dominantly by high emissions scenarios, and thus higher warming levels. For the first time in the scenarios, the low confidence projections from the IPCC AR6 contribute significantly and provide about 25% of the pathways for reaching the Intermediate Scenario target by 2100. Given the extrapolation of GMSL to 2100 and the range of sea level rise across the IPCC AR6 scenarios (Figure 2.4), the Intermediate Scenario provides a reasonable upper bound for the most likely range of sea level rise by 2100. At a warming level of 3°C in 2100, the probability of exceeding this scenario is 5%. In a very-high emissions future

with low confidence processes, there is about a 50% chance of exceeding the Intermediate scenario in 2100.

  - SUMMARY: A range of future emissions pathways; could include contribution from low confidence processes. Based on sea level observations and current estimates of future warming, a reasonable estimate of the upper bound of most likely sea level rise in 2100.

- **Intermediate-High Scenario**: Pathways combining both higher emissions and low confidence processes become the majority, with over 50% of the samples used to construct this scenario coming from the SSP5-8.5 scenario. At all times from 2020 to 2150, the Intermediate High Scenario exceeds the median value of the AR6 scenarios. This scenario is similar to the high-end estimate from van de Wal et al. (2022) under the assumption of high levels of warming in 2100. At a warming level of 3°C in 2100, the probability of exceeding this scenario is 0.1% when not considering the low confidence processes, emphasizing the degree to which these processes are needed to get to this scenario. With the low confidence processes, the probability of exceeding this scenario is approximately 20% for very high warming levels.
  - SUMMARY: Intermediate-to-high future emissions and high warming; this scenario is heavily reflective of a world where rapid ice sheet processes are contributing to sea level rise.

- **High Scenario:** Pathways combining both high emissions and low confidence processes are dominant, providing over 80% of the samples to construct the scenario. Low emissions pathways are not plausible under this scenario, and intermediate emissions pathways require a significant contribution from rapid ice sheet loss processes. Before 2100, the High Scenario is significantly above the range of SSP AR6 scenarios, although the range of plausible sea level expands beyond 2150. The probability of exceeding the High Scenario in 2100 is less than 0.1% for all warming levels without considering low confidence processes. With very high emissions and warming and contributions from the low confidence processes, this probability increases to 8%.
  - SUMMARY: High future emissions and high warming with large potential contributions from rapid ice-sheet loss processes; given the reliance on sea level contributions for processes in which there is currently low confidence in their understanding, a statement on the likelihood of reaching this scenario is not possible."

The State Sea Level Rise Guidance also provides information about how likely each scenario is to occur in the year 2100 under various amounts of plausible future warming (the first five columns of Table 4). Likelihoods were also provided assuming rapid ice sheet disintegration processes come into play in the 2100s (the last two columns of Table 4). These likelihoods were derived from AR6, and they provide valuable information to inform our understanding of the likelihood that each scenario as well as the risk that the higher or lower scenarios may occur.

As explained in the State Guidance, this table can be read as saying, "assuming 3°C of warming in 2100 and no influence from low-confidence ice sheet processes, there is a 5% chance of exceeding the Intermediate scenario in 2100" or "assuming high levels of warming in 2100 and contributions from the low confidence processes, there is a 49% chance of exceeding the Intermediate Scenario in 2100" and so on. The State Guidance also explains that global surface temperatures are currently on track to reach 3.0°C above pre-industrial levels by 2100, assuming current rates of emissions-driven warming.

Table 4. Exceedance probabilities for the sea level scenarios based on IPCC warming level-based global mean sea level projections[27]

| Global Mean Surface Air Temperature 2081-2100 | 1.5°C | 2.0°C | 3.0°C | 4.0°C | 5.0°C | Low Confidence Processes, Low Warming | Low Confidence Processes, High Warming |
|---|---|---|---|---|---|---|---|
| **Low Scenario** | 92% | 98% | 99.5% | 99.9% | >99.9% | 90% | 99.5% |
| **Intermediate-Low Scenario** | 37% | 50% | 82% | 97% | 99.5% | 49% | 96% |
| **Intermediate Scenario** | 0.5% | 2% | 5% | 10% | 23% | 7% | 49% |
| **Intermediate-High Scenario** | 0.1% | 0.1% | 0.1% | 1% | 2% | 1% | 20% |
| **High Scenario** | <0.1% | <0.1% | <0.1% | <0.1% | 0.1% | <0.1% | 8% |

As highlighted in Table 3, the State Sea Level Rise Guidance identifies the Intermediate, Intermediate-High, and the High scenarios as the most appropriate scenarios to use in technical analyses of future sea levels, consistent with its precautionary approach. The following section and Chapters 5 and 6 provide additional detail on how to use these sea level rise scenarios to guide SLR planning in the context of the California Coastal Act.

[27] The State Sea Level Rise Guidance provides the following explanatory information for this table: "Global mean surface air temperature anomalies are projected for years 2081–2100 relative to the 1850–1900 climatology. Global surface temperatures are currently on track to reach 3.0°C above pre-industrial levels by 2100, assuming current rates of emissions-driven warming… The probabilities shown here are imprecise probabilities, representing a consensus among all projection methods applied by the IPCC AR6."

## Comparing the 2024 Best Available Science to the 2018 Science

The previous iteration of this CCC guidance was published in 2018, and this document replaces and supersedes that one. Likewise, the previous iteration of the OPC's California State Sea Level Rise Guidance was published in 2018 and has since been replaced by a revised document published in 2024. Each document synthesized the best available science on sea level rise that was available at the time. The 2024 updates to both documents reflect additional research conducted since 2018.

Both 2018 guidance documents provided SLR projections based on the Rising Seas in California report (Griggs et al., 2017). Like the IPCC Assessment Reports, it provided probabilistic projections of sea level rise tied to high and low Representative Concentration Pathways (RCPs, or the IPCC's scenarios of future emissions levels) (RCP 8.5 and 4.5, respectively), which defined possible future amounts of global warming. In addition, both 2018 documents provided a standalone, extreme SLR scenario called H++, which illustrated the rate of SLR that could occur if the mechanisms of extreme ice sheet collapse occurred as described in the then-recently released paper, DeConto & Pollard, 2016 in a high emissions future (RCP 8.5). The guidance documents went on to define low, medium-high, and extreme (H++) risk aversion scenarios to use in various contexts that depended on the project and planning context.

The 2024 guidance documents provide updated sets of sea level rise amounts. Instead of probabilistic projections and a single H++ scenario, the 2024 updates include five SLR scenarios that span the plausible range of sea level rise included in IPCC's Sixth Assessment Report. These scenarios are slightly lower than the sea level rise amounts provided in the 2018 guidance documents. One main reason for this change is that additional research was conducted on possible extreme ice sheet melt (DeConto et al., 2021). This research incorporated updated climate models which found that the atmospheric warming needed to potentially trigger the processes of rapid ice sheet disintegration were delayed about 25 years relative to the earlier research (DeConto et al., 2016). Thus, the high amounts of SLR associated with the 2018 H++ scenario could occur if the ice sheet disintegration mechanisms begin (which is still an area of developing research), but they appear more likely to occur about 25-30 years later than previously thought. Thus, while H++ included 10 feet of SLR in the year 2100, the High scenario in the 2024 Guidance documents includes 10 feet in the year 2130.

Similar to how the low, medium-high, and extreme risk aversion scenarios were recommended for use in different contexts in the 2018 guidance, the 2024 guidance recommends using the Intermediate, Intermediate-High, and High scenarios. More information on choosing appropriate SLR amounts is included in the next section and Chapters 5 and 6.

The Coastal Commission considers the State of California Sea Level Rise Guidance (OPC 2024) to be the best available science on sea level rise in California, and recommends using the Intermediate, Intermediate-High, and High scenarios in relevant Coastal Commission planning and permitting decisions. More information on which scenarios to use in certain circumstances can be found in the following section as well as Chapters 5 and 6. The Commission will continue to periodically re-examine and update sea level rise projections as they evolve with the release of new scientific reports and information on local and regional sea level trends. Additionally, as sea level rise science continues to evolve, equivalent resources may be used by local governments and applicants provided the sources are peer-reviewed, widely accepted within the scientific community, and locally relevant.

**The Coastal Commission will be using and recommends that local governments and applicants use best available science, currently identified as the scenarios provided in the 2024 OPC California State Sea Level Rise Guidance (Table 3; Appendix F), in all relevant local coastal planning and coastal development permitting decisions.**

## GUIDANCE FOR APPLICATION OF BEST AVAILABLE SCIENCE

This section offers key pieces of guidance for both the analysis of sea level rise as well as the development of project designs, adaptation strategies, and/or adaptation pathways to be included in Coastal Development Permits (CDPs), adaptation plans, or Local Coastal Programs (LCPs).

### Sea level rise analyses

There is a diversity of planning exercises, studies, and development projects that take place in the Coastal Zone, and their associated technical analyses on sea level rise can also vary in terms of level of detail and complexity. This guidance generally recommends analyzing several sea level rise scenarios including a relatively high, precautionary scenario relevant to the planning/project context, as described in the general framework listed below. However, a variety of site- and situation-specific factors may warrant analysis of a different set of sea level rise amounts or a particular number of scenarios.

The overall goal of technical analyses should be to provide sufficient detail on how coastal hazard conditions may develop over time, considering sea level rise, to inform appropriate land use policies and zoning, project siting and design, implementation of adaptation strategies or adaptation pathways, and so on for the subject project, site, or planning area. Considering higher end amounts of sea level rise is important for understanding what types of planning and adaptation options may be necessary if worst case scenarios come to pass, or to inform decisions for new development with long lifetimes that would be hard to relocate, remove, or otherwise adapt to higher amounts of sea level rise in the future. Conversely, analysis of lower sea level rise amounts may assist in identification of tipping points – i.e., amounts of sea level rise or other combinations of hazard conditions that could lead to significant impacts and

warrant adaptive responses. Similarly, understanding lower or nearer-term sea level rise amounts may be important for guiding design of restoration projects, or other types of projects that are meant to be within or immediately adjacent to the ocean or intertidal areas.

It is also important to note that it may not always be necessary to evaluate different sea level rise amounts in the same level of detail. In some cases, it may be sufficient to use screening tools such as CoSMoS to analyze high- or low-end scenarios to build a general understanding of the implications of sea level rise amounts, while more detailed analysis may be appropriate for scenarios that constitute important tipping points or on which detailed decision points depend. The following section further discusses the benefits of scenario-based analysis in the context of both LCPs and CDPs, and Chapters 5 and 6 discuss steps for conducting analyses of SLR and incorporating the results into LCPs and CDPs, respectively.

While the above context and caveats will always be important, this guidance offers the following framework to generally guide the selection of sea level rise scenarios to include in technical *analyses* over the life of the proposed development or planning horizon[28], including at the project level and in broader vulnerability assessments:

1. *Intermediate Scenario*: The Intermediate scenario should be included in technical analyses for development with low risk aversion, i.e., development that would have limited consequences or a higher ability to adapt, such as some ancillary development or public access amenities.
2. *Intermediate-High Scenario*: The Intermediate-High scenario should be included in technical analyses for development with medium-high risk aversion, i.e., development that would experience greater consequences and/or have a lower ability to adapt, such as most residential and commercial structures.
3. *High Scenario*: The High scenario should be included in technical analyses for development with extreme risk aversion, i.e., development with little to no adaptive capacity that would be irreversibly destroyed or significantly costly to repair, and/or would have considerable public health, public safety, or environmental impacts should that level of sea level rise occur, such as most critical infrastructure.[29]

**Project design and selection of adaptation strategies or pathways**

In practice, the Coastal Commission has found that there is an important distinction between selecting sea level rise scenarios to *analyze* (as described above) and selecting scenarios to

[28] Chapters 5 and 6, respectively, discuss appropriate planning horizons for LCP analyses and anticipated project lifetimes in greater detail. In general, LCP analyses should account for long-term planning horizons (75-100 years). For proposed development, temporary structures or ancillary development often have shorter lifetimes (~25 years); residential structures have 75-100 year lifetimes; and critical infrastructure has a 100-year (or greater) lifetime.

[29] For more information on sea level rise planning for critical infrastructure, see also the Coastal Commission's Critical Infrastructure at Risk planning guidance.

inform on-the-ground *siting and design*, including individual project designs and adaptation strategies for sites or regions. Technical analyses should describe the hazards the site might experience from a range of possible sea level rise scenarios, including a likely amount of sea level rise that could occur over the planning horizon at hand as well as sea level rise amounts that are higher and less likely to occur, though still possible, as identified above. This information should inform alternatives analyses, adaptation pathways (or phased adaptation), monitoring programs, and public awareness of the full range of possible risks. In contrast, decisions regarding immediate on-the-ground development – including project siting and design, land use designations, and adaptation projects – may, in some cases, reflect a different amount of sea level rise than the highest amount included in technical analyses.

The Coastal Act sets forth a series of requirements for development in the coastal zone, including that development assure stability and structural integrity (Section 30253(b)). In some cases, the most appropriate way to comply with this requirement may be to completely avoid hazards, including those related to higher end amounts of sea level rise, over the full anticipated lifetime of the development. For some projects or adaptation plans, decision-makers may find that doing so would achieve the best outcomes for coastal resources and pose no significant tradeoffs, costs, or feasibility implications. However, there are a variety of interrelated factors that affect decisions regarding project design (and/or LCP policies that direct project design) that may support or necessitate initially designing for lower sea level rise amounts and incorporating requirements to adapt in some manner if higher, but less likely, sea level rise scenarios come to pass. These factors may directly relate to Coastal Act issues, such as potential coastal resource impacts, while others relate to broader planning considerations such as costs and engineering feasibility. Such factors may include:

- **Coastal resource impacts**: Designing to be safe from the highest scenario included in the technical analysis could present tradeoffs for coastal resources or cause two coastal resource interests to conflict. For example, building higher or longer bridges to account for the highest amounts of potential sea level rise may result in greater fill or other impacts to wetlands or estuarine habitat from more substantial bridge supports. Similarly, setting portions of Coastal Trail further back may avoid the need for future realignments, but doing so may mean the trail is no longer in sight of the ocean in the short and medium-term. Understanding the scope and scale of such resource impacts and weighing them against project design and phasing alternatives will be important.
- **Community impacts**: Similarly, designing to be safe from the highest scenario included in the technical analysis could present tradeoffs for communities, including environmental justice communities that may experience unequal burdens or impacts. For example, redesigning or relocating parking lots or other public access amenities to completely avoid impacts from high-end sea level rise may limit opportunities for visiting the coast, disproportionately impacting those who live further away. And relocating transportation infrastructure farther inland without assessing the communities who live nearby or use the current and alternative routes may result in a pollution or displacement burden to these inland communities. Any adverse impacts such as loss of wages or a disruption in day-to-day routines will have an even greater

impact on low-income workers or individuals who often have less capacity to adapt to these changes.

- **Site Considerations**: Site constraints, such as parcel size, presence of coastal resources, surrounding patterns of development, or property ownership may limit the range of feasible adaptation alternatives. For example, parcel sizes may be too small to allow for setbacks for new houses that account for the highest amounts of sea level rise. Similarly, the presence of ESHA or wetland habitat in a portion of the site may affect where or how development could be sited and designed.
- **Interconnected Systems**: A project or plan's relationship to a networked system of development or infrastructure could limit the range of feasible alternatives due to the necessity of providing connections to the rest of the network. For example, a single pump station may need to be redesigned to account for continued coastal hazards-related damage. Over the long-term, the entire system of wastewater infrastructure may need to be redesigned to account for higher amounts of sea level rise, something that would require significant and complex planning, but in the immediate term, the single pump station will need to adapt in ways that continue to carry out the functions of the connected system, likely only accounting for lesser amounts of sea level rise while a longer term plan is developed.
- **Feasibility and Costs**: Engineering and cost constraints can also affect the analysis of feasible alternatives. In some cases, "over"-designing to account for the highest sea level rise amounts could result in significant cost increases that may jeopardize feasibility and result in a project that cannot be funded and undertaken. "Over"-design could also result in over-engineered projects that result in greater coastal resource impacts. As described above, a bridge designed to account for the highest amount of sea level rise could result in greater wetland fill. Similarly, over-designing development or shoreline protective devices to account for worst-case sea level rise could make such structures more difficult to remove without significant coastal resource impacts in the future. Conversely, "under" designing could result in higher total costs and impacts if the project has no adaptive capacity and has to be completely rebuilt sooner than expected. Cost analyses can compare the marginal cost of designing for higher sea level rise amounts at the outset versus the cost of implementing additional adaptation phases in the future.
- **Adaptation pathway alternatives**: In some cases, it may be possible to design for higher-end sea level rise amounts at the outset, even considering some of the above factors that result in various trade-offs. In other cases, it may be necessary to consider adaptive responses to address higher amounts of sea level rise. Rather than initially designing a project or plan to address the full range of sea level rise included in the technical analysis, adaptation pathways based on monitoring and triggers can allow for stepwise adaptation that maximizes coastal resource benefits over time, avoids overdesigning or overengineering projects, and is cost effective. Depending on the specific hazards, vulnerabilities, coastal resource trade-offs, costs, and so on, adaptation pathways can be fairly basic – such as requiring removal of a structure if and when it

becomes threatened by sea level rise – or more detailed – such as identifying multiple steps for redesigning a City's water infrastructure over time. It also may be prudent to harmonize an adaptation pathway approach with any geographically broader or regional adaptation planning efforts that aim to balance benefits and burdens of adaptation across communities, geographically, and/or across coastal resource types.

The importance of these factors has been borne out by many projects and plans approved by the Coastal Commission in the past. For example, in the Cardiff living shoreline project designed to protect a low-lying stretch of Highway 101 in Encinitas, the dunes of the living shoreline could not be built high enough to fully protect the highway from a full range of sea level rise without blocking views of the ocean from the highway – an adverse scenic and visual impact inconsistent with the Coastal Act. Because it was possible to adaptively manage the height of the dunes, the Commission approved a design with lower dune heights in order to preserve the visual resource.

Similarly, the Gleason Beach Highway 1 Realignment project in Sonoma County was designed to account for sea level rise but had to consider a variety of the above factors, including the presence of agricultural lands, ESHA, wetlands, private property, and public access. The final design sets most of the segment of highway back far enough to be safe from most potential sea level rise impacts over the project's planning horizon except for the parts on either end of the project area that connect with the adjoining highway. To account for possible impacts to these connector points, the project requires monitoring and establishes triggers to initiate future planning if and when they are threatened. At the same time, the project was able to minimize impacts to and actually realize the enhancement of habitat restoration including salmon stream restoration.

**Using scenario-based analysis and adaptation pathways in response to uncertainty in sea level rise scenarios**

As described in the sections above, sea level rise scenarios, including those in the State Sea Level Rise Guidance (OPC 2024) (Table 3; Appendix G) and other state, national, and global reports, are typically presented in ranges due to several sources of significant uncertainty.

The two primary sources of uncertainty in global sea level projections include:

1) Uncertainty about future greenhouse gas emissions and concentrations of sulfate aerosols, which will depend on future human behavior and decision making, and
2) Uncertainty about future rates of land ice loss (Fox-Kemper *et al*., 2021; Sweet *et al*., 2022).

Additionally, the further into the future sea level rise is projected, the greater the uncertainty (and therefore the range in projections) becomes. This occurs because the longer the projection period, the greater the likelihood that models will deviate from the actual impacts of climate change and the more dependent projections become on the trajectory of greenhouse gas

emissions (California State Sea Level Rise Guidance, 2024). According to the 2024 OPC Guidance, near-term sea level rise has been locked in by past greenhouse gas emissions whereas sea level rise over the longer-term will become increasingly dependent on efforts to curtail greenhouse gas emissions.

This Guidance recommends using scenario-based analysis to address the uncertainty in sea level projections. Scenario-based analysis (or planning) refers to the idea of identifying multiple scenarios from which to analyze vulnerabilities, generate new ideas and adaptation options, and/or test strategies. In the context of this Guidance, scenario-based analysis includes choosing several possible sea level rise amounts as a starting point to evaluate impacts to coastal resources and potential risks to development over time. This type of scenario-based approach is useful because it reveals the full range of possible consequences of sea level rise that can be reasonably expected for particular regions or sites according to the best available science. Additionally, a scenario-based analysis helps to reveal the tipping points indicating if or when sea level rise will become a serious issue in a particular location. In many cases, using multiple sea level rise scenarios will help to hone in on the types of hazards for which to prepare.

In general, the Coastal Commission recommends using best available science (currently the 2024 State Sea Level Rise Guidance (OPC 2024)) to identify a range of sea level rise scenarios up to and including an appropriately high, precautionary scenario relevant for the planning or project context at hand. In practice, the process for choosing scenarios and performing scenario-based analysis will be slightly different for LCP planning and CDP applications due to the different planning goals and levels of technical detail required for each.

For a Local Coastal Program (LCP), the general goal is to assess the potential impacts from sea level rise over the entire planning area and over a range of time horizons so that both short and long term adaptation strategies can be identified and implemented. Another important facet of LCP planning is identifying locations and communities that are particularly vulnerable so that additional, more detailed studies can be performed if necessary, and adaptation options and actions can be prioritized. Scenario-based analysis in the context of LCP planning includes choosing a range of sea level rise scenarios to analyze so as to understand the best and worst case scenarios and to identify amounts of sea level rise and related conditions that would trigger severe impacts and the associated time period for when such impacts might occur. This information can lead to the development of adaptation pathways, or series of adaptation measures to deploy when certain triggers or thresholds are crossed. LCP updates can then be developed to reflect the first stage of the adaptation pathway (e.g., land use designations or development standards that carry out the initial adaptation steps), as appropriate, along with policies outlining and establishing the goals for the next stages of the adaptation pathways. Choosing sea level rise scenarios in the context of LCP planning is described in greater detail in Chapter 5.

In the context of a Coastal Development Permit (CDP) application, the goal is to understand how sea level rise will impact a specific site and a specific project over its expected lifetime so

as to ensure that the proposed development is safe from hazards and avoids impacts to coastal resources. Thus, in the context of a CDP, it is important to identify the amounts of sea level rise that could result in effects to a particular site as well as the time period(s) over which those effects could occur so that the proposed development can be safely sited and designed to avoid resource and development impacts, or so that adaptation pathways can be developed to address the impacts of sea level rise as they unfold. Some sites will be completely safe from sea level rise under even the highest projection scenarios, while others will depend on the timing and magnitude of sea level rise to determine safety. Therefore, scenario-based planning analysis can be used as a screening process to identify if and when sea level rise might become a problem. Identifying sea level rise scenarios in the context of CDPs is described in greater detail in Chapter 6.

Overall, scenario-based planning should help planners make reasonable and informed decisions about whether their projects or plans are compatible with the local hazards influenced by sea level rise, and identify the types of adaptation measures or pathways that might be appropriate given the local circumstances and requirements of the Coastal Act. By exploring the range of future scenarios based on the best available science, users of this document can make decisions based on full understanding of possible future hazards, ultimately achieve outcomes that are safer for development, coastal resources, and communities, and avoid costly damages to projects.

For more information on scenario-based planning and development of adaptation pathways in the context of LCPs and CDPs see Chapters 5 and 6, respectively.

### PHYSICAL EFFECTS OF SEA LEVEL RISE

Accelerating sea level rise has and will continue to have widespread adverse consequences for California's coastal resources (see summary in Figure 10). The main physical effects of sea level rise include increased flooding, inundation, groundwater rise, wave impacts, coastal erosion, changes in sediment dynamics, and saltwater intrusion. These impacts are interrelated and often occur together. Absent any preparatory action, an increase in sea level may have serious implications for coastal resources, development, and communities, as described in Chapter 4. In addition, these physical effects could have disproportionate impacts on environmental justice and tribal communities that have a high social vulnerability due to several factors, which can result in their increased exposure and sensitivity to adverse climate impacts as well as a lower ability to adapt.

Physical effects from sea level rise to the coastal zone include the following[30]:

- **Flooding and inundation:** Low lying coastal areas may experience more frequent flooding (temporary wetting) or inundation (permanent wetting), and the inland extents of 100-year floods may increase. Rising sea levels can accelerate flood risk; for example,

[30] Please see Chapter 4 of the State Sea Level Rise Guidance (2024) for additional discussion of the physical impacts of sea level rise.

only a 10 cm rise in sea level could double the flooding potential along the west coast in locations such as San Francisco and Los Angeles (Vitousek *et al*. 2017). Sea level rise will also increase the frequency of what we today consider to be high-tide flooding, especially starting in the 2030s. For example, the frequency of minor high-tide flooding is projected to increase by a factor of three to four from 2030 to 2050 under the Intermediate sea level rise scenario (Thompson *et al*., 2021; NASA Flood Analysis Tool). Riverine and coastal waters come together at river mouths, coastal lagoons, and estuaries, and higher water levels at the coast may cause water to back up and increase upstream flooding (Heberger *et al*. 2009). Drainage systems that discharge close to sea level could have similar problems, and inland areas may become flooded if outfall pipes back up with salt water. In addition, other climate change impacts such as increases in the amount of precipitation falling as rain rather than snow will add to river flooding in some areas.

- **Rising groundwater:** An increase in sea level could cause saltwater to push further into coastal groundwater aquifers, causing groundwater tables to rise (Befus *et al*., 2020; May *et al*., 2020). In general, coastal groundwater tables are expected to rise proportionally with sea level rise at a ratio that depends on the composition of the substrate. With enough sea level rise, groundwater tables could become shallow enough to compromise subsurface infrastructure. Additionally, groundwater could rise high enough to emerge at the surface, causing flooding even in places where overland flooding is curtailed by seawalls or other shoreline protective devices. Rising groundwater may also affect contaminated sites across the state, mobilizing contaminants in shallow soils that were previously above the water table (Cushing *et al*., 2023; Hill *et al*., 2023).
- **Saltwater intrusion:** An increase in sea level could cause saltwater to intrude into groundwater resources, or aquifers. Existing research suggests that rising sea level is likely to degrade fresh groundwater resources in certain areas, but the degree of impact will vary greatly due to local hydrogeological conditions. Generally, the most vulnerable hydrogeological systems are unconfined aquifers along low-lying coasts, or aquifers that have already experienced overdraft and saline intrusion. In California, saline intrusion into groundwater resources is a problem in multiple areas, including but not limited to the Pajaro Valley (Hanson 2003), Salinas Valley (Hanson *et al*. 2002a; MCWRA 2012), Oxnard Plain (Izbicki 1996; Hanson *et al*. 2002b), and the heavily urbanized coastal plains of Los Angeles and Orange Counties (Edwards and Evans 2002; Ponti *et al*. 2007; Nishikawa *et al*. 2009; Barlow and Reichard 2010). Groundwater sources for other coastal agricultural lands may also be susceptible to saltwater intrusion.
- **Wave impacts:** Wave impacts can cause some of the more long-lasting consequences of coastal storms, resulting in high amounts of erosion and damage or destruction of structures. The increase in the extent and elevation of flood waters from sea level rise will also increase wave impacts and move the wave impacts farther inland. Erosion rates of coastal cliffs, beaches, and dunes will increase with rising sea level and are likely to further increase if waves become larger or more frequent (NRC 2012). In addition,

recent research has suggested that winter wave heights and winter storm intensity in the North Pacific have, on average, increased over the last 50 years in parallel with climate change, sending larger and more powerful waves to the California shoreline. Some studies suggest that wave heights could continue to increase in the future, generally extending the reach of wave run up and further exacerbating the erosion that is already expected to increase due to rising sea levels, though this is a subject of ongoing research (Bromirski *et al*., 2023).

- **Erosion:** Large sections of the California coast consist of oceanfront bluffs that are often highly susceptible to erosion. With higher sea levels, the amount of time that bluffs are pounded by waves would increase, causing greater erosion. This erosion could lead to landslides and loss of structural and geologic stability of bluff top development such as homes, infrastructure, the California Coastal Trail, Highway 1, and other roads and public utilities. The Pacific Institute (Heberger *et al*. 2009) estimated that 41 square miles (106 square km) of coastal land from the California-Oregon border through Santa Barbara County could be lost due to increased erosion with 4.6 ft (1.4 m) of sea level rise by the year 2100. Approximately 14,000 people now live in those vulnerable areas. Increased erosion will not occur uniformly throughout the state. Dunes in Humboldt County could erode a distance of approximately 2000 ft (nearly 600 m) by the year 2100 (Heberger *et al*. 2009; Revell *et al*. 2011). In southern California, higher sea level rise could result in a two-fold increase in bluff retreat rates over historic rates, causing a total retreat of 75 feet on average by 2100 (Limber *et al.* 2018). Man-made structures like dikes and levees may also be impacted by erosion, increasing flooding risk of the areas protected by those structures, such as low-lying agricultural land. Over the long term, rising sea levels will also cause landward migration of beaches due to the combined effects inundation and loss of sediment due to erosion (NRC 2012).



Figure 8. Photo of Esplanade Apartments threatened by cliff erosion in 2013 in Pacifica, CA. (Source: California Coastal Records Project)

- **Changes in beaches, sediment supply and movement:** Sediment is important to coastal systems in, for example, forming beaches and mudflats and as the substrate for wetlands. Sea level rise will result in changes to sediment availability. Higher water levels and changing precipitation patterns could change erosion and deposition patterns. Loss of sediment could worsen beach erosion and possibly increase the need for beach nourishment projects (adding sand to a beach or other coastal area), as well as decrease the effectiveness and long-term viability of beach nourishment if sand is quickly washed away after being placed on a beach (Griggs 2010). Shoreline change models predict that by 2100, without changes in coastal management, 30 to 67% of Southern California beaches may be completely lost due to rising sea level (Vitousek *et al.* 2017; 2021; 2023; Bedsworth *et al.* 2018). Sediment supplies in wetland areas will also be important for long-term marsh survival. Higher water levels due to sea level rise, however, may outpace the ability of wetlands to trap sediment and grow vertically (Titus 1988; Ranasinghe *et al*. 2012; Van Dyke 2012).

### STORMS AND EXTREME EVENTS

Much of the California coast is currently vulnerable to flooding and wave damage during large storm events, and even more of the coast is vulnerable to storm impacts when they occur during times of heightened water levels, such as high tides, El Niño events, a warm phase of the Pacific Decadal Oscillation, or a combination of these factors. Sea level rise will increase vulnerability to storms even more because rising water levels will result in more areas being impacted. Furthermore, climate change could impact the frequency and intensity of storms.

As summarized above, Bromirski *et al*., 2021 suggested that winter wave heights and winter storm intensity in the North Pacific have, on average, increased over the last 50 years in parallel with climate change, and studies suggest that wave heights could continue to increase in the future, further exacerbating the erosion that is already expected to increase due to rising sea levels. Previous research had shown conflicting evidence on whether storminess and wave size will change in the North Pacific Ocean (Cayan *et al*. 2009; Lowe *et al*. 2010; Dettinger 2011).

Extreme events are of particular concern to the examination of coastal vulnerability and damage because they tend to cause the greatest community upheaval and can result in irreversible changes to the coastal landscape. In the El Niño winter of 1982-1983, for example, a series of storms, several of which coincided with high tide, caused more than $200 million in damage (in 2010 dollars) to coastal California (OPC 2013). Similarly, the 2015/16 El Niño was one of the strongest on record, resulting in significant changes to the shoreline. California also experienced significant damage over a series of storms in January 2023 and January 2024.

Sea level rise will compound the impacts of storms. The 4$^{th}$ California Climate Assessment found that a 100-year coastal flood would almost double the damages associated with just 20 inches of sea level rise alone (Bedsworth *et al.* 2018). Barnard *et al*., 2019 found that approximately 700,000 California residents and $250 billion in property could be exposed to flooding by 2100 under the high scenario and a 100-year storm. These impacts result because a rise in sea level

will mean that flooding and damage will likely reach further inland. For these reasons, it is important to include these factors in the analysis of sea level rise hazards. Further discussion of the physical effects of sea level rise and methodologies for these analyses are included in Appendix B.

*This page intentionally left blank*



# Chapter 4. Consequences of Sea Level Rise for Communities, Coastal Resources, & Development

The physical effects of sea level rise described in the previous chapter could have significant consequences for California's citizens, coastal communities, and the resources protected by the Coastal Act. This chapter describes some of these consequences and notes the relevant Coastal Act policies for convenience. It is important to consider both the direct impacts of sea level rise on coastal resources and what these impacts mean for the people and communities who use and enjoy these coastal resources. It is also important to consider environmental justice when analyzing sea level rise impacts because adverse impacts from sea level rise are not distributed equitably among populations, as described in greater detail in the section below.

## SEA LEVEL RISE ADAPTATION PLANNING AND ENVIRONMENTAL JUSTICE

The California Coastal Act recognizes and defines environmental justice as "the fair treatment of people of all races, cultures, national origins, and income with respect to the development, adoption, implementation and enforcement of environmental laws, regulations, and policies" (PRC section 30107.3). Born out of the civil rights movement, environmental justice was coined as a term to describe the application of civil rights and social justice to environmental contexts (Environmental Justice for All, 2010). Environmental justice recognizes that low-income communities, communities of color, and other historically marginalized communities across the United States have endured disproportionate environmental burdens and health impacts, including being subjected to disinvestments for creating or preserving natural resources within these communities.[31] The environmental justice movement seeks to rectify environmental racism through procedural, distributive, and restorative justice principles (Pellow, 2000). Procedural justice refers to equitable access to, and participation in, the process of land-use decisions that may significantly burden an underserved community. This includes involvement in the political and scientific platforms and agencies that develop the rules for engagement, governance, and decision-making. Distributive justice is concerned with equitably allocating the "fair share" of environmental resources, benefits, and harms across society. Restorative justice is centered in healing the historic inequities in a community through cross-sectoral partnerships, mediation, and trust-building. Together, procedural, distributive, and restorative environmental justice aim to acknowledge, prevent, and heal from historic environmental racism and injustices within overburdened communities and transition to a more just and equitable society (Taylor, 2000).

Sea level rise and how we respond to it may result in significant changes in the distribution of environmental benefits and burdens in California. As a result, there is a need to incorporate equity principles into sea level rise adaptation planning. The California Climate Adaptation Strategy identifies strengthening protections for climate-vulnerable communities as a priority in the state's climate adaptation and resilience planning efforts. Additionally, the Ocean

[31] Disproportionate burdens refer to environmental justice communities being unevenly exposed to environmental burdens, such as pollution or displacement, compared to the rest of the population in a geographic area. (US EPA, 2021).

Protection Council's State Sea Level Rise Guidance recommends prioritizing social equity, environmental justice, and the needs of vulnerable communities in adaptation planning.

The California Coastal Act also recognizes the fundamental importance of the fair distribution of environmental benefits in Section 30001:

> *The Legislature hereby finds and declares: (a) That the California coastal zone is a distinct and valuable natural resource of vital and enduring interest to all the people and exists as a delicately balanced ecosystem. (b) That the permanent protection of the state's natural and scenic resources is a paramount concern to present and future residents of the state and nation. (c) That to promote the public safety, health, and welfare, and to protect public and private property, wildlife, marine fisheries, and other ocean resources, and the natural environment, it is necessary to protect the ecological balance of the coastal zone and prevent its deterioration and destruction. (d) That existing developed uses, and future developments that are carefully planned and developed consistent with the policies of this division, are essential to the economic and social well-being of the people of this state and especially to working persons employed within the coastal zone.*

The Act thus declares that the protection of the coast is of vital interest to *all* the people, of paramount concern *to present and future residents* of the state and nation, and that careful planning and development is essential to *the economic and social well-being* of the people. This broad direction to protect the coast for everyone is underscored in Section 30006, which declares:

> *. . . the public has a right to fully participate in decisions affecting coastal planning, conservation and development; that achievement of sound coastal conservation and development is dependent upon public understanding and support; and that the continuing planning and implementation of programs for coastal conservation and development should include the widest opportunity for public participation.*

Hence, everyone is entitled to participate in the management decisions that determine how the benefits and burdens of managing California's coast will be distributed. Ensuring low-income and underserved communities are included in environmental decisions is a key tenet of environmental justice and will minimize disproportionate environmental and public health impacts. Whether environmental justice community members live at the coast or visit for work or recreation, they have a stake in the coast's future and a meaningful perspective regarding the potential impacts from proposed development on their communities. Furthermore, with the signing of AB 2616 (Burke) in 2016, the Commission was given new authority to specifically consider environmental justice when making permit decisions.

The Coastal Act's broad concern for all the people is highlighted in its public access policies, which require the maximum provision and protection of the public's rights of access to and along the shoreline (Sections 30210-30214). These policies reflect the judgement of the people of California in passing Proposition 20 in 1972 that public access and recreation along our coast

is a fundamental environmental benefit to be protected for and enjoyed by all, not just by those with the good fortune or means to live along the shoreline. Public access to the coast is important to the health and well-being of the public, and promoting public access for all citizens provides low-cost, outdoor recreation that can improve the overall quality of life of the public, including low-income and underserved communities, no matter whether they live near or far from the coast.

Unfortunately, public access is also one of the coastal resources most at risk from accelerating sea level rise. As discussed elsewhere in this Guidance, beaches, accessways, recreational amenities, and even surfing resources may be dramatically impacted by rising seas. Where development already exists, and particularly where there is substantial shoreline armoring to protect this development, California will lose significant recreational beach areas. These places that are at increased risk provide environmental and mental health benefits for everyone, generally at very low cost, or even free. Thus, the potential loss of beach and shoreline recreation areas represents a significant loss of a resource that is especially important to protect for those with fewer economic resources.

The impacts of sea level rise on coastal access will disproportionately burden environmental justice communities who already experience a lesser degree of connectivity to the coast and greater inequalities to coastal access as a result of historic discriminatory public policies and land use practices. For example, redlining and restrictive covenants were used in the United States real estate market to segregate neighborhoods and restrict people of color from living in certain areas. The historic restrictions on property sales to certain groups of people, such as households of color and low-income households, and the high cost of homes in coastal areas have resulted in concentrated wealth in these areas (Uhler & Chu, 2019). Additionally, for much of the 20$^{th}$ century, residents of color were only allowed at certain California beaches such as the Inkwell in Santa Monica and Bruce's Beach in Manhattan Beach (Garcia & Baltodano, 2005). As a result, environmental justice communities are often located farthest away from coastal areas (Rowland-Shea *et al*., 2020).

California's dependence on cars and lack of proper or efficient public transit systems, especially in coastal areas, creates another barrier for environmental justice communities to access the coast (Reineman *et al*., 2016). Whether traveling to the coast in their own vehicle or via public transportation, inland communities must account for additional transit time and costs; a burden that coastal communities do not have to consider. Further, coastal or beach parking rates exacerbate this burden and contribute to inequitable coastal access, often disproportionately burdening low-income individuals who may not be able to afford these fees or who will have to park farther away at lower-cost sites. Additionally, the loss of public coastal spaces, such as coast-side parks and beaches with restroom facilities, due to sea level rise will also disproportionately affect inland communities and environmental justice communities who rely on these areas as a space for recreational opportunities, a source of food, community gatherings, cultural practices, and natural sanctuaries that are essential for psychological well-being and stress relief. For example, accessing the relatively cooler coastal temperatures will increasingly become a public health imperative for inland residents as average temperatures in

California increase due to climate change. The utility of coastal areas as a respite from inland urban heat islands is especially important for environmental justice communities who often reside in these high heat areas (Hoffman *et al*., 2020).

Relatedly, the Commission's prior authority to require affordable housing in the coastal zone was stripped in the early 1980s. The lack of extensive affordable and low-cost overnight accommodations on the coast disproportionately affects low-income communities from accessing the coast.[32] And many of the remaining lower-cost rental units and homes in coastal areas that are threatened by sea level rise could potentially displace communities, further exacerbating California's housing crisis. Compounding this challenge, these populations are less likely to be able to take proactive steps to adapt to sea level rise due to resource constraints and procedural inequities. This loss affects not only those directly displaced but also contributes to broader community destabilization, such as limiting access to affordable living near coastal habitats.

The environmental justice movement is inclusive of tribal and indigenous communities due to their disproportionate exposure to environmental burdens, lack of access to environmental benefits, and overall systemic oppression. However, it is imperative to recognize both the overlap and distinct challenges that tribal communities face in relation to sea level rise. Tribal communities will be uniquely impacted and vulnerable to sea level rise. Many tribes hold a historical and cultural connection to specific regions and locations. The loss of coastal habitats like beaches, dunes, and wetlands signifies more than an environmental catastrophe for these communities — it is a loss of access to cultural and ancestral lands, eroding ties to heritage and traditional practices essential to their identity and way of life. For more information on the challenges and consequences that tribal communities face in relation to sea level rise in California, see the section below, "Sea Level Rise Consequences Unique to Tribal Communities".

Taken together, the impacts of sea level rise on coastal beaches, wetlands, habitats, and public accessways, often available to the public for little or no cost, will disproportionately affect environmental justice communities who cannot afford to live near the coast and/or were forcibly restricted from living in coastal areas.

The exacerbation of environmental injustices by anticipated sea level rise may be particularly concerning when the Commission and local governments need to make decisions about shoreline protection and hazard mitigation. As discussed elsewhere in this Guidance, the Coastal Act provides for the protection and mitigation of coastal hazards for existing and new development. But some hazard mitigation, such as shoreline armoring or elevated development on beaches, may have significant impacts to public trust resources. Thus, we face a situation where widely available public beach resources may be diminished in order to protect private or public development along the shoreline – posing a significant environmental justice concern. Because of this, it will be important for decision makers to proactively consider all aspects of

[32] The topic of housing inequities within the coastal zone is further examined in a 2022 Commission staff report, "Historical Roots of Housing Inequity and Impacts on Coastal Zone Demographic Patterns."

this Guidance to avoid and mitigate the potential impacts to coastal resources from hazard responses. This is particularly true for recommendations to consider alternatives to shoreline armoring and, where armoring must be approved, for recommendations to fully mitigate the impacts of such structures on coastal resources.

A May 2015 decision made by the Coastal Commission emphasizes the importance of analyzing low-cost recreational opportunities in addition to other coastal resource impacts when evaluating shoreline protection and other responses to sea level rise and coastal hazards. The Coastal Commission approved a revetment at the west end of the Goleta Beach County Park to provide protection against erosion. This park is an important public resource in Santa Barbara County and receives up to 1.5 million visitors each year, a large fraction of which are low-income visitors. Park facilities include picnic areas, open parkland, and access to the ocean and a recreational beach for no or low cost. The revetment was approved contingent upon specific conditions, including continued free public access and vehicle parking for the term of the permit. This decision highlights the importance of protecting wide accessibility to shoreline resources even as sea level rises.

The potential impacts of adaptation responses on public shoreline resources, and thus the potential environmental justice impacts of such actions, will need to be considered for all resources protected under the Coastal Act. It is also true that due to current development patterns along the coast, sea level rise hazards may affect various sections of the population differently, as could the implementation and effectiveness of various adaptation measures. The number of people living along the open coast in areas exposed to flooding from a 100-year flood would increase to 210,000 with a 4.6 ft (1.4 m) increase in sea level; approximately 27% or 56,000 of these are lower income people (those earning less than $30,000 annually); 45,000 are renters; and 4,700 are linguistically isolated and less likely to understand flood warnings (Heberger *et al*. 2009). According to Heberger *et al*. (2009), the greatest increases in the number of people vulnerable to flooding will occur in Los Angeles, San Diego, Ventura, Humboldt, and San Luis Obispo counties. Sea level rise will likely result in the loss of key infrastructure, intrusion of saltwater into water sources, and the creation of additional coastal hazards. Hazards in vulnerable areas will have disproportionate impacts on communities with the least capacity to adapt, which could deepen and expand existing environmental injustices if adaptation responses are not managed appropriately.

It is crucial for planners and decision-makers to consider not only the direct impacts of sea level rise on coastal resources but also how these consequences affect the distribution of environmental benefits and burdens along the coast. This includes communities reliant on these resources, such as workers and visitors, even if they do not reside in the coastal zone. Planners and decision-makers should consider environmental justice concerns in the analysis of alternative project designs and adaptation measures and involve low-income and underserved communities in decision-making and planning efforts, early and often. This practice aims to decrease unintended consequences that may lead to further social or environmental injustices while ensuring that adaptation efforts specifically provide benefits to environmental justice communities both within and outside of the coastal zone. In particular, it will be important to

consider the potential impacts of hazard mitigation actions to protect development that may only benefit a few, on the public access and shoreline resources that are available for all Californians to enjoy.

**Meaningful Engagement and Environmental Justice**

Environmental justice communities can experience both intentional and unintentional procedural barriers that make it difficult to engage in the decision-making process. In many instances, impacted communities say they receive little to no notice regarding a planned project, the passage of a zoning change, or a change in law, and are seldom made aware of the full range of potential adverse impacts that may result from these changes. Further, they often do not have the capital resources nor the established political or administrative connections to decision-making bodies that businesses or other members of the public have. Environmental justice communities also face greater burdens when trying to participate in the public process, including inaccessible meeting times, language and technology access barriers, lack of outreach, and lack of community capacity. Thus, they are rarely consulted or adequately included from the beginning of the planning process, even when it directly impacts their communities.

Meaningful engagement recognizes the historic exclusion of community input and attempts to uplift community voices and perspectives. Meaningful engagement is the intentional outreach, inclusion, and consideration of the voices and perspectives from presently and historically underserved and marginalized communities in the design, development, implementation, and policies that may impact the health, environment, and livelihood of their communities. It is essential to environmental justice and relies on communicating directly with potentially impacted communities and providing an opportunity for their input to inform decision outcomes (EPA, 2024). Essentially, meaningful engagement is the foundation upon which all subsequent policy and decision making depends. When engaging with communities, it is imperative to remind ourselves that members of the public are partners and collaborators, not a “checked box” for outreach. There is ongoing concern that community consultations can feel like a procedural step, with predetermined outcomes already in place. To counter this, it is essential that engagement is coupled with genuine opportunities for communities to influence project decisions.

Further, many communities, including environmental justice and tribal communities, have experienced land dispossession, displacement, discrimination, and other forms of state-sanctioned violence; therefore, trust, especially as government representatives, must be earned. It is important to recognize that trust will not always be easily granted, but it is our duty to try our best as decision-makers. Adopting outreach practices such as early notification, avoiding overpromising, and timeliness are just a few examples of how trust can be built over time. Additionally, coordinating with trusted community partners, such as local environmental justice and/or community-based organizations can help bolster outreach and engagement efforts.

Because environmental justice communities have historically been underrepresented in, or even purposefully excluded from, land use planning and permitting decisions, it is critical for local governments to incorporate meaningful engagement into the development of new or updated Local Coastal Programs (LCPs) and to include meaningful engagement policies and actions in LCPs and subsequent permit reviews. This should also include engagement with inland communities that do not reside on the coast but may be reliant on it for work or recreational purposes. Incorporating meaningful engagement into the adaptation planning process may help institutionalize these efforts and eventually contribute to better protection of natural resources and lands for all communities. Since the adoption of both the Tribal Consultation Policy and Environmental Justice Policy, the Commission has worked to better understand, define, develop, and expand available resources to support staff in implementing meaningful engagement into this work. For more information and resources about how to incorporate environmental justice into sea level rise adaptation planning, see Chapters 5 and 6 of this guidance, the Commission's Coastal California Environmental Justice Mapping Tool, and the Commission's Toolkit on Resources for Addressing Environmental Justice through Local Coastal Programs.

### SEA LEVEL RISE CONSEQUENCES UNIQUE TO TRIBAL COMMUNITIES

Environmental justice applies to communities that have experienced disproportionate environmental burdens, including tribal communities. It is important to recognize that the entirety of California's coastal zone was originally indigenous territory that has certain levels of cultural significance. For over 13,000 years, long before Spanish colonization, indigenous communities have been a part of and shaped what is now California (Scarborough *et al*., 2022). California is home to the ancestral lands of over 500 native sub-groups; today, only 109 California tribes are federally recognized by the Bureau of Indian Affairs, while the State of California currently recognizes an additional 55 California tribes and tribal communities (California Native American Heritage Commission, 2022). According to the 2020 Census, about 1.7% of Californians, or roughly 660,000 individuals, identify as Native American or Indigenous, underscoring the significant but often overlooked presence of these communities in sea level rise adaptation planning.

California's long history of land theft, suppression, and displacement of indigenous people from coastal (and other) regions early in the colonization and settlement of the State has culminated in a legacy of environmental and racial injustice (Akins and Bauer, 2022). For decades, even after native people were already excluded from coastal areas by settlers and state and federal officials, expressions of indigenous culture, religion, and values led to aggression and persecution, including periods of genocide. Additionally, some tribes were forced to abandon coastal areas all together. Today, tribal communities with cultural ties to the coast depend on access to ancestral lands and sacred sites to maintain traditional ecological knowledge and practices. Native California coastal tribes such as Chumash, Esselen, Rumsen, Coast Miwok, and others exemplify their connection to the intertidal environment through elaborate fishing practices, hunting and gathering, canoeing, and shell beading (Dartt-Newton and Erlandson, 2006).

The persistence of tribal communities highlights an unwavering ability to adapt to a variety of changes. Historically, indigenous peoples depended on a wide variety of natural resources for food, water, medicine, ceremonies, and shelter. Coastal tribal communities, in particular, harnessed their deep ancestral and traditional ecological knowledge of the land to adapt to tidal fluctuations, saltwater intrusion, and other coastal stressors (Lynn *et al*., 2021; Leonard, 2021). For example, the Yurok and Chumash tribes continue to employ methods like sustainable fishing, gathering, and land stewardship, which have been honed over centuries and are increasingly seen as models for climate resilience (USGS, 2015). The resurgence of these practices is not only a means of survival but also a reaffirmation of cultural identity and sovereignty. It will be important to increase opportunities for tribes to help manage these areas using traditional ecological knowledge that enhances biodiversity and promotes sustainability.

However, tribal communities are uniquely vulnerable to climate change stressors because of their connection to, and reliance on, the environment, including through traditional fishing, hunting, and gathering practices. In the Tribal Leaders Summit on Climate Change report, the Yurok Tribe of the Yurok Reservation located in northern California along the Klamath River highlighted their main concern in relation to climate change as hydrologic impacts to surface waters and aquatic resources on which they depend for sustenance (Black *et al*., 2015). Sea level rise threatens coastal tribal resources, including coastal access, recreation, and sustenance. Sea level rise also endangers coastal tribal cultural resources such as traditional dwellings, ancestral sites, and sacred places, and poses a significant threat to adjacent ecosystems, local water quality, traditional food systems, and harvesting practices Although indigenous stewardship has been shown to mitigate climate impacts, including those caused by sea level rise , past sea level rise adaptation planning efforts carried out by local and state governments have not sufficiently included the interests of tribal communities (Harvard Ash Center, 2022).

The Commission acknowledges tribal sovereignty and understands that California's tribes and their members have long served as stewards of the state's important coastal resources, and possess unique and valuable knowledge and practices for conserving and managing these resources in a sustainable manner, and in a manner consistent with the spirit and intent of the Coastal Act. In 2018, after multiple public hearings and extensive coordination with California Native American Tribes and other interested groups, the Coastal Commission adopted its Tribal Consultation Policy. This document sets out procedures for consultation and meaningful engagement between Commission staff and tribes, provides for the designation of agency tribal liaisons, and requires consideration of tribal cultural resources (not just archaeological resources) in planning and permitting decisions. While there are complexities surrounding the distinction between federally and state-recognized tribes, the Commission's Tribal Consultation Policy applies to both groups, and directs Commission staff to communicate with and engage tribes at the earliest possible stage in the review and decision-making process. Throughout this process, respect for tribal interests is essential, ensuring that tribes have a meaningful role in decisions affecting their cultural resources. Local governments are encouraged to consult the Tribal Consultation Policy and work with Commission staff for assistance with conducting outreach with tribal communities regarding Local Coastal Programs and Coastal Development

Permits that have a sea level rise component. Addressing tribal interests in sea level rise adaptation planning will help prioritize the significance of these vulnerable sacred sites to tribal communities.

### CONSEQUENCES OF SEA LEVEL RISE FOR COASTAL ACT RESOURCES

- **Coastal development (Coastal Act Sections 30235, 30236, 30250, 30253):** Sea level rise will increase the likelihood of property damage from flooding, inundation, or extreme waves, and will increase the number of people living in areas exposed to significant flooding. Increased erosion and loss or movement of beach sand will lead to an increase in the spatial extent of eroding bluffs and shorelines and could increase instability of coastal structures and recreation areas. Levee systems could also experience damage and overtopping from an increase in water levels, extreme wave conditions, or a loss of wetlands, which buffer impacts from high water. Sea level rise may also impact hazardous sites, mobilizing contaminants and putting communities at risk. The USGS's HERA tool estimates that the value of the property at risk from 2 meters of sea level rise is $176 billion, which represents almost 200,000 housing units for over 440,000 residents (Wood *et al*., 2020).

  Impacts to public infrastructure, ports, and industrial development include:

  - **Public infrastructure:** Low-lying transportation infrastructure, wastewater treatment facilities, energy facilities, stormwater infrastructure, and utility infrastructure such as potable water systems and electricity transfer systems which are vital to local economies as well as public health are at risk of impaired function due to erosion, flooding, and inundation. USGS's HERA tool estimates that 3,500 miles of roads, 289 miles of railroad, 24 wastewater treatment plants, 32 drinking water plants, and 18 solid waste landfills are at risk from 2 meters of sea level rise (Wood *et al*., 2020). Facilities and highways located on coastal bluffs subject to erosion will become more susceptible in the future. Sections of Highway 1 have already had to be realigned due to erosion or are in the planning stages for realignment projects, including areas in San Luis Obispo County, Monterey County, San Mateo County, Half Moon Bay, Marin County, Sonoma County, and others, and the sections at risk in the future will likely increase. The collective impacts to public infrastructure have wide-ranging adverse consequences to public health, safety, and the economy. For example, disruptions to the movement of people, goods, and services can result in extreme risks like the loss of emergency evacuation routes—as well as immediate economic losses associated with emergency repairs and ongoing economic costs associated with repeated repairs and disruptions to freight services and the movement of goods and services from chronically exposed infrastructure. Flood control systems located upstream or outside of the coastal zone may also be impacted where stormwater pipes and channels can become more tidally-influenced as sea level rises, and drain less effectively during high tides and storm surges.



Figure 9. Photo of infrastructure at risk near Rincon Beach, Ventura, CA, during the King Tide in December 2012. (Photo courtesy of David Powdrell, California King Tides Initiative)

- **Ports (Coastal Act Sections 30703 – 30708):** Sea level rise could cause a variety of impacts to ports, including flooding and inundation of port infrastructure and damage to piers and marina facilities from wave action and higher water levels. A possible benefit could be a decreased need for dredging. But, unless facilities have already included accommodations for larger ships than they currently service, higher water levels could increase the difficulty for cargo handling facilities due to the higher vessel position (CCC 2001; CNRA 2014). Increased water heights could reduce bridge clearance, reducing the size of ships that can access ports or restricting movement of ships to low tides, and potentially increasing throughput times for cargo delivered to ports. Heberger *et al*. (2009) found that significant flooding from sea level rise is possible at the Ports of Los Angeles and Long Beach, a finding also reflected in each Port's AB 691 Sea Level Rise Assessment (State Lands Commission, 2022). Given that these two ports handle 45-50% of the containers shipped into the United States, and 77% of goods that leave the state, sea level rise could affect the efficiency of goods movement, and have serious economic implications for California and the nation (Heberger *et al*. 2009). These hazards emphasize the need to upgrade port infrastructure to withstand sea level rise, which should include upgrades to address environmental justice concerns such as reducing air pollution and improving water quality to protect nearby communities from adverse health impacts.
- **Industrial development, refineries, and petrochemical facilities (Coastal Act Sections 30260-30266.5):** Sea level rise could reduce areas available for siting or expansion of industrial development. Inundation of contaminated lands near industrial development could negatively impact water quality and result in polluted runoff. Sea level rise could lead to an increase in flooding damage of refineries or petrochemical facilities, and impacts from sea level rise could be an issue when locating or expanding refineries or petrochemical facilities, or when mitigating any adverse environmental effects. Notably, the University of

California, Berkeley's Toxic Tides Project found that over 400 hazardous sites in coastal areas that are at risk of flooding and inundation are also located near environmental justice communities. Facilities that store hazardous waste, such as those associated with industrial development, may experience a decreased ability to contain these materials with sea level rise, thereby exposing surrounding populations and structures to detrimental health hazards or forcing temporary or permanent relocation of these communities if these materials are particularly harmful.

- **Construction altering natural shorelines (Coastal Act Section 30235):** Sea level rise may lead to an increase in demand for construction of shoreline protection for existing development, public access, and coastal-dependent uses in danger of erosion. Shoreline protection devices alter natural shorelines and also generally have negative impacts on beaches, near-shore marine habitat, and scenic and visual qualities of coastal areas.

- **Public access and recreation (Coastal Act Sections 30210, 30211, 30213, 30220, 30221):** One of the highest priorities in the Coastal Act is the mandate to protect and maximize public access to the coast. Sea level rise could lead to a loss of public access and recreational opportunities due to permanent inundation, episodic flooding, or erosion of beaches, recreational areas, or trails. As sea levels rise, many areas along the coast that are developed with infrastructure and/or shoreline protective devices will impede the natural inland migration of the shoreline, resulting in a "coastal squeeze," or the narrowing and eventual loss of the fronting beach, wetland, or other valuable habitat as well as public accessways. "Coastal squeeze" may have far-reaching effects on California's economy and quality of life (Lester and Matella, 2016). The loss of public coastal spaces due to sea level rise will impact not only coastal communities, but also inland communities that rely on the coast for recreation and a respite from higher inland temperatures. Access to, and functionality of, water-oriented activities may also be affected. For instance, by increasing water levels and altering sediment patterns, sea level rise could lead to a change in surfing conditions. If water becomes deeper over known surf spots, only larger waves would be able to break at the same location, and smaller waves would break in shallower water, likely altering the surfing opportunities (Reineman *et al*., 2017; Sadrpour and Reineman, 2023). Likewise, sea level rise could affect the safety of harbors and marinas (Kornell 2012).

- **Coastal habitats (Coastal Act Sections 30230, 30231, 30233, 30240):** Coastal habitat areas likely to be affected by sea level rise include bluffs and cliffs, rocky intertidal areas, beaches, dunes, wetlands, estuaries, lagoons and tidal marshes, tidal flats, eelgrass beds, and tidally-influenced streams and rivers. Importantly, there are many endemic and endangered species in California that are dependent on these coastal environments. For example, grunion need a sandy beach environment in order to reproduce and survive, the California clapper rail is dependent on marshes and wetlands, and the black abalone requires rocky intertidal habitat. Nesting habitat,

nursery areas, and haul-out sites important for birds, fish, marine mammals and other animals could also disappear as sea levels rise (Funayama *et al*. 2012).

Impacts to wetlands, intertidal areas, beaches, and dunes include:

- **Beaches, dunes, and intertidal areas:** Inundation and increased erosion from sea level rise could convert habitats from one type to another and generally reduce the amount of nearshore habitat, such as sandy beaches and rocky intertidal areas. Sea level rise will cause landward migration of beaches over the long term, and could lead to a rapid increase in the retreat rate of dunes. Beaches with seawalls or other barriers will not be able to migrate landward and the sandy beach areas will gradually become inundated (NRC 2012). For example, without changes in coastal management, 30 to 67% of Southern California beaches may be completely lost due to rising sea level (Vitousek *et al.* 2017). A case study from Santa Barbara County found a tipping point at just 0.25 meters of sea level rise at which over 50% of beaches and wetland habitat would be lost (Barnard *et al*., 2019). A loss of beach and dune areas will have significant consequences for beach and adjacent inland ecosystems. Beaches and dunes provide critical habitat for species and act as buffers to interior agricultural lands and habitat during storms (CNRA 2009).
- **Wetlands:** Sea level rise will lead to wetland habitat conversion and loss as the intertidal zone shifts inland. Of particular concern is the loss of saltwater marshes from sea level rise, which have already decreased by about 90% from their historical levels in California (CNRA 2010). California's 550 square miles (885 km) of critical coastal wetland habitat (Heberger *et al*. 2009, including wetlands in San Francisco Bay) could be converted to open water by 4.6 ft (1.4 m) rise of sea level if they are not able accrete upward or to migrate inland due to natural or anthropogenic barriers. Although barriers are plentiful, inland migration of these wetlands is possible for over 50% of the potentially inundated wetland area based on land use compatibility alone (Heberger *et al*. 2009). Consideration of adequate sediment supply and additional barriers to inland migration would further constrain wetland migration potential. A 4.6 ft (1.4 m) increase in sea level would flood 150 square miles (241 km) of land immediately adjacent to wetlands, which could become future wetlands if that land remains undeveloped. Loss or reduction of wetland habitat would impact many plant and animal species, including migratory birds that depend on these habitats as part of the Pacific Flyway. Species that are salt-tolerant may have an advantage as sea level rise occurs and exposes new areas to salt water, while species that have narrow salinity and temperature tolerances may have difficulty adapting to changing conditions.

o **Biological productivity of coastal waters (Coastal Act Sections 30230, 30231):** Sea level rise could affect biological productivity of coastal waters by changing the types of habitats that are available. This change could alter species composition, and could potentially result in cascading effects through the coastal food chain. Changes in water

quality can have differing impacts on biological productivity. For instance, decreased water quality due to increased nutrient pollution has been found to increase biological productivity at the base of the food chain to undesirable levels, and has been linked to harmful algal blooms which result in hypoxic conditions for other marine species (Kudela *et al*. 2010; Ryan *et al.* 2010; Caldwell *et al*. 2013). Furthermore, adverse impacts to biological productivity can result in the loss of subsistence fishing opportunities, which presents a significant challenge to communities that depend on these resources. This not only impacts the economic stability of these communities but could also erode cultural traditions tied to fishing practices.

- **Water quality (Coastal Act Section 30231):** Sea level rise could lead to declines in coastal water quality in several ways. First, coastal water quality could be degraded due to mobilization of contaminants in shallow soils from both overland inundation and rising groundwater as well as due to an increase in nonpoint source pollution from flooding. In particular, the presence of facilities or land containing hazardous materials in coastal areas susceptible to flooding or permanent inundation presents toxic exposure risks for people and ecosystems (Hill *et al*., 2023). Sea level rise can push contaminated groundwater upwards, potentially introducing volatile organic compounds (VOCs) into communities situated in proximity to polluted sites. As established earlier, low-income households and people of color are most vulnerable due to the discriminatory siting of hazardous facilities in environmental justice communities or the tendency to place new low-income housing projects near degraded lands and contaminated sites. Second, rising seas could impact wastewater facility infrastructure and other methods and structures designed to protect water quality near the coast. In addition to damaging equipment and blocking discharge from coastal outfall structures, floods could force facilities to release untreated wastewater, threatening nearby water quality (Heberger *et al*. 2009). Saltwater draining into sewer lines as part of extreme weather flooding might also damage biological systems at wastewater facilities if the organisms present in these systems are not salt-tolerant. Third, sea level rise could lead to saltwater intrusion into valuable groundwater aquifers, potentially rendering some existing wells unusable and decreasing the total groundwater supply in coastal areas. The extent of saltwater intrusion will likely vary based upon local hydrogeological conditions, with the worst impacts occurring in unconfined aquifers along low-lying coastal areas that have already experienced overdraft and saline intrusion. This change could force affected communities to turn to more costly water sources such as surface water transfers or desalination, which can exacerbate burdens to low-income communities. Finally, loss of wetlands could decrease water quality given that wetlands act to improve water quality by slowing and filtering water that flows through them. Coordination with the State and Regional Water Boards, the Department of Toxic Substances Control, and other agencies with water quality management roles will be critical for addressing these risks.
- **Coastal agriculture (Coastal Act Sections 30241- 30243):** Sea level rise could lead to an increase in flooding and inundation of low-lying agricultural land, saltwater intrusion into agricultural water supplies, and a decrease in the amount of freshwater available

for agricultural uses. Flooding of agricultural lands can cause major impacts on local businesses, national food supplies, and the state's economy. This may result in displacement of farmworkers through loss of wages, health coverage, and housing, which may exacerbate the burdens they already experience.

- **Archaeological and paleontological resources (Coastal Act Section 30244):** Archaeological, tribal cultural, or paleontological resources could be put at risk by inundation, flooding, or by an increase in erosion due to sea level rise. Areas of traditional cultural significance to California Native American tribes, including villages, religious and ceremonial locations, middens, burial sites, and other areas, could be at risk from sea level rise. For example, the Santa Barbara Channel area has thousands of archaeological sites dating over 13,000 years that are at risk of being destroyed or altered from small amounts of sea level rise (Reeder *et al*., 2010).

For a summary of some of the sea level rise impacts and potential consequences for the coast, see Figure 10. Many of these consequences are conditions that coastal managers already deal with on a regular basis, and strategies already exist for minimizing impacts from flooding, erosion, saltwater intrusion, and changing sediment patterns. Preparing for sea level rise involves integrating future projections of sea levels into existing hazard analyses, siting, design, and construction processes, ecosystem management, and community planning practices. Importantly, equitable adaptation planning should consider the consequences of sea level rise impacts on environmental justice communities and ensure that they are meaningfully engaged throughout the planning process. Processes for integrating sea level rise and environmental justice in Local Coastal Programs and Coastal Development Permit applications are described in the following chapters.

**Drivers of Global SLR:**

Expansion of ocean water as temperature increases

Addition of freshwater to the ocean from melting glaciers and ice sheets

Addition of freshwater to the ocean from groundwater extraction, use, and discharge

**Drivers of Local/Regional SLR Variability**

Vertical land movement

Oceanographic phenomena including El Niño Southern Oscillation (ENSO) and Pacific Decadal Oscillation (PDO)

**Physical Impacts of SLR:**

Inundation (permanent wetting)

Flooding (temporary wetting)

Erosion and bluff collapse

Increased tidal prism

Increased tidal and storm surge

Increased wave heights and force

Increased saltwater intrusion

Changes in sediment movement patterns

**Summary of Consequences of SLR for Coastal Resources & Development**

**Coastal Development:** Greater likelihood of tidal damage, flooding, and erosion from SLR threatens coastal structures, including the potential loss of property or physical injury; instability from increased erosion and loss/movement of sand; increased areas exposed to a 100-year flood.

**Public Infrastructure:** Low-lying roads, wastewater treatment facilities, and utility systems are at increased risk from of inundation, flooding, and impaired function, which can lead to health, safety, and economic consequences. Infrastructure on eroding bluffs also subject to geologic hazards.

**Coastal Agriculture:** Increase in flooding and inundation of low-lying agricultural lands, including from groundwater changes; saltwater intrusion into agricultural water supplies; potential decrease in amount of freshwater available for agricultural uses.

**Public Access & Recreation:** Loss of beach areas where beaches cannot migrate inland due to development; inaccessibility of public accessways and recreation sites due to flooding and erosion, particularly impacting environmental justice communities that rely on these for affordable recreation.

**Coastal Habitats:** Transformation of habitats as intertidal zone shifts inland; loss of wetlands and other habitats that cannot migrate up or inland due to inland barriers such as coastal development.

**Biological Productivity of Coastal Waters:** Possible changes in the types of habitats that are available resulting in altered species compositions and potential cascading effects through the coastal food chain.

**Water Quality:** Coastal water quality could decline due to inundation of toxic soils and an increase in nonpoint source pollution from flooding. Rising seas could also impact wastewater facilities and cause saltwater intrusion into groundwater supplies, impacting community health.

**Cultural Resources:** Archaeological and paleontological sites, including many Native American villages, religious and ceremonial locations, burial sites, and other areas could be at risk from sea level rise, underscoring the need for protective measures and inclusion of tribal communities

**Environmental Justice:** SLR can differentially impact environmental justice communities. For example, rising seas leading to the loss of beachfront areas, limiting access for communities already facing recreational space shortages with a lack of financial resources to enjoy the coast.

Figure 10. Summary of sea level rise impacts and consequences



# Chapter 5. Addressing Sea Level Rise in Local Coastal Programs

The Coastal Act requires that the 61 cities and 15 counties in coastal California prepare Local Coastal Programs (LCPs) to govern land use and development in the coastal zone inland of the mean high tide. LCPs become effective only after the Commission certifies their conformity with the policies of Chapter 3 of the Coastal Act.

LCPs contain the ground rules for future development and protection of resources in the coastal zone. Each LCP includes a Land Use Plan (LUP) and an Implementation Plan (IP). The LUP specifies the kinds, locations, and intensity of uses, and contains a required Public Access Component to ensure that maximum recreational opportunities and public access to the coast is provided. The IP includes measures to implement the LUP, such as zoning ordinances. LCPs are prepared by local governments and submitted to the Coastal Commission for review for consistency with Coastal Act requirements.[33]

Once an LCP's certification becomes effective, the local government becomes responsible for reviewing most Coastal Development Permit (CDP) applications. However, the Commission retains continuing permit authority over some lands (for example, over tidelands, submerged lands, and public trust lands) and authority to act on appeals for certain categories of local CDP decisions.

To be consistent with the Coastal Act hazard avoidance and resource protection policies, it is critical that local governments with coastal resources at risk from sea level rise certify or update Local Coastal Programs with policies that provide a means to prepare for and mitigate these impacts. Since many existing LCPs were certified in the 1980s and 1990s, it is important that future amendments of the LCPs consider sea level rise and adaptation planning at the project and community level, as appropriate. The overall LCP update and certification process has not changed. Now, however, the impacts of accelerated sea level rise should be addressed in the hazard and coastal resource analyses, alternatives analyses, community outreach, public involvement, and regional coordination. This Guidance is designed to complement and enhance the existing LCP certification and update steps. Although the existing LCP certification and update processes are still the same, sea level rise calls for new regional planning approaches, new strategies, and enhanced community participation.

Similarly, local governments should strongly consider adopting LCP policies to guide and inform the analysis of environmental justice issues as they relate to sea level rise impacts. Adopting policies and standardized protocols will save time and resources for planning departments, applicants, and the public, while providing transparency about expectations that can build trust with environmental justice communities over time.

[33] In addition, there are other areas of the coast where other plans may be certified by the Commission, including Port Master Plans for ports governed by Chapter 8 of the Coastal Act, Long Range Development Plans for state universities or colleges, and Public Works Plans for public infrastructure and facilities. Following certification of these types of plans by the Commission, some permitting may be delegated pursuant to the Coastal Act provisions governing the specific type of plan.

For general guidance on updating LCPs, see the LCP Update Guide, available on the Coastal Commission's Resources for Local Governments website. For general guidance on how to incorporate environmental justice principles into LCP updates (including to address topics in addition to sea level rise), see the Commission's Toolkit on Resources for Addressing Environmental Justice through Local Coastal Programs.

## SENATE BILL 272 AND LCP UPDATES TO ADDRESS SLR

LCPs are essential tools to fully implement sea level rise adaptation efforts. The importance of LCPs in resilience planning has been highlighted by a variety of statewide efforts in the past, and both the California Climate Adaptation Strategy (CNRA 2021) and the State Agency Sea-Level Rise Action Plan for California (OPC 2022) specifically identify LCPs as a critical mechanism for adaptation planning along the California coast. Most recently, the passage of Senate Bill 272[34] (Laird, 2023) will, for the first time, *require* local governments within the Coastal Zone to develop a sea level rise plan as part of an LCP by January 1, 2034, further emphasizing the importance of integrating sea level rise adaptation planning into LCPs.

A summary of SB 272 requirements and a link to the full text of the bill is below. The rest of this chapter provides general guidance for incorporating sea level rise into LCPs and calls out the specific requirements as well as best practices and recommendations for complying with SB 272. As with the rest of this Guidance, the Coastal Commission recognizes that there will be variability in how local governments approach sea level rise adaptation planning and will continue to work with jurisdictions and other stakeholders to update LCPs in a manner that ensures local flexibility and consistency with the Coastal Act.

### SB 272 (PRC Section 30985) Summary

Senate Bill 272 (Laird, 2023) added Division 20.6.9 (Section 30985 et seq.) to the California Public Resources Code, and requires local governments lying in whole or in part within the coastal zone to develop a sea level rise plan as part of an LCP that is subject to approval by the Coastal Commission.[35,36] This sea level rise plan must include, at a minimum, the following:

[34] SB 272 added Division 20.6.9 (Section 30985 et seq.) to the California Public Resources Code. This document uses "SB 272" and "Section 30985 et seq." interchangeably.

[35] Note that Section 30985.6 of SB 272 states that "the operation of this division is contingent upon an appropriation for its purposes by the Legislature in the annual Budget Act or another statute." Currently, LCP Local Assistance and OPC SB 1 grant funds, both appropriated by the Legislature in 2021, are available to support this planning work. The Coastal Commission will continue to coordinate with state agencies, local governments, and the Local Government Working Group to support additional funding opportunities.

[36] SB 272 also includes a requirement for local jurisdictions within San Francisco Bay to develop plans that are subject to review by the Bay Conservation and Development Commission (BCDC). The basic requirements are the same for both agencies/plan types, and Commission and BCDC staff have coordinated to develop guidelines pursuant to the requirements of SB 272; however, some specific details and best practices will vary based on differences between relevant enacting legislation (the Coastal Act versus the McAteer-Petris Act) and planning contexts. More information on BCDC's work to implement SB 272 can be found through the BCDC Regional Shoreline Adaptation Plan.

1. Use of best available science
2. A vulnerability assessment that includes efforts to ensure equity for at-risk communities
3. SLR adaptation strategies and recommended projects
4. Identification of lead planning and implementation agencies
5. An economic impact analysis of, at a minimum, costs to critical public infrastructure.[37]
6. A timeline for updates, as needed, based on SLR projections, local conditions, identified adaptation strategies/projects, and other locally relevant factors (as determined by a local government in coordination with the Coastal Commission)

SB 272 requires local governments subject to its requirements to develop these SLR LCP plans by January 1, 2034. The legislation also allows for jurisdictions with approved plans meeting these requirements to be prioritized for funding for the implementation of sea level rise adaptation strategies and recommended projects in the approved LCP SLR plan.[38] The mechanism by which the Coastal Commission will approve these plans and determine consistency with SB 272 requirements will be certification of the LCP (through the LCP approval and certification processes as defined by the Coastal Act), and as such, local jurisdictions will need to complete this certification process to be prioritized for funding.

Importantly, SB 272 applies to both the *process* of developing or updating an LCP as well as to the *policy content* of an LCP. The minimum requirements listed above relate to planning process stages that typically result in documents (e.g. vulnerability assessments, adaptation plans, economic analyses) that inform LCP development but are not, themselves, reviewed and certified by the Coastal Commission. While full consistency with SB 272 will require completion of these documents (by January 2034), as stated above, the mechanism by which the Commission will determine consistency with SB 272 requirements will be review and certification of the LCP itself. Thus, jurisdictions will need to undertake these planning processes and then submit new or updated LCPs that have policies consistent with the Coastal Act that reflect, allow for, or otherwise reference the findings of these other documents. For example, development of a vulnerability assessment is a stage in the development or update of an LCP (as described in Steps 2-4 in this chapter), and the LCP itself must include policies that relate to, and address, vulnerabilities identified in the assessment (as described in Step 6).

Relatedly, while SB 272 requires the components listed above, it does not provide additional required standards for those components, and the Commission will continue to allow for flexibility in these efforts provided they are consistent with the requirements of the Coastal Act. In other words, considering the vulnerability assessment example again, SB 272 does not list or

[37] Critical public infrastructure is defined in SB 272 as including but not limited to "…transit, roads, airports, ports, water storage, and conveyance, wastewater treatment facilities, landfills, powerplants, and railroads." Other critical infrastructure types that should be considered include sewer lines, stormwater facilities, gas lines, and other utility infrastructure.

[38] Pub. Res. Code § 30985.5.

require specific details beyond using best available science and including efforts to ensure equity for at-risk communities. The Commission will continue to work with local jurisdictions to support vulnerability assessment efforts that are tailored to meet local needs, capacity, planning stages, and other factors while also considering Coastal Act resources and topics.

Lastly, as discussed later in this chapter, while the above listed components constitute the minimum requirements for an LCP to satisfy SB 272's mandates and be prioritized for funding for implementation of sea level rise adaptation strategies, the Coastal Commission remains committed to supporting phased LCP updates that reflect varying levels of detail. These LCP sea level rise plans must be completed by January 1, 2034, and, in order to be prioritized for funding, must be certified by the Coastal Commission; however, jurisdictions do not need to complete every requirement at once. The Coastal Commission will coordinate with local governments to support phased planning efforts and LCP policies that, in combination with an identified timeline for updates, will meet the SB 272 requirements by the 2034 deadline. For example, the Commission would support an approach whereby an LCP update could initiate compliance with the requirements of SB 272 by including baseline sea level rise policies and an explicit timeline for completing any of the missing components referenced in SB 272 (e.g., vulnerability assessment, adaptation plan, list of adaptation projects). By January 1, 2034, jurisdictions will need to have completed the six components identified in SB 272 and new or updated LCPs must reflect that greater level of detail, with background information, maps, policies, and so on that identify and address SLR vulnerabilities and allow for or require implementation of identified adaptation strategies and projects.

Steps 1-7 of this chapter provide more detail on recommendations and best practices for vulnerability assessments, adaptation planning, and LCP policy development to address sea level rise in a manner that is consistent with the Coastal Act, SB 272, and other relevant statewide approaches. Language highlighting the minimum requirements for consistency with SB 272 is also included. A summary of the minimum components for consistency with SB 272, and the related minimum requirements that must be reflected/addressed in each component is included at the end of this chapter.

## Steps for Addressing Sea Level Rise in Local Coastal Programs and Other Plans

The Commission recommends the following seven steps to address sea level rise through development of a vulnerability assessment, adaptation plan, and as part of an LCP, LCP Amendment, or other plan.[39] These steps can be modified and adapted to fit the needs of individual planning efforts or communities and to address the specific coastal resource and

[39] This Guidance uses the term 'LCP process' to refer to the LCP process, but many of the concepts included here are applicable to other planning processes, including Long Range Development Plans, Public Works Plans, and Port Master Plans. For example, recommendations for how to analyze sea level rise impacts and perform a vulnerability assessment are broadly applicable. Many adaptation strategies may also be applicable, though in all cases, individual actions taken will vary based on relevant policies, local conditions, feasibility, and other factors.

development issues of a community, such as addressing bluff erosion or providing for effective redevelopment, infill, and concentration of development in already developed areas.

The steps of this process are illustrated in Figure 11 and described below. They are similar to the standard steps of a long-range planning process and should be familiar to local planners. Steps 2-4 are often referred to as a "sea level rise vulnerability assessment" in other sea level rise planning contexts and therefore are similar to other sea level rise-related resources. Steps 5-7 cover the adaptation planning phase and incorporating vulnerability assessment and adaptation planning information into the LCP. As summarized above, this general process is consistent with the requirements of SB 272.

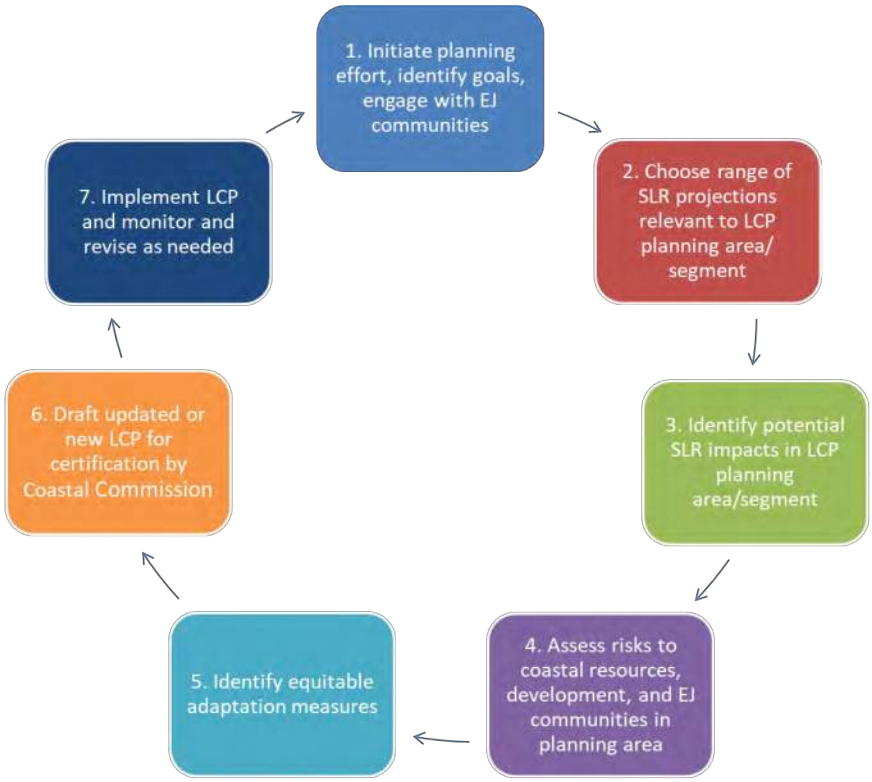



Figure 11. Sea level rise adaptation planning process for new and updated Local Coastal Programs

The Coastal Commission also offers a Local Coastal Program (LCP) Update Guide (2013b) that outlines the broad process for amending or certifying an LCP, and there is naturally some overlap between the content of that document and this Sea Level Rise Policy Guidance document. The general LCP amendment steps are outlined below, in a flow chart (see Appendix D), and in the LCP Tips/Best Practices document (2013c), which is available in the Resources for Local Governments section of the Commission's website (which also contains informational resources for addressing a variety of other LCP-related topics such as housing). Local governments should contact the Coastal Commission planner for their area when pursuing a new LCP or LCP amendment.

- **Initial Amendment scoping and development:** Conduct issues assessment, identify need for amendment, prepare preliminary draft, coordinate with Commission staff, and share early drafts
- **Local Amendment process:** Notify public, conduct local outreach and hearings, meet with Commission staff to discuss any issues, and adopt LCP at the local level
- **Prepare Submittal:** Assemble LCP materials, discuss with Commission staff prior to submittal, transmit to Coastal Commission, and make available to public
- **Process Amendment at Coastal Commission:** Commission staff will review submittal within 10 working days for completeness; will address outstanding information needs; will prepare and write staff report; hold public hearing and vote; and transmit action to local government
- **Effectuate Amendment:** Local acceptance of any modifications or resubmittal within 6 months, finalize local approval, and complete Coastal Commission Executive Director check-off
- **Implement LCP Amendment, monitor, and revise as necessary.**

The step-by-step process for incorporating sea level rise into LCPs outlined in the rest of this chapter fits into these broader LCP amendment steps. Local government planners should use the LCP Update Guide in conjunction with the Sea Level Rise Policy Guidance to inform the LCP.

### Use scenario-based analysis

The Guidance recommends using a method called "scenario-based analysis" (described in Chapter 3 of this Guidance). Since sea level rise projections are not exact, but rather presented in ranges, scenario-based planning includes examining the consequences of multiple sea level rise amounts, plus extreme water levels from storms and El Niño events. The goal of scenario-based analysis for sea level rise is to understand where and at what point sea level rise, and the combination of sea level rise and storms, pose risks to coastal resources or threaten the health and safety of a developed area. This approach allows planners to understand the full range of possible impacts that can be reasonably expected based on the best available science, and build an understanding of the overall risk posed by potential future sea level rise. For example, if there are large changes in the hazard zones between two sea level rise amounts, additional analyses may help determine the tipping points when viable land uses will change. In general, scenario-based analyses can help determine the long-term compatibility of certain areas with certain land uses. For further description of this method, see Chapter 3.

### Include other topics as applicable or desired

This Guidance recommends a number of analyses that will generate useful information related to sea level rise and other environmental vulnerabilities. Performing these analyses (and the overall planning process) may provide a useful opportunity to include other studies that will complement the goals of Local Coastal Programs and provide valuable insights for community

concerns. For example, when considering lower cost visitor serving facilities, planners should consider social equity and environmental justice in the analyses by determining how climate hazards or the adaptation measures might differentially impact various demographics. It may also be appropriate to consider other sustainability or Climate Action Plan goals in the context of any sea level rise adaptation strategies that are developed as well as strategies to mitigate climate change (such as local options to reduce greenhouse gas emissions). Important topics such as these may be incorporated into the analyses already underway for the sake of efficiency.

**Leverage analyses and share information with other planning-related processes and documents**

Sea level rise is addressed in many other planning-related documents and by many other agencies and organizations. The Governor's Office of Planning and Research (OPR) published the Coastal Resilience Compass Plan Alignment Guide to describe plans applicable to coastal resilience planning (e.g., LCPs, Local Hazard Mitigation Plans, General Plans, Climate Adaptation Plans) and how they can be aligned. A memo from the Coastal Commission staff includes a summary of key takeaways from the Compass and recommendations for its application to LCP amendments.

Planners should be aware of these various documents and the on-going work of state and federal agencies as well as neighboring regional and local efforts. They should make an effort to share information in cases where analyses required for some of these documents may overlap with the studies appropriate for sea level rise planning in LCPs. Additionally, these agencies, organizations, and planning efforts may be good resources from which to gather information when performing these analyses for LCP updates.

For example, there is overlap between the required elements of a Local Hazard Mitigation Plan (LHMP) and Local Coastal Programs, and the Commission recommends coordinating an LHMP update with an LCP update if possible. As part of an LHMP, local governments identify the natural hazards that impact their community, identify actions to reduce the losses from those hazards, and establish a coordinated process to implement the plan.[40] In order to be eligible for certain types of non-emergency disaster assistance, including funding for hazard mitigation projects, local governments are required by FEMA to complete an LHMP and to update the plan every five years. Any sea level rise hazard avoidance strategies included in an LCP certification or update, such as relocation of critical facilities, must be included in the LHMP narrative to be eligible for funding from FEMA to implement those future projects. If a local government has recently updated their LHMP, the city or county can add narrative information on sea level rise

[40] https://www.fema.gov/emergency-managers/risk-management/hazard-mitigation-planning/create-hazard-plan/process

strategies through an addendum to the plan, referred to by FEMA as an annex.[41] Relatedly, FEMA also coordinates the Community Rating System, a voluntary program that encourages National Flood Insurance Program (NFIP) member communities to exceed minimum floodplain management standards in exchange for flood insurance discounts. A variety of actions that would qualify for such discounts are strategies that help to address anticipated sea level rise and which could be incorporated into an LCP.[42]

In many cases, the analyses and adaptation options identified in this Guidance could be used for hazard mitigation plans or vice versa, as the goal of each of these planning processes is to minimize or avoid impacts from coastal hazards. As a result, there may be opportunities to leverage funding and share work efforts.

A number of other similar planning processes and documents are listed in Figure 12, and planners may be able to use these studies in the LCP planning process, or, alternatively, share analyses and information performed for LCP planning with the groups working on related projects. Additionally, the State of California's Adaptation Clearinghouse is a searchable database that includes resources and examples relevant to climate adaptation planning, including coastal resilience planning. It allows users to search for past and/or ongoing actions that stakeholders have implemented to address sea level rise. This Guidance highly recommends leveraging these resources to promote efficiency.

**Coordinate regionally as appropriate**

Many impacts of sea level rise will transcend jurisdictional boundaries, necessitating regional collaboration. Similarly, the adaptation decisions made by coastal communities could themselves have consequences that affect areas outside the local jurisdiction. For these reasons, regional coordination will often enhance the effectiveness of local adaptation decisions. For example, restoration efforts, sediment management, and other similar approaches will likely benefit from consideration at cross-jurisdictional, watershed, littoral, or similarly regional scales. Indeed, many of the types of projects identified in Figure 12 have taken this regional approach. Furthermore, mechanisms such as Joint Powers Authorities or financing districts can support climate resilience efforts on a regional scale. Planners should keep this concept in mind as they work through these steps and coordinate regionally where appropriate and possible.

[41] For more information on how to complete or update an LHMP, visit the Cal OES Hazard Mitigation website or contact the Cal OES Local Planning Unit at MitigationPlanning@caloes.ca.gov and a hazard mitigation technical expert can assist local governments with the planning process.

[42] For more information, see FEMA's Community Rating System website.

## Representative Adaptation Planning Stakeholders




Figure 12. Agencies, organizations, and planning efforts related to sea level rise adaptation

## Step 1 – Initiate planning effort, identify key goals and stakeholders, and engage with environmental justice communities

A key first step for initiating the development of, or an update to, an LCP is to complete a variety of tasks related to defining the scope of the planning project. This includes things like identifying the goals of the planning effort, setting up the project team, identifying key stakeholders, and engaging with environmental justice communities.

As discussed later in this chapter, efforts to develop or update an LCP to address sea level rise can come in a variety of shapes and sizes. For example, a comprehensive update to an LCP (or development of a new LCP), will address sea level rise as well as other Coastal Act topics. In other cases, an LCP amendment may solely focus on updating a coastal hazards chapter or developing a new chapter on sea level rise adaptation. Furthermore, the level of detail associated with sea level rise planning efforts may vary. Some LCP updates may initially include a more general set of baseline sea level rise policies such as requirements to use best available science or calling for the development of an adaptation plan while other LCPs may go into greater detail related to policies or zoning designed to implement specifically identified adaptation responses. Defining the goals of an LCP planning effort at the outset will help both the planning team and members of the public understand the overall scope of the work; timing, information, expertise, funding, and other needs; what the range of outcomes may be; how potential future planning phases could relate to the project, and so on.

Initiating an LCP planning effort also includes setting up the planning team. While LCPs are typically developed by local jurisdiction planning departments, a variety of other City/County departments may be important partners in sea level rise planning efforts. For example, Public Works and Parks and Recreation departments, or other asset and resource managers, will be key partners that can both provide important data and context for understanding potential impacts of sea level rise as well for the implementation of specific adaptation projects. A city or county may choose to establish an interdepartmental sea level rise team of City/County staff representatives. In some cases, such a team may have been formed previously for a climate change or sea level rise planning effort that an LCP update effort can tap into and build from.

Similarly, it is important to identify a variety of key external stakeholders. At the start of an LCP update to address sea level rise or a new LCP project, local government planners should contact their local Coastal Commission district office to discuss the LCP goals and to establish a plan for Coastal Commission staff coordination throughout the process. A variety of other state agencies or regional partners such as Caltrans, State Parks, Ports, harbor districts, community services districts, transit agencies, and so on may also be important partners. Members of the public – including both residents of a City/County and those who work in or visit the coastal zone – are also critical partners who should be incorporated into LCP planning efforts. Coordination with external partners can include establishing technical and community stakeholder advisory committees, as well as planning for robust public outreach. LCP planning efforts should include a variety of means for gathering feedback, including a project website,

FAQs/general explainers, social media, mailings, and public meetings in addition to the required public hearings on the LCP.

Critically, local governments should identify and engage with environmental justice communities, early and often. As discussed in Chapter 4, many environmental justice communities have been overlooked or systemically barred from participating in community planning decisions. Overcoming these injustices requires an intentional effort, and public involvement should center meaningful engagement with environmental justice and tribal communities within and surrounding the local jurisdiction. The following section describes steps for meaningfully including these communities in an LCP planning effort.

## MEANINGFUL ENGAGEMENT WITH ENVIRONMENTAL JUSTICE COMMUNITIES

The Coastal Commission's Environmental Justice Policy expressly recognizes that environmental justice communities have coastal assets and are valuable stakeholders in the protection of the coast. Furthermore, addressing environmental justice in the coastal zone should reflect the intent of PRC Section 30604(h) and incorporate input from environmental justice communities affected by coastal development in the local jurisdiction. Proactively engaging with environmental justice communities, and organizations that serve them and have shared interests, early on or prior to initiating development of a new or updated LCP lays the groundwork for meaningful collaboration and fosters trust between local governments and affected communities. This approach not only streamlines project communication but also ensures that environmental justice concerns are identified and addressed from the outset, aligning with SB 272 and overarching Coastal Commission and statewide objectives for inclusive coastal management. As such, this step aims to recognize and set the stage to engage with these communities that have been historically excluded from decision-making processes and from accessing the benefits of coastal development and resources. Further, identification and engagement with environmental justice communities will better inform the CDP application and analysis process, as explained in detail in Chapter 6.

Note that, as discussed in Chapter 4, environmental justice is inclusive of tribal and indigenous communities, but these communities also experience distinct and unique challenges. The rest of this section touches on broader environmental justice concerns. Local governments are encouraged to consult the Commission's Tribal Consultation Policy and coordinate with the California Native American Heritage Commission for support with engaging with tribal communities in and around their LCP planning area.

### Use quantitative and qualitative data to identify environmental justice communities

Identifying environmental justice communities in and around the LCP planning area is a core step in the outreach and engagement process and for ensuring that vulnerability assessments, adaptation planning, and LCP updates will be developed in ways that consider and address locally-relevant environmental justice issues. Further, as detailed in SB 272, local governments are required to develop a vulnerability assessment that includes efforts to ensure equity for at-

risk communities. The Commission recognizes the term environmental justice communities as an umbrella designation that refers to low-income communities, communities of color, and other historically marginalized communities that have been disproportionately burdened by, or less able to prevent, respond to, and recover from, adverse environmental impacts and discriminatory land use practices. This may include communities and groups that are located a distance from the coast but have an important connection with the area.

There are several data tools available that can aid in this step, including quantitative information from resources such as the Commission's Coastal California EJ Mapping Tool, the State's CalEnviroScreen tool, U.S. EPA's EJScreen, Cal EPA's SB 535 Disadvantaged Communities map, California State Parks' Outdoor Equity Program Community FactFinder, and U.S. Census data.

- Coastal California Environmental Justice Mapping Tool: Commission staff developed the Coastal California Environmental Justice Mapping Tool, which can be used to assist in the identification and analysis of environmental justice communities and future sea level rise scenarios. This mapping tool compiles public information (including some information available on CalEnviroScreen and EPA EJScreen) such as socioeconomic data, sea level rise projections, Coastal Zone Boundary, LCP segments, and coastal public access points.
- CalEnviroScreen: A mapping tool created by CalEPA Office of Environmental Health Hazards Assessment to identify California communities most affected by multiple sources of pollution. CalEnviroScreen uses environmental, health, and socioeconomic information to produce scores for every census tract in California, which are mapped to compare how pollution burden varies among communities.
- Cal EPA's SB 535 Disadvantaged Communities map: This map shows the disadvantaged communities designated by CalEPA for the purpose of SB 535. These areas represent the 25% highest scoring census tracts in CalEnviroScreen 4.0.
- EPA EJScreen: EJScreen is an EPA's environmental justice mapping and screening tool that provides EPA with a nationally consistent dataset and approach for combining environmental and demographic socioeconomic indicators.
- CA State Parks' Outdoor Equity Program Community FactFinder: A mapping tool created by California State Parks to identify and visualize communities' access to parks and open spaces, using environmental, health, and socioeconomic data to highlight areas with the greatest need for improved outdoor equity and access.
- U.S. Census Data: The U.S. Census Bureau provides data about the nation's people and economy. Every 10 years, it conducts a census counting every resident in the United States. The Census Bureau provides a variety of tools (including the EPA EJScreen) to identify environmental justice communities.

It is critical to note that members of environmental justice communities affected by development and land use planning activities in the coastal zone may live outside of a city or

county boundary and outside of the coastal zone, but they may travel into or through the jurisdiction for work or to visit coastal resources and recreational opportunities. Therefore, planners should identify environmental justice communities that exist in proximity to, or have a connection with, the LCP planning area.

### Characterize historic and current environmental burdens of environmental justice communities

It is important to not only identify where environmental justice communities exist, but to also understand the specific historic and current burdens experienced by these communities. This understanding will better inform how to approach meaningful engagement plans, vulnerability assessments, and adaptation planning. For example, identifying where legacy injustices—such as redlining and restrictive racial covenants that prevented people of color from buying homes in certain neighborhoods or learning about health issues from living near oil refineries, ports, and other industries—can inform changes in land use and development policies. Similarly, acknowledging the historical land theft and displacement of indigenous people from coastal areas, along with ongoing cultural and environmental impacts, can provide additional insights. And, qualitative data such as community testimony, interviews, and outreach can ground-truth quantitative datasets and provide further context to inform resilient coastal planning. Asking communities about their relationship to the coast provides an understanding of how people experience environmental benefits or burdens along the coast. Do their families visit the coast to fish for recreation or for subsistence? Do they visit the coast for work or recreation? If they live along the coast, what health and environmental issues are relevant in their area and important to them? How have historical tribal events and displacement influenced their connection to and use of coastal areas? Understanding the specific factors that distinguish an environmental justice community from other populations will ultimately drive more equitable strategies and outcomes.

### Create a meaningful engagement plan

Once a planner has identified environmental justice communities and characterized the environmental burdens these communities experience, they should develop a meaningful engagement plan that will guide how outreach with environmental justice communities will be conducted throughout the LCP planning (see Chapter 4 for an in-depth discussion on meaningful engagement). Without adequate and meaningful engagement, sea level rise policies will lack credibility with the affected community that can result in adverse outcomes later in the process. Direct outreach and engagement with environmental justice communities throughout the LCP scoping and amendment process will ground the foundation of sea level rise policy development in authentic experiences. Within each jurisdiction, there will be opportunities to create nuanced policies that reflect the local context and priorities of environmental justice communities. While each local government might take different approaches to meaningful engagement, generally, they should evaluate whether their engagement efforts achieve the following goals:

- Environmental justice communities and the public receive clearly written/communicated information early on and continuously throughout the process to create a new or amend an existing LCP.
- Individuals of different backgrounds and/or abilities have equitable access to information because informational materials are ADA-compliant, account for language barriers, are culturally appropriate, and include meeting times and locations.
- Environmental justice communities receive responses from local government and their feedback is incorporated into the process to create a new or amend an existing LCP.

Two practices that can help local government planners develop their meaningful engagement plan is through connecting or partnering with community-based organizations (CBOs) working in or with environmental justice communities and developing community surveys. Community organizations can include local nonprofits, faith-based organizations, school associations, and clubs. Planners can begin building trust with these organizations by attending existing community meetings and getting to know organization leaders and members. CBOs often have already gained the community's trust and know who the community members are, who needs to be in the room, and how to reach them. They can have staff that know how to facilitate specific meaningful conversations and discussions, and they continue to be in contact with the community, thus providing an ongoing pathway for communication between local governments and the community. Establishing a relationship with these trusted groups can help a local government to engage a broader audience, dismantle some distrust that communities may have with government entities, and identify a more unified vision of community needs that can be incorporated into an LCP. Conducting community surveys among environmental justice communities can help local governments understand the priorities and problems that their communities currently face regarding land use and development. The greater burdens and barriers that environmental justice communities contend with may shape different priorities and concerns regarding climate change, coastal access, public recreation, and resource protection compared to wealthier communities, as well as other identities of power, race, religion, and culture.

An important part of a meaningful engagement plan includes identifying any unique barriers that environmental justice communities may encounter during the public participation process, including multilingual and technical language access, meeting times, childcare, transportation access, and technology access. These barriers create disproportionate burdens on community members who have less financial flexibility, may be transit-dependent, do not understand English very well, have limited access to technology, or have more constrained schedules and capacities. Some best practices for addressing these barriers can include:

- Translating written materials in languages predominantly spoken among residents including surveys, flyers, notices, and website announcement and providing oral interpretation services for speakers at public meetings.
- Allowing opportunities for pre-recorded public comments via live video stream or phone calls for public meetings.

- Partnering with a community organization to help provide childcare services or holding public meetings at sites where children can go during the meeting, such as recreation centers.
- Holding meetings near public transportation services, within walking distance from where people live, or providing other methods for participation that do not require individuals to physically attend meetings.
- Identifying meeting times that occur during more accessible time ranges so that communities have the opportunity to attend and meaningfully engage while minimizing constraints to their day-to-day schedules.

The Commission's Toolkit on Resources for Addressing Environmental Justice through Local Coastal Programs provides a lot more information regarding participation barriers for environmental justice communities, best practices for creating a meaningful engagement plan, and conducting outreach with environmental justice communities.

**SB 272 Consistency:** SB 272 requires local governments to update LCPs to address sea level rise. As discussed at the beginning of this chapter and throughout the following steps, this includes completing a vulnerability assessment, identifying adaptation strategies, identifying lead planning and implementation agencies, and ensuring equity for at-risk communities. This step discusses best practices for initiating a planning effort, including identifying key goals, internal and external partners, and environmental justice communities.

**Expected outcomes from Step 1:** Initiation of the planning process, including identification of planning goals, key stakeholders, and environmental justice communities in or near the LCP planning area/segment. During this step, the planner should work to create a connection with environmental justice communities and develop a meaningful engagement plan that establishes how outreach will be conducted with them throughout the LCP planning process.

## Step 2 – Determine range of sea level rise scenarios relevant to LCP planning area/segment

The first step in incorporating sea level rise into the LCP planning process is to identify locally relevant sea level rise scenarios that may occur at given time points in the future. These scenarios will be carried through the rest of the steps in the sea level rise LCP planning process. Follow these steps to determine the locally relevant sea level rise scenarios to use in the subsequent steps:

- **Determine planning horizons of concern:** The Coastal Commission recommends taking a long-term view when analyzing sea level rise impacts because the land use decisions made today will affect what happens over the long-term. For example, development constructed today is likely to remain in place over the next 75-100 years, or longer. After the original publication of this guidance in 2015, many jurisdictions completed assessments that look at sea level rise vulnerabilities through approximately 2100; however, it may be prudent for future assessments to look out to at least 2130. Understanding short-term vulnerabilities is also important, and the Coastal Commission also recommends assessing vulnerabilities in intermediate planning horizons. For example, many jurisdictions have assessed sea level rise scenarios that correspond to nearer-term horizons (e.g., in 2030, 2050, and so on) as these horizons may provide valuable details for implementing priority or short-term adaptation strategies. These time periods may be used, or local governments may identify other relevant planning horizons for their plans and development scenarios, as long as the sea level rise scenarios for those time frames are based on the best available and relevant scientific projections.

- **Determine the full range of sea level rise scenarios from the best available science:** Using best available science, currently the 2024 State Sea Level Rise Guidance (or other comparable study, provided that it is peer reviewed, widely accepted within the scientific community, and locally relevant), determine the range of sea level rise for the planning horizons of concern. The statewide sea level rise scenarios from the 2024 State Sea Level Rise Guidance are presented in Table 5 below (scenario tables for all 14 California tide gauges are presented in Appendix F).[43] See below for a discussion of scenario-based planning in the LCP context.

[43] More detailed refinement of sea level rise projections is not considered necessary at this time, as variations from the nearby tide gauges will often be quite small, and may be insignificant compared to other sources of uncertainty. However, the Coastal Commission recognizes that other studies exist with localized data, for example those completed in the Humboldt Bay region, which may also be appropriate for use.

Table 5. Sea Level Rise Scenarios for California [44]

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 |
| **2040** | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
| **2050** | 0.5 | 0.6 | 0.8 | 1.0 | 1.2 |
| **2060** | 0.6 | 0.8 | 1.1 | 1.5 | 2.0 |
| **2070** | 0.7 | 1.0 | 1.4 | 2.2 | 3.0 |
| **2080** | 0.8 | 1.2 | 1.8 | 3.0 | 4.1 |
| **2090** | 0.9 | 1.4 | 2.4 | 3.9 | 5.4 |
| **2100** | 1.0 | 1.6 | 3.1 | 4.9 | 6.6 |
| **2110** | 1.1 | 1.8 | 3.8 | 5.7 | 8.0 |
| **2120** | 1.1 | 2.0 | 4.5 | 6.4 | 9.1 |
| **2130** | 1.2 | 2.2 | 5.0 | 7.1 | 10.0 |
| **2140** | 1.3 | 2.4 | 5.6 | 7.7 | 11.0 |
| **2150** | 1.3 | 2.6 | 6.1 | 8.3 | 11.9 |

- **Choose multiple sea level rise amounts based on range of sea level rise scenarios.** The Coastal Commission recommends that communities evaluate the impacts from multiple sea level rise amounts that cover the range of SLR scenarios for the identified long-term plan horizon. In practice, assessing impacts from several specific SLR amounts (e.g., 1, 3, 6, and 10 feet) can account for multiple possible futures when compared to the time horizons associated with different SLR scenarios. In other words, evaluating 3 feet of SLR can generally tell us what to expect in 2070 under a worst-case future (the High SLR scenario) or around 2100 or later in better-case scenarios (Intermediate or higher certainty scenarios).

  In general, communities should account for, at a minimum, the full range of sea level rise associated with the Intermediate-High scenario for the identified planning horizon

[44] This table provides median values for sea level scenarios for California, in feet, relative to a year 2000 baseline. These statewide values all incorporate an average statewide value of vertical land motion – a negligible rate of 0.1 mm (0.0003 ft) per year uplift (OPC 2024). The red box highlights the three scenarios that the *State Sea Level Rise Guidance* and this guidance recommend for use in various planning and project contexts.

(e.g., up to about 7 feet for a 100-year planning horizon). The Commission also continues to recommend incorporating the High scenario to evaluate the vulnerability of planned or existing assets like critical infrastructure that have little to no adaptive capacity, that would be irreversibly destroyed or significantly costly to repair, and/or would have considerable public health, public safety, or environmental impacts should that level of sea level rise occur.[45] Evaluating the lower scenarios (those with a higher certainty) allows planners to gain an understanding of what is likely to be vulnerable under more likely future climate conditions.

In addition to evaluating the higher end/worst-case scenarios, it is helpful to understand the minimum amount of sea level rise that will cause impacts for a community, and how these impacts will change over time, with different amounts of sea level rise. Planners should evaluate enough scenarios to be able to answer the following:

- What are the impacts from the most likely/near-term amounts of sea level rise? What about from the worst-case scenario/longer-term sea level rise?
- How would elevated water levels from King tides, El Niño, a 100-year storm, and other factors exacerbate the impacts of SLR on the community?
- What is the minimum amount of sea level rise that causes inundation, flooding, or erosion concerns?
- How do inundation, flooding, and erosion concerns change with different amounts of sea level rise?
- Are there any tipping points where sea level rise impacts become more severe? (For example, is there a point at which seawalls or levees are overtopped or where beaches or public access are lost?)

There is no single accepted sea level rise mapping methodology for the state of California. Local governments can choose whether to use existing sea level rise tools or to develop their own scenarios and maps. Some existing models and tools provide maps by sea level rise amount that can then be linked to the relevant time period, as described in the box below.

[45] For more information on sea level rise planning for critical infrastructure, see also the Coastal Commission's Critical Infrastructure at Risk planning guidance.

### Choosing Scenarios with Existing Sea Level Rise Modeling Tools

A number of jurisdictions throughout California have completed vulnerability assessments using Our Coast Our Future (CoSMoS) or other existing SLR modeling/mapping and visualization tools. Oftentimes, these tools include numerous SLR amounts in regular increments (e.g., for CoSMoS, generally 25 centimeter increments and for the NOAA SLR Viewer, one-foot increments). These types of tools allow users to identify and evaluate SLR amounts, and then relate those amounts to the anticipated time horizons over which they may occur based on current best available science. For example, a jurisdiction may use CoSMoS to evaluate 1m of SLR (approximately 3.3ft), which, based on the 2024 State SLR Guidance, could occur as soon as 2070-2080 under the High and Intermediate-High scenarios, or around 2100 under the Intermediate scenario.

Importantly, this approach for choosing and evaluating SLR amounts generally allows for vulnerability assessments to remain relevant even as best available science changes over time. While the time horizon associated with specific SLR amounts may change with evolving science, the visualization of those associated SLR effects will not. For example, past vulnerability assessments that evaluated 1m of SLR using CoSMoS would have associated those impacts with approximately 2065 (medium-high risk aversion scenario from the 2018 Guidance). That vulnerability assessment doesn't need to be re-done now, but users should understand that that amount of SLR is likely to occur slightly later than previously expected.

Note too that there is often a slight mismatch between exact SLR amounts in the scenario tables and the SLR amounts in the available tools (e.g., 3.3ft is a CoSMoS scenario while the SLR scenarios in Table 5 include 3.0 and 3.1ft). In general, given the uncertainties and ranges associated with sea level rise science, minor differences like these will not matter much, particularly in the context of general vulnerability assessment efforts. Users could also interpolate between the decadal SLR amounts shown in the scenario tables. For example, one could use Table 5 to approximate that 4ft of sea level rise could occur by approximately 2095 under the Intermediate-High scenario.

More information on sea level rise modeling and mapping tools is available in Table 6. Technical information for incorporating other hazards (such as storms, erosion, or waves) can be found in Appendix B.

**SB 272 Consistency:** SB 272 requires local governments to develop a vulnerability assessment using best available science. This step identifies the 2024 OPC State SLR Guidance (or other comparable, peer-reviewed, widely scientifically accepted, and locally-relevant study) as the current best available science, and provides general recommendations for how to go about choosing sea level rise scenarios to use in a vulnerability assessment.

**Expected outcomes from Step 2:** Upon completing this step, a range of regionally- or locally-relevant sea level rise scenarios for the time periods of concern should be established. Based on this range, planners will have identified several SLR scenarios that span the planning horizon, including lower/nearer-term, medium/mid-term, and higher/long-term amounts. These sea level rise scenarios will be carried through the rest of the planning process.

## Step 3 – Identify potential physical sea level rise impacts in LCP planning area/segment

The next step is to identify the physical hazards and impacts (referred to comprehensively as sea level rise impacts) associated with current and future sea level. As described in Section C of Chapter 3 of this Guidance, broad categories of sea level rise impacts may include inundation, flooding, groundwater rise, wave impacts, erosion, and saltwater intrusion. In this step, planners should analyze these physical impacts and their various sub-components in order to understand current and future local hazard conditions. The analysis should answer the following basic questions:

- What are the existing hazard conditions that threaten the planning area?
- What is the projected change in hazard conditions due to locally appropriate sea level rise scenarios and planning horizons of concern?

This analysis should include the following topics, as applicable (See Appendix B for detailed technical information):

- Coastal Erosion
    - Current trends or dynamics in beach change and evaluation of how sea level rise may change current trends or dynamics
    - Consideration of beach change attributed to extreme events, seasonal change, and decadal forcings such as Pacific Decadal Oscillation or El Niño Southern Oscillation
    - Historic and future bluff erosion, considering the effects of sea level rise
    - Identification of existing dune areas and evaluation of potential erosion from storm events and long-term beach erosion
- Coastal Wetland Change
    - Current trends in wetland change (e.g., erosion or accretion) and evaluation of how sea level rise may change current trends through changes to water levels and exposure to currents or waves

- Analysis of how changes to tidal inundation may change coastal wetland habitats

- Coastal Flooding
  - Current tidal datums[46] and future inundation
  - Extreme static water levels from a combination of high tides, atmospheric forcing (e.g., storm surge), and oceanographic forcing (e.g., El Niño and Pacific Decadal Oscillation)
  - Wave impacts (runup and/or overtopping), including impacts from a 100-year event considering worst case beach and bluff conditions

- Fluvial/Riverine Flooding
  - Identification of existing fluvial flood control infrastructure and systems
  - Current and future fluvial flooding for 100-year flood events as worsened by sea level rise and climate change

- Pluvial/Stormwater Flooding
  - Identification of existing stormwater systems
  - Current flood risk from intense rainfall events and consideration of how sea level rise and climate change will change or worsen performance of existing stormwater infrastructure

- Shallow or Emergent Groundwater, Saltwater Intrusion
  - Current and future areas of shallow or emergent groundwater or areas subject to saltwater intrusion
  - Identification of current or future potential water quality issues due to saltwater intrusion, inundation of contaminated soils, or mobilization of contaminants from rising water tables and increases in nonpoint source pollution

- Tsunamis
  - Current and future flood risk from extreme tsunamis

Use existing models, tools, reports, historic records, and other materials (Table 6) to develop or double check the identified hazard areas. Document the current and future hazard areas in the Land Use Plan using maps, GIS products, graphics, tables, charts, figures, descriptions, or other means. This process should be repeated for each planning horizon and/or sea level rise scenario defined in Step 2.

[46] Tidal datums are based on the latest National Tidal Datum Epoch (NTDE) published by NOAA and are the mean of the observed sea levels over a 19-year period. The latest published epoch is 1983-2001. This tidal epoch can be considered roughly equivalent to the year 2000 baseline for the OPC projections.

**SB 272 Consistency:** SB 272 requires local governments to develop a vulnerability assessment using best available science. This step provides basic recommendations for the types of hazards to evaluate to understand the physical impacts projected to occur as sea levels rise. Appendix B provides greater technical detail on methodologies for projecting changes in coastal hazards.

**Expected outcomes from Step 3:** Upon completing this step, the potential current and future impacts to the planning area from sea level rise hazards should be identified based on the various sea level rise scenarios chosen. Maps, GIS layers, graphics, figures, charts, tables, descriptions, or another system should be developed to communicate the impacts of current and future hazards.

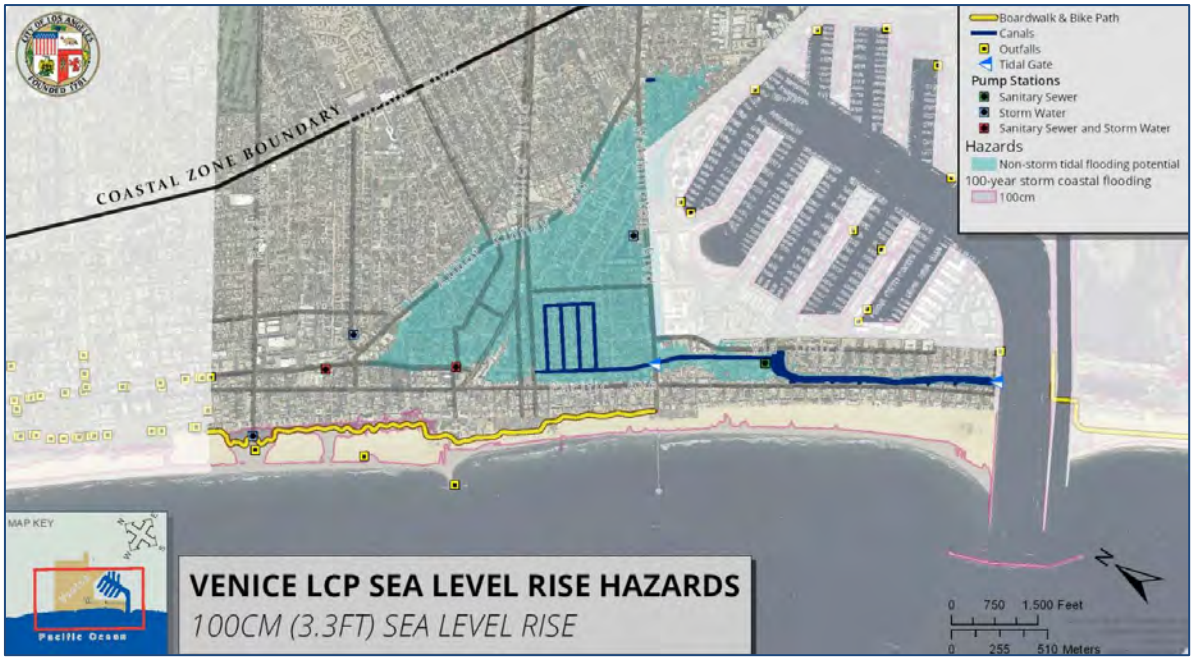



Figure 13. Example of analysis of SLR impacts. Hazards predicted from the CoSMoS mapping of 3.3 feet (100 cm) of sea level rise in Venice, CA. (*Source*: Venice Sea Level Rise Vulnerability Assessment 2018).

### Resources for Sea Level Rise Mapping

Table 6 includes a list of sea level rise mapping tools. The tools vary in their complexity: some are considered "bathtub models," because they show future inundation with simple rise in sea level (and no changes to the shoreline caused by other forces). Others include factors like erosion, storms, and fluvial inputs. These tools provide a useful first look at possible sea level rise impacts, but may need to be supplemented with additional, site- or topic-specific analyses, depending on the region. See Appendix B for additional information on determining hazard impacts and tools for mapping sea level rise.

Table 6. Sea Level Rise Mapping Tools

| Tool | Description | Link |
|---|---|---|
| **Our Coast Our Future (CoSMoS)** | The USGS's Coastal Storm Modeling System (CoSMoS) provides maps of various SLR-related hazards under half-meter incremental SLR scenarios. CoSMoS provides more detailed predictions of coastal flooding due to both future sea level rise and storms integrated with long-term coastal evolution (i.e., beach changes and cliff/bluff retreat) over large geographic areas (100s of kilometers). While projections of groundwater rise are available statewide, other hazards are available from Point Arena to the Mexico border and will be available statewide in the coming years. | Access the online viewer at ourcoastourfuture.org<br><br>Download GIS data layers at the USGS website<br><br>(Data is also hosted on the 30x30 California Climate Explorer) |
| **Hazard Exposure Reporting and Analytics (HERA) (CoSMoS data)** | The USGS's CoSMoS data is hosted on both ourcoastourfuture.org (above) and on HERA, the Hazard Exposure Reporting and Analytics website. HERA allows users to overlay the SLR hazard data layers of CoSMoS with a host of different spatial datasets on communities, residents, employees, land types and habitats, parcels, various types of critical infrastructure, and other critical facilities. It provides users the number of people and assets within any give hazard zone. | HERA website |
| **NASA Flooding Analysis Tool** | This tool describes the frequency of high-tide flooding will change under various SLR scenarios. Users can view sea-level observations and assess past high-tide flooding frequency, view future changes in high-tide flooding frequency under various SLR scenarios, and view statistics and inflection points that support decision making. The tool was developed with funding from the NASA | Flooding Analysis Tool |

| | | |
|---|---|---|
| | Sea Level Change Team by scientists at the University of Hawaii Sea Level Center and is based on the methods of Thompson *et al*., 2021. | |
| **NOAA Sea Level Rise Viewer** | An example of a "bathtub model," this viewer shows areas that are hydrologically connected to the ocean that would become inundated with 1-foot increments of sea level rise up to 10 feet. Storms, waves, erosion, and other coastal processes are not represented. | NOAA SLR Viewer |
| **Cal-Adapt – Exploring California's Climate** | Cal-Adapt hosts two datasets on sea level rise hazards: CoSMoS data and CalFloD3D-TFS. The CoSMoS data is the same as the dataset described above. The CalFloD3D-TFS assesses potential coastal flooding exposure to areas of interest to the Transportation Fuel Sector (TFS) over five 20-year planning horizons and the Fourth Assessment scenarios using a 3D hydrodynamic model during extremely high sea level events (72 hour storm event). Due to the inclusion of aboveground objects such as buildings and levees, CalFloD-3D depicts detailed land surface details. Details are described in Radke *et al*., 2018.<br><br>Cal-Adapt Analytics Engine provides the foundational climate and environmental data that underpins the California Climate Change Assessment, including sea level rise information. | Cal-Adapt<br><br>Cal-Adapt Analytics Engine |
| **Humboldt Bay Sea Level Rise Mapping** | A variety of mapping efforts have been completed in and around Humboldt Bay to characterize the existing shoreline condition and vulnerabilities under the current tidal regime and, through hydrodynamic modeling, to develop maps of areas vulnerable to inundation from existing and future sea levels. | Mapping and numerous related vulnerability assessment reports available at:<br><br>humboldtslri.org |

## Step 4 – Assess potential risks from sea level rise to coastal resources, development, and environmental justice communities in LCP planning area/segment

After environmental justice communities are identified in Step 1 and sea level rise impacts are identified and mapped in Step 2, the next Step is to determine whether sea level rise poses risks to coastal resources, development, and if there is a disproportionate impact on environmental justice communities in the LCP planning area (refer to Chapter 4 for a description of the potential consequences of sea level rise for coastal resources and environmental justice communities). Part of this step includes assessing whether the LCP planning area's current and planned land uses are appropriate or consistent with Coastal Act or LCP policies given those impacts, or if those land uses should be revised. Importantly, this step should also identify whether any environmental justice communities (such as those identified in Step 1) may be disproportionately affected by the impacts of sea level rise on coastal resources, development, and any current and planned land uses.

This step requires an understanding of several characteristics of the coastal resources and development typically found within various land use types as well as how the public, including environmental justice communities, interact or relate to the coastal resource or development. This information can be qualitatively and quantitatively described, and should be included in a vulnerability assessment, as required by SB 272. These assessments should account for potential impacts to coastal resources and development, including but not limited to the following, as well as how such impacts may differentially impact environmental justice communities.

- Existing and planned development, such as housing anticipated by a local government's certified Housing Element
- Coastal-dependent development and uses such as harbors, wharfs, ports, marinas, and commercial and recreational fishing areas and facilities
- Critical infrastructure[47] such as water and wastewater facilities and infrastructure, transportation infrastructure, and some power plants and energy transmission infrastructure
- Public accessways, beaches and other recreation areas, and the California Coastal Trail
- Highways 1, 101, and other state and local roads that provide access to the coast
- Wetlands, environmentally sensitive habitat area (ESHA), and other coastal habitats and sensitive species

[47] Critical infrastructure can vary widely from community to community, and may also include fire stations, police stations, and hospitals. For planning purposes, a jurisdiction should determine criticality based on the relative importance of its various assets for the delivery of vital services, the protection of special populations, and other important functions, as well as the social, environmental, and economic risks associated with loss of or damage to such assets.

- Agricultural areas
- Tribal cultural sites and archaeological or paleontological resources
- Visitor-serving development and uses

Conduct the following tasks for each sea level rise amount identified in Step 2. These tasks should be carried out with identified environmental justice communities as well as their defining characteristics in mind. Sharing the information developed in these steps, and gathering feedback on findings, is an important component of meaningful engagement for developing a vulnerability assessment to inform adaptation planning.

1. For the sea level rise amount of interest, determine what development, coastal resources, and environmental justice communities may be subjected to the sea level rise impacts expected for that time period. Map the coastal resources, development, and environmental justice communities that lie within the sea level rise impact areas for the given sea level rise amount. (Remember to address the wide range of resources listed above, including both natural resources and development.)

2. Determine if sea level rise impacts are a problem or benefit for each resource/development, and if so, when and to what degree the resource/development will be impacted. In some instances, sea level rise may result in the creation of new habitat areas that could help to alleviate impacts from the loss of similar habitat in other locations. However, it is more likely, especially in heavily urbanized areas, that sea level rise will result in a net loss of habitat unless steps are taken to preserve these systems. Similarly, determine if sea level rise impacts on the resource are a problem or benefit to identified environmental justice communities.

   To accomplish this, consider a wide range of characteristics of each resource/development, including the following. The questions listed under each characteristic might help guide the consideration of each. These questions are meant to be suggestions rather than a standardized approach, and planners may use scientific literature, best professional judgment, communication and outreach with asset managers, environmental justice communities, or other interested parties, or a variety of other resources to gain a conceptual understanding of the important resources/development and vulnerabilities in their jurisdictions.

   a. **Exposure.** Will sea level rise impacts affect the resource/development at all?
      i. Are coastal resources and community assets exposed to sea level rise impacts?
      ii. Is the resource/development already exposed to hazards such as waves, flooding, erosion, or groundwater rise? If it is, will sea level rise increase hazard exposure?

b. **Sensitivity.** If resources/development are exposed, to what degree will coastal resources/development be affected by sea level rise impacts? A simple way to think about this concept is to consider *how easily affected* the resource or development is in regard to sea level rise impacts.

    i. How quickly will the resource/development respond to the impact from sea level rise?

    ii. Will the resource/development be harmed if environmental conditions change just a small amount? What are the physical characteristics of the resource/asset (e.g., geology, soil characteristics, hydrology, coastal geomorphology, topography, bathymetry, land cover, land use)? Do any of those characteristics make the resource especially sensitive?

    iii. Can the resource/development withstand certain impacts? Can natural resources recover from occasional impacts? Can development be easily repaired from minor impacts?

    iv. Are there thresholds or tipping points beyond which sensitivity to sea level rise increases?

c. **Adaptive Capacity.** How easily can the resource/development successfully adapt to sea level rise impacts?

    i. How well can the resource/development accommodate changes in sea level over time?

    ii. Is the rate of change faster than the ability of the resource/ development to adapt?

    iii. How easily can development be modified to cope with flooding, inundation, and/or erosion? Can structures be elevated or relocated?

    iv. Are there adaptation efforts already underway? Are there any factors that may limit the success of adaptation efforts in the near, mid, or long term?

    v. Do beaches, wetlands, and other coastal habitats have room to migrate inland? What is the overall health of existing wetlands and coastal habitats?

    vi. Are there any other climate change-related impacts to consider? Are there any non-climate stressors that could impair ability to adapt to sea level rise?

    vii. Is there potential for habitat creation as a result of sea level rise?

    viii. What are the options to protect, redesign (e.g., elevate), or relocate inland any existing public accessways, recreational beaches, and segments of the Coastal Trail to cope with rising sea levels? Is lateral access compromised with sea level rise?

d. **Consequences.** When sea level rise and/or sea level rise adaptation measures have impact(s) upon a resource/development, what are the economic, ecological, social, cultural, and legal consequences?

    i. How severely could each resource/development be affected? At what scale?

    ii. Are there cumulative consequences?

    iii. Are there ripple effects, or secondary consequences to consider? For example, would damage to critical infrastructure result in environmental impacts, such as water quality impacts from spills of hazardous substances?

    iv. Will environmental justice communities be disproportionately affected by changes to or loss of coastal resources/development? For example, would loss of beaches adversely affect communities who use these areas as no or low-cost recreational opportunities? Would loss of agricultural lands or coastal-related industry impact low-income workers?

    v. What are the economic costs associated with damage to or loss of coastal resources and development? How will continued damage and repair and maintenance costs compare to costs associated with adaptation options? Note that SB 272 requires an economic impact analysis of, at a minimum, costs to critical public infrastructure.

    vi. Will adaptive responses cause further adverse impacts?

e. **Land Use Constraints.** Given the location of sea level rise impacts and the coastal resources and development currently located in those areas, should the types and intensities of land use be altered to minimize hazards and protect coastal resources?

    i. What is the current pattern of development? Is the area largely developed or does it have significant areas of undeveloped land?

    ii. Is the area served by infrastructure that is vulnerable to sea level rise impacts?

    iii. Are large areas of land under common ownership or is land mostly subdivided into smaller lots in separate ownership?

    iv. What conditions are required for the land use type, development, or resource to either exist or fulfill its intended purpose?

    v. Are there coastal-dependent uses? What are their ideal proximities to the coast?

vi. For potential new development, what is the expected lifespan? Is it economically feasible to locate it in a sea level rise impact area for a certain period of time before it is removed or relocated? Can a phased plan be undertaken to address any changes over time?

vii. For existing development, what are the options available to minimize hazards to the development while protecting coastal resources? Note that in certain situations, the Coastal Act allows existing structures to be protected (Coastal Act Section 30235). What are the coastal resource impacts of shoreline armoring? Could feasible alternatives that avoid negative impacts associated with shoreline armoring, such as nature-based adaptation strategies, be implemented instead? Are there options to provide incentives to property owners to relocate or remove at-risk structures?

viii. For a natural resource or habitat, what conditions are required for it to persist?

ix. Where would resources/development ideally be located (or relocated to) over time as sea level rise causes environmental conditions to shift?

x. What changes to existing LCP requirements or other land use restrictions are necessary to maximize opportunities for avoiding hazards or relocating threatened existing development?

After going through the questions listed above, and others that may be relevant to the planning exercise, synthesize the information and determine where sea level rise impacts currently pose problems for coastal resources, development, and environmental justice communities, what problems may develop over time as sea level rises, and how urgent the problems are. Create maps illustrating the location and extent of vulnerable land uses, such as critical facilities, wastewater infrastructure, and State Highway 1 and other coastal access roadways. This information should also be summarized in narrative form. The analysis should identify resources and development likely to be impacted by sea level rise at various periods in the future, and thus the issues that need to be resolved in the adaptation and LCP planning process, including in a phased manner as appropriate.

Remember that these assessments are not static; existing risks will change and new risks will arise with changes in a community, changes to coastal resources, the emergence of new threats, new information, and the implementation of adaptation actions. For this reason, the analysis should be updated as needed to reflect changes in sea level rise projections, changes in land use patterns, or new threats.

**SB 272 Consistency:** SB 272 requires local governments to develop a vulnerability assessment. This step provides recommendations on the types of coastal resources and land uses that are important to consider from a Coastal Act perspective, and provides direction for how to understand the implications of sea level rise depending on factors such as exposure, adaptive capacity, and impacts for environmental justice communities. SB 272 also requires economic impact analyses of, at a minimum, costs to critical public infrastructure. Assessing costs associated with exposure to and impacts from sea level rise over time, and beginning to understand the costs associated with repair and maintenance versus proactive adaptation actions can begin in this step.

**Expected outcomes from Step 4**: Descriptions of the characteristics that influence risk, including exposure, sensitivity, and adaptive capacity of each coastal resource to sea level rise impacts under each sea level rise scenario identified in Step 2 at the selected planning horizons, along with the expected consequences of those impacts for the resource, environmental justice community, and broader community. Maps of resources and/or land uses at risk could be produced.

## Example for Step 4

To illustrate the process described in Step 4, consider a hypothetical planning area that includes multiple coastal resources and land use types, including a coastal wetland, bluff-top residential development with a fronting beach, and a wastewater treatment facility, that need to be addressed in the planning process. After Steps 1-3, portions of the planning area are found to be subject to current and future sea level rise impacts.

*Step 4.1*: Map the coastal resources and development (in this case the wetland, residential development, and wastewater treatment facility) for the range of time periods and sea level rise scenarios.

*Step 4.2*

*a.* **Exposure**

- *Wetland:* The wetland is highly exposed to flooding and inundation from sea level rise. By the year 2030, portions of the wetland will trap sediment at a rate such that the elevation keeps pace with sea level rise. By 2050, a portion of the wetland will become inundated and converted to open water, and by 2100 the entire area will be converted to open water. The wetland will be completely lost by this time period if it is not able to move inland.
- *Bluff-top Residential Development:* Houses in the residential development are not exposed to sea level rise impacts in 2030. However, a high rate of retreat along the fronting beach and bluff will put front-line houses in danger of being undermined by

the year 2050, and the entire development may be lost by 2100 unless adaptation measures are implemented.

- *Wastewater Treatment Facility:* Given that the wastewater treatment plant is set back somewhat from the shoreline, it will not be exposed to impacts from sea level rise until 2050. By 2050, however, portions of the infrastructure will be exposed to impacts from elevated water levels due to 100-year storm events and El Niño occurrences. By 2100, significant portions of the below-grade and above-grade infrastructure will be exposed to groundwater rise and flooding as the surrounding area is eroded and inundated.

*b.* **Sensitivity**

- *Wetland:* The wetland has high sensitivity to changes in sea level because its functioning is highly-dependent on local physical parameters such as water flow, tidal fluctuation, sediment supply, and water quality. Although it currently has good sediment supply, good water quality, and a number of other characteristics, small changes in sea level rise by 2050 may alter the function of the wetland. In addition, there are concerns that beyond 2050 the wetland will not be able to keep up with accelerated sea level rise, thus increasing sensitivity to further changes in sea level.
- *Bluff-top Residential Development:* The residential development has moderate to high sensitivity to longer-term sea level rise changes. Absent adaptation strategies, by 2050, the front-line houses will no longer be safe enough for occupancy. Moreover, infrastructure such as roads, sewage systems, and power networks may be damaged as the bluff-face erodes.
- *Wastewater Treatment Facility:* The facility is moderately sensitive to sea level rise. Flooding, groundwater rise, and erosion from sea level rise could cause damage to the facility, pumps and other equipment, but the facility was initially built to withstand a high degree of storm and related impacts. Associated damage to the facility could lead to a potential increase in rates for local ratepayers, which could disproportionately impact low-income and environmental justice communities.

*c.* **Adaptive Capacity**

- *Wetland:* Unlike many wetlands in the State of California, this particular wetland has a moderate-high adaptive capacity because it has the ability to both accumulate sediment and grow upwards, and, given that the land upland of the wetland is preserved as open space, it can migrate inland. However, by 2050, a part or all of the existing wetland area could be converted to open water if the wetland is not able to migrate inland or accumulate sediment at a rate that keeps pace with sea level rise. In this case, for example, a public trail will need to be relocated to allow inland migration of the new intertidal zone. Additionally, adaptive capacity may be reduced if pollution increases (e.g., as a result of damage to adjacent development) and disrupts the normal functioning of the wetland.
- *Bluff-top Residential Development:* The residential development has a moderate adaptive capacity. As houses become threatened over time, a scenario of managed

retreat would allow houses to be removed incrementally and eventually be relocated to safer areas. The feasibility of managed retreat can depend upon lot sizes, ownership patterns, land use restrictions in the safer areas, and the availability of public or private financing. If a protective structure such as a seawall is approvable under the LCP or Coastal Act, it would minimize threats to the residences due to erosion, though if the development is protected by shoreline structures, the fronting beach will eventually be lost.

- *Wastewater Treatment Facility:* The wastewater treatment facility has a very low adaptive capacity. It is large and has expensive and below-grade infrastructure so it cannot be entirely elevated, and relocation is costly and difficult. In order to be protected in its current location, new structures will need to be built and below-grade infrastructure will need to be repaired and maintained.

*d.* **Consequences**

- *Wetland:* In many situations, the loss of wetland area is a high risk since wetlands provide flood protection, water quality enhancement, carbon sequestration, and essential habitat for plant, fish, bird, and other species. However, in this case, wetland migration is not restricted by inland development, so the risks for this wetland are slight to moderate, depending upon the suitability of the inland area for establishment of wetland plants and potential changes in water temperature and water quality. In the short term, the wetland will likely continue to function at normal levels. However, if it eventually can't keep up with sea level rise or if there are barriers to migration, loss of the habitat will result in a loss of important ecosystem services.
- *Bluff-top Residential Development:* The housing development has medium to high risk through 2100. The option to either relocate houses or protect them with a seawall means that they could continue to exist. Importantly, a system of managed retreat would allow for the continued existence of the fronting beach and all of its social, economic, and environmental benefits, whereas the construction of a seawall would result in the accelerating loss of the beach and these benefits over time.
- *Wastewater Treatment Facility:* Given its low adaptive capacity and high sensitivity to higher levels of sea level rise, the wastewater treatment facility is at high risk. Loss or damage to the facility could result in serious social, economic, and environmental consequences. Flooding of the facility and surrounding areas will cause damage to infrastructure and loss of facility function. This could lead to discharge of untreated sewage, which would have adverse impacts to water quality and could impair the health of nearshore ecosystems and local communities. Sea level rise could also cause outflow pipes to back up with seawater, and groundwater rise can infiltrate collection pipes, leading to sewage backups, overflows, and additional water quality problems. Due to the legacy of environmental injustices in land use planning (see Chapter 4), environmental justice communities are often located near and/or adjacent to industrial facilities, such as wastewater treatment plants, and are thus more likely to be exposed to a higher rate of such environmental toxins and subsequent public health impacts including if such structures are damaged by sea

level rise (Cushing *et al.,* 2023). However, efforts to protect the structure may have unintended consequences including loss of surrounding habitat areas. Costs associated with damages to this facility or implementation of adaptation responses could also impact local ratepayers, which could disproportionately impact low-income and environmental justice communities if special rates or protections are not in place.

*e.* **Land Use Constraints (discussed further in Step 5)**

- *Wetland:* The high adaptive capacity of the wetland means that minimizing risk to this resource may be accomplished by ensuring that there is space available for it to migrate into. Land use policies designed to protect uplands or areas inland of the current wetland area will be necessary.
- *Bluff-top Residential Development:* The area in question will eventually become incompatible with the current use. Development will not begin to be exposed to sea level rise impacts until 2050, but it is important to start planning now about how best to address the risks to the houses. Phased retreat would necessitate identifying feasible locations into which houses could be moved or a plan to abandon and remove houses. Such a plan might include a Transfer of Development Rights program in which homes are encouraged in less hazardous areas. If a managed retreat strategy is not in place, existing structures may qualify for shoreline protection. Shoreline protection would likely exacerbate beach erosion, degrade public access, impair shoreline habitat, and alter visual character.
- *Wastewater Treatment Facility:* It should be determined how likely it is that the facility will be able to be protected throughout the rest of its expected lifespan under even the highest sea level rise scenarios. It may be that the wastewater treatment facility becomes an incompatible use under future conditions. If so, plans should be made to relocate at-risk portions of the facility, as feasible, or to phase out the facility.

Note that this is a simplified example used to demonstrate the process described in Step 4. Decisions about how to address various challenges presented by sea level rise will be more complex than those illustrated above and may require prioritizing the different resources based on Coastal Act and LCP requirements taking into account the goals and circumstances of the community and the various characteristics of each resource. An understanding of the exposure, sensitivity, adaptive capacity, consequences, and land use constraints for the particular resources and scenarios will need to be kept in mind as planners move into Step 4 to identify possible adaptation strategies. Updated LCP policies and ordinances should be considered to support strategy implementation over the long term.

## Step 5 – Identify equitable adaptation measures

In Steps 1-4, planners will have analyzed several possible sea level rise scenarios, and this analysis will have revealed the areas, communities, and specific coastal resources that are vulnerable to sea level rise hazards. The results should show areas that are particularly resilient to future change and trigger points at which sea level hazards will become particularly relevant to certain areas. Under Step 4, tasks 2d (identifying the *Consequences* of sea level rise impacts) and 2e (considering the *Land use constraints*) will be particularly useful in thinking through what resources are particularly vulnerable and what the local priorities may be.

In Step 5, planners should weigh information from the previous steps, keeping in mind the hazard avoidance, resource protection, and environmental justice policies of the Coastal Act, and begin identifying, choosing, and developing adaptation strategies. In practice, this may be its own iterative and multi-step process that starts with more general outreach and communication efforts about a range of adaptation concepts, followed by more specific and detailed identification of adaptation projects that will be implemented. While there is no single best approach for how to identify and begin to implement adaptation strategies, a few key stages and considerations may be helpful in guiding an adaptation planning process:

- **Meaningful Engagement**: Education and outreach efforts are critical components of adaptation planning exercises and can help generate information on and support for various adaptation approaches. It is important to coordinate with partners and include all relevant stakeholders in these processes, including providing education on these topics, to help community members understand the consequences of sea level rise and to take an active role in planning processes. As discussed elsewhere in this Guidance and in the Commission's Resources for Addressing Environmental Justice through LCPs Toolkit, outreach and engagement is an important step in rectifying historical injustices with environmental justice communities. Some equitable engagement best practices include establishing two-way communications where both local governments and environmental justice communities communicate via an equal and mutually beneficial partnership, establishing a shared understanding of expectations and limitations, and clearly explaining decisions and outcomes regarding sea level rise planning made by the local government. Local governments can also continue to improve engagement efforts by setting measures to track and evaluate engagement progress. Documenting efforts can also be helpful to share with environmental justice partners to help increase trust and transparency in the process.

- **Community Visioning**: Understanding sea level rise science, possible impacts, uncertainty, and trade-offs among various approaches can be a challenging and complex topic for many community stakeholders. Stepping back to recognize that coastal communities are dynamic places that will change over time and thinking through what a community's long-term goals are or what its vision of the future is can be a helpful first step to provide context for how to consider more specific adaptation strategies. For example, a community with a key priority of protecting recreational beach space will

likely be interested in a different set of adaptation approaches than a community with a key priority of ensuring the continuation of a vibrant harbor or working waterfront. Such visioning, when grounded in Coastal Act principles, can start to lay the foundation for how to consider different trade-offs and how to guide a holistic and balanced approach to protecting various coastal resources and development across a community and over time.

- **Consider a full range of adaptation options**: Adaptation planning processes should initially consider a wide array of options and evaluate the various trade-offs associated with each. Communities should consider how those trade-offs would relate to identified vulnerabilities, community goals, environmental justice concerns, Coastal Act requirements, and other relevant state or federal laws. The options available to minimize risks from sea level rise and protect coastal resources are dependent upon the specifics of the local community and will vary widely depending on whether the area is an urban, fully-developed waterfront, or a rural, undeveloped coastline. In undeveloped areas, the options may be clear: strictly limit new development in sea level rise hazard zones and allow natural processes to continue. In urban areas, sea level rise can present unprecedented challenges, and the options are less clear. The Coastal Act allows for protection of certain coastal-dependent development and existing structures. However, armoring can pose significant impacts to coastal resources, including public access. To minimize impacts, innovative, alternative options will be needed, such as the use of nature-based adaptation strategies to protect existing infrastructure, restrictions on redevelopment of properties in hazardous areas, managed retreat, partnerships with land trust organizations to convert at-risk areas to open space, or transfer of development rights programs. Chapter 7 describes a number of adaptation options and the types of coastal resource issues they can help address.

- **Identify preferred adaptation approaches:** After considering an array of possible options, communities should begin to identify a more specific adaptation plan for what strategies will be implemented. In practice, it is likely that a variety of adaptation options will be chosen to respond to different vulnerabilities throughout a jurisdiction as well as to reflect the different needs and goals of different types of development and different coastal resources. Overall, strategies will need to be tailored to the specific needs of each community based on the resources and development at risk, should reflect an understanding of possible impacts to coastal resources and environmental justice communities, should consider feasibility of implementation (e.g., economic and regulatory constraints), and should be developed through a public process, in close consultation with the Coastal Commission and in line with the Coastal Act.

  Note too that Section 30604(h) of the Coastal Act and the Commission's Environmental Justice Policy directs the Commission to consider environmental justice in all planning and permitting decisions, including with respect to all coastal resource issues. Oftentimes, protecting and preserving coastal resources will benefit environmental justice communities. For example, protecting coastal access and habitats benefits

environmental justice communities who rely on those spaces for lower cost recreational opportunities, cultural practices, mental health and wellness, and more. In another example, coastal agricultural lands provide important places for workers (who are often people of color who lack proper health coverage, have limited incomes, and experience higher rates of poverty and unstable housing conditions in California) to earn income, health coverage, and housing.[48] However, there may be instances in which the protection of coastal resources may create or exacerbate burdens to environmental justice communities. For example, relocation of at-risk critical infrastructure such as a wastewater treatment plant may ensure the continued functionality of that facility but may result in rate payer increases that typically come in the form of a flat rate increase due to legislation limiting utility rates. This will disproportionately burden low-income ratepayers. Identification and engagement with affected environmental justice communities is imperative to ensure that these conflicts are addressed in a manner that maximizes protection of coastal resources and uplifts environmental justice communities.

- **Consider phased adaptation options:** More detailed adaptation planning may begin to specify how different adaptation strategies and projects could be phased over time to address evolving vulnerabilities, reflect community goals, and protect coastal resources in line with the Coastal Act. Sometimes referred to as "adaptation pathways," this type of approach can provide a more defined plan for what adaptation projects will be implemented at what time periods or under what conditions. Depending on the specific context, pathways can be fairly straightforward – such as one in which near term beach nourishment or nature-based adaptation strategies are implemented before long-term retreat options that prioritize natural processes – or more complex with multiple decision points and changing approaches – such as use of multiple nature-based strategies, armoring, and realignment or retreat over different time scales. Defined triggers can specify when new strategies or specific projects should be implemented and can be based on a variety of characteristics such as sea level rise amounts, changing conditions (e.g., certain beach widths), or social aspects (e.g., number of days a Coastal Trail segment is flooded and inaccessible). Triggers can also reflect the lead times necessary for planning and implementing next steps.

  Note that phased approaches can also account for economic and feasibility factors, particularly for complex, interconnected assets like critical infrastructure. As discussed in the Coastal Commission's Critical Infrastructure Guidance, the time and complexity associated with adaptation planning, and the need to ensure that the public services provided by these assets are protected over time, will often necessitate a mix of different approaches phased over time. For example, in different situations, it may be

[48] California Department of Housing and Community Development. (2023). *Farmworkers.* https://www.hcd.ca.gov/planning-and-community-development/housing-elements/building-blocks/farmworkers., California Research Bureau. (2013). *Farmworkers in California: A Brief Introduction.* California State Library. https://latinocaucus.legislature.ca.gov/sites/latinocaucus.legislature.ca.gov/files/CRB%20Report%20on%20Farmworkers%20in%20CA%20S-13-017.pdf.

appropriate to maintain status quo repair and maintenance activities, to allow for protective armoring or nature-based strategies, to upgrade, elevate, or realign certain components, or to remove and re-site facilities over time. Economic analyses like a life cycle analysis can evaluate the costs associated with routine repair and maintenance, normal replacement/upgrades of components, and repairs and/or adaptation options associated with anticipated hazard exposure as compared to larger-scale retreat options to help determine when assets cannot function without substantial investment in new infrastructure, protective measures, or relocation. Similarly, these analyses can identify where prioritizing retreat in certain cases may help minimize long-term costs and impacts, ensuring sustainable and equitable investments. SB 272 emphasizes the need for this type of information by requiring economic impacts analyses of, at a minimum, costs to critical public infrastructure.

- **Identify specific adaptation projects:** Once a preferred adaptation approach (or set of adaptation strategies) has been identified, communities should begin to identify specific adaptation projects. In contrast with preferred adaptation approaches which may be more general—such as allowing for armoring in certain areas/for certain development, encouraging phased retreat over time, or calling for development of a beach nourishment program—this stage calls for identifying more concrete and implementable projects. Examples of these might include seeking funding for and constructing a living shoreline for a certain area, buying out properties for removal of development, acquiring land for realignment of a section of Coastal Trail, or upgrading an armoring structure to better integrate lateral or vertical public shoreline access. Identified projects can be ranked by priority, taking into consideration factors such as timing, vulnerability, and cost as well as identifying projects that are more easily achieved as compared to more complex challenges that will necessitate more planning and financial resources. This stage may also help local governments identify those strategies or projects for which additional analysis is needed, such as more detailed technical feasibility or design studies. Identifying specific adaptation projects is called out as a requirement in SB 272 and can be aligned with other planning processes such as Capital Improvement Plans or Local Hazard Mitigation Plans to further prompt on the ground implementation of these adaptation actions. Importantly, identifying specific projects, and completing more detailed feasibility/design studies for such projects, can allow jurisdictions to more easily capitalize on funding that becomes available, as new or one-time funding options often prioritize “shovel-ready” projects.

As mentioned above, identifying adaptation strategies, developing preferred approaches, and narrowing in on specific projects to be implemented will in many cases be a continuous and iterative process. This means that it is not always going to be necessary (or even possible) to have a fully-formed, perfectly defined approach before updating an LCP or starting to take certain adaptation actions. Furthermore, it is likely that adaptation strategies will be updated over time with new information, new understanding of sea level rise projections and impacts, new community goals, and so on. The Commission is supportive of working with local governments and their community partners at all stages of an adaptation planning process to

identify opportunities to integrate sea level rise into LCPs with varying levels of detail. As discussed in the next step, the Coastal Commission Local Government Working Group is supportive of taking a phased approach to LCP updates whereby initial updates could include more basic policies and future updates could include greater detail on, for example, more developed adaptation information.

**SB 272 Consistency:** SB 272 requires local governments to develop equitable adaptation approaches and specific, recommended projects that reflect identified vulnerabilities. This step provides recommendations for how to evaluate adaptation strategies in the context of the Coastal Act, discusses how to incorporate important topics like meaningful engagement and development of adaptation pathways, and recognizes that developing adaptation approaches and specific projects is an iterative process that can be done over time and with varying levels of detail.

**Expected outcomes from Step 5:** Identification of adaptation approaches and projects in adaptation plans, reports, or similar that reflect vulnerabilities, account for local goals and environmental justice communities, are consistent with the Coastal Act, and can be incorporated into an LCP in Step 6.

### Step 6 – Draft updated or new LCP for certification with the California Coastal Commission

Once potential adaptation strategies have been identified, LCP policies that address sea level rise should be incorporated into a new LCP or LCP amendment. Whether as part of a new LCP or as part of an amendment to update an existing LCP, coastal planners should work with the Coastal Commission, environmental justice communities, and relevant stakeholders at all steps, but particularly to develop new or revised land use designations, policies, standards, or ordinances to implement the adaptation strategies identified in Step 5 in the LCP.

For jurisdictions that currently do not have a certified LCP, the sea level rise policies will be part of the development of a new LCP. In areas without a certified LCP, the Coastal Commission generally retains permitting authority, and the standard of review for development is generally Chapter 3 of the California Coastal Act. An LCP as certified by the Commission should already have land use policies, standards, and ordinances to implement Coastal Act Chapter 3 policies, including policies to avoid and mitigate hazards, and to protect coastal resources. However, in older LCPs, many of these policies do not address changing conditions adequately enough to protect coastal resources over time as sea level rises. Similarly, policies to protect resources and address coastal hazards may not reflect new techniques that can be utilized to adaptively manage coastal resources in a dynamic environment. Furthermore, many older LCPs likely do not have policies relating directly to environmental justice and meaningful engagement. As

such, the LCP should be evaluated, with consideration and inclusion of environmental justice community concerns, to identify the land use designations, policies, and ordinances that need to be amended to address the vulnerabilities identified in Steps 2-4 and to integrate the adaptation approaches and projects identified in Step 5.

**General approaches for updating LCPs to address SLR:**

There are a number of overarching approaches and general recommendations for updating or developing an LCP to address sea level rise, as described below. The Commission recognizes that not all LCPs will integrate SLR adaptation approaches in the same ways or with the same level of detail. As discussed in Step 5, adaptation options should be chosen to reflect local conditions, vulnerabilities, and goals, and LCPs will in turn reflect this variation. Furthermore, it is understood that LCP adaptation policies will be developed and implemented in such a way as to be flexible and adaptive enough that they can be changed or updated as conditions change or if sea level rise impacts are significantly different than anticipated. At the same time, LCPs must be consistent with the Coastal Act and reflect the minimum requirements of SB 272. This interplay between allowing for local flexibility and maintaining a level of statewide consistency has and will continue to be a challenge. The Coastal Commission, including through its work with the Local Government Working Group, will continue to coordinate with local governments to identify opportunities, recommendations, and guidance for addressing sea level rise in LCPs in a way that meets local, Commission, and statewide goals.

- **Update or add baseline sea level rise polices:** In 2021, the Coastal Commission Local Government Working Group developed and adopted a set of baseline sea level rise policy topics that the group considered to be appropriate for a first-round sea level rise LCP update. These policy topics include: 1) using best available science, 2) committing to developing or updating vulnerability assessments and adaptation plans, 3) incorporating risk disclosures/assumption of risk, and 4) committing to a phased LCP update approach. The Working Group believes that these policy topics can lay a foundation that both substantively addresses sea level rise in the near term (even for jurisdictions that have not completed more detailed adaptation planning) and allows for the incorporation of greater amounts of detail now or in the future. These baseline policies also align with and help to implement the requirements of SB 272.

- **Update or add policies to implement identified adaptation approaches and projects:** In addition to baseline SLR policies, LCP policies should be developed that lay the foundation for, require, or otherwise implement the adaptation strategies and specific projects identified in Step 5. In some cases, updating land use designations and zoning ordinances or updating siting and design standards, as discussed below, will directly or indirectly implement identified strategies by regulating future development actions. In other cases, more specific policy language, including programmatic policies as also described below, will be needed to implement specific approaches. Chapter 7 describes a number of specific adaptation policies and strategies that can be integrated into an

LCP and is organized by resource type to allow users to easily identify the types of policies that may be relevant to local resource vulnerabilities.

Note that many adaptation strategies, and particularly the more specific adaptation projects that have been identified, will be implemented in a coordinated way through both the LCP and individual CDPs. For example, it may be necessary to update land use designations to allow for a specific adaptation project (e.g., changing zoning to open space or allowing for recreational uses/amenities), and constructing a project (e.g., dune restoration or realignment of the Coastal Trail) will then need a CDP. Identifying the appropriate level of detail in LCP policies to lay the foundation for specific adaptation projects can be challenging, especially if there are not yet the type of detailed technical studies and alternatives analyses that are typically associated with CDPs. The Coastal Commission will continue to work with local governments to develop LCP policies that integrate adaptation approaches.

- **Update land use designations and zoning ordinances**: One of the most common methods of regulating land use is through zoning designations and ordinances, and updating these policies is one of the most fundamental ways of responding to sea level rise impacts. Planners may address particular vulnerabilities and local priorities by updating land use designations and zoning ordinances to protect specific areas and/or resources. For example, areas that are particularly vulnerable to sea level rise impacts can be designated as hazard zones, and specific regulations can be used to limit new development and/or to encourage removal of existing development in such zones. Similarly, open space areas can be designated as conservation zones in order to protect and provide upland areas for beach, wetland, and habitat migration or for additional agricultural land.

- **Update siting and design standards**: Updated siting and design standards may go hand in hand with updated land use designations and zoning ordinances, in that specific standards may be required for development or projects in certain zones. For example, development in hazard zones may require additional setbacks, elevation of first floor habitable space, innovative stormwater management systems, special flood protection measures, mitigation measures for unavoidable impacts, relocation and removal triggers and methodologies, and so on. Siting and design standards may also guide or inform specific adaptation approaches. For example, many LCPs include detailed design standards for shoreline armoring, where approvable, that address methods for minimizing impacts to coastal resources (such as ensuring armoring can blend into natural bluffs or can be integrated with public access features).

- **Establish policies to minimize hazards to current development:** Under the Coastal Act, certain improvements and repairs to existing development are exempt from CDP requirements. Non-exempt improvements and any repairs that involve the replacement of 50% or more of a structure, however, generally require a CDP and must conform to

the standards of the relevant Local Coastal Program or Coastal Act.[49] Redevelopment, therefore, should minimize hazard risks from sea level rise. For structures currently sited in at-risk locations, the process of redeveloping the structure may require the structure to be moved or modified to ensure that the structure and coastal resources are not at risk due to impacts from sea level rise. As described in Guiding Principle 6, sequential renovation or replacement of small portions of existing development should be considered in total. LCPs should include policies that specify that multiple smaller renovations that amount to alteration of 50% or more of the original structure should require a CDP, and require that the entire structure to be brought into conformance with the standards of the LCP or Coastal Act.[50]

- **Identify a timeline for updates:** Both SB 272 and the CCC Local Government Working Group baseline SLR policies refer to a need to continue to update LCPs and to identify a specific timeline for doing so. As described throughout this chapter, it is understood that adaptation strategies will change over time to reflect evolving science, changing conditions, new and innovative approaches, and other factors, and LCPs will similarly need to be updated to reflect these changes. Additionally, the Local Government Working Group has emphasized the need to consider more routine and phased LCP updates not only to address evolving adaptation needs, but also to reflect different phases of adaptation planning and differing levels of detail and analysis that local governments have been able to complete. Identifying a specific timeline for updates can help to ensure that necessary next steps are completed.

  Timelines for updates should reflect a variety of factors, including how far along a jurisdiction is in their planning process, identified vulnerabilities, and any specific adaptation approaches. For example, a jurisdiction that that has not completed a vulnerability assessment or adaptation plan may include a policy calling for the development of such documents within 5 years, with an LCP update to follow based on the findings of that work. A jurisdiction that has completed more detailed adaptation planning or has developed specific adaptation pathways may have a policy (or policies) that require LCP updates following implementation of certain projects, or when certain identified triggers have been met. A timeline for updates may also be informed by economic analyses, such as the analysis SB 272 requires for critical public infrastructure.

  There are also a variety of policy approaches for incorporating timelines for updates. A general planning horizon could be associated with the overarching LCP (such as a 30-year horizon typical for General Plans) with a stated intent to comprehensively update

[49] Section 13252(b) of the Commission's regulations states that "unless destroyed by natural disaster, the replacement of 50 percent or more of a single family residence, seawall, revetment, bluff retaining wall, breakwater, groin or any other structure is not repair and maintenance under Coastal Act Section 30610(d) but instead constitutes a replacement structure requiring a Coastal Development Permit."

[50] In addition, for structures located between the first public road and the sea or within 300 feet of the inland extent of a beach or mean high tide line, improvements that increase the height or internal floor area by more than 10% normally require a CDP. (14 Cal. Code Regs §§13250(b)(4), 13253(b)(4).) Depending upon the location of the structure, smaller improvements may also require a CDP. (14 Cal. Code Regs. §§ 13250(b), 13253(b).)

the LCP at the end of the identified timeframe. More specific timeframes associated with specific adaptation strategies could be generally identified in programmatic policies, or could have specific sunset provisions (or similar provisions) that would result in different policies taking effect unless an LCP has been further updated.

Like with developing adaptation strategies, the Commission recognizes that there will be variability in how timelines for updates are developed and implemented through an LCP, as well as the extent to which minor changes or updates to Vulnerability Assessments, Adaptation Plans, or other planning documents will necessitate LCP updates. The Commission will work with local governments to identify appropriate timelines that reflect local contexts. In general, having more vulnerabilities that are left unaddressed, a lack of specificity about adaptation approaches, and/or more controversial short-term adaptation strategies may necessitate nearer term or stricter requirements for updating the LCP. It will also be important to include timelines that allow jurisdictions to fulfill the basic requirements of SB 272 by January 1, 2034, and to obtain LCP certification.

- **Update resource inventories, maps, and information on SLR impacts and environmental justice issues**: LCPs themselves can be an important place to summarize the findings of the planning documents that were developed to support the LCP update process. For example, background sections can summarize vulnerability findings, outreach efforts, and general adaptation planning work. This should also include a description of the environmental justice communities that were identified in Step 1 and how they may be more sensitive to sea level rise hazards. Specific documents could be included as LCP appendices, though the LCP should be clear that the LCP policies (not other documents) are the standard of review. Hazards maps developed as part of a vulnerability assessment may also form the basis for hazards overlay or other zoning ordinance information. Local governments may also seek to compile a set of maps that clearly show the current locations of the coastal resources present in an LCP jurisdiction (e.g., beaches and public accessways; agricultural land, wetlands, ESHA, and other coastal habitats; energy, wastewater, transportation, and other critical infrastructure; and archaeological and paleontological resources), as well as existing and future hazard areas and conditions.

- **Incorporate "programmatic" policies that reflect adaptation planning work:** In some cases, LCPs may include broader programmatic policies that don't apply to specific development or permitting actions, but which encourage or require the City/County to undertake continued study or to approach adaptation planning in certain ways. These types of policies may be helpful ways of memorializing both past and ongoing/planned adaptation work. Examples may include:

    - **Identify lead or coordinating partners:** Policies may be included that direct certain city/county departments to carry out identified adaptation strategies (e.g., Public Works or Parks and Recreation) or may call for coordinating with state agency asset managers like Caltrans or State Parks.

- **Identify next steps for adaptation planning:** Policies may call for completion of (or updates to) vulnerability assessments and adaptation plans or for development/analyses of more specific adaptation programs/strategies such as sub-area adaptation plans, a beach nourishment program, a Transfer of Development Credit program, or regional sediment management programs.
- **Establish methods to monitor local changes from sea level rise**: Policies may seek to establish actions to conduct long-term sea level rise monitoring, MHTL surveys, and/or monitoring and tracking of shoreline changes, flooding extent/frequency, or efficacy of different adaptation approaches. In some cases, monitoring and MHTL surveys may also be included as a Coastal Development Permit requirement for specific projects.
- **Research and data collection**: Similarly, policies may call for continued research to address key data gaps and to collaborate with other local, regional, and state partners to pursue new research to better understand sea level rise, baseline shoreline conditions, ecosystem responses to sea level rise, potential impacts and vulnerabilities, and the efficacy of adaptation tools.
- **Outreach and education**: Other policies may call for continued education and outreach efforts related to sea level rise and adaptation. Continued outreach with all relevant stakeholders can help generate support for ongoing adaptation planning, and continued implementation of (and refinements to) the meaningful engagement plan developed in Step 2 can help ensure that environmental justice communities continue to be fully engaged in implementation of adaptation strategies. More information on environmental justice engagement best practices is discussed in Step 1 of this Chapter and in the Resources for Addressing EJ through LCPs Toolkit.

As stated above, a more extensive and detailed list of possible adaptation strategies, including as related to specific to coastal resources and environmental justice can be found in Chapter 7. The above list and those strategies discussed in Chapter 7 should neither be considered a checklist from which all options need to be added to an LCP nor an exhaustive list of all possible adaptation strategies. Sea level rise adaptation is an evolving field and decision makers will need to be innovative and flexible to respond to changing conditions, new science, community feedback, and new adaptation opportunities. The important point is to analyze current and future risks from sea level rise, determine local priorities and goals for protection of coastal resources and development, and identify what land use designations, zoning ordinances, and other adaptation strategies can be used to meet those goals within the context of the Coastal Act and in consideration of environmental justice principles.

Local government staff should work closely with Coastal Commission staff, environmental justice communities, and other relevant stakeholders to ensure there is opportunity for early and routine public input in developing the new LCP or LCP amendments. Once the updates and plans are complete, local governments will submit them to the Commission for certification.

The Commission may either certify or reject the LCP or LCP amendment as submitted, or it may reject it but suggest modifications. If the Commission adopts suggested modifications, the local government may adopt the modifications for certification or refuse the modifications and resubmit a revised LCP for additional Commission review. More information on the LCP amendment process can be found on the Commission's webpage of Materials & Resources for Coastal Jurisdictions.

**SB 272 Consistency:** As discussed at the beginning of this chapter, SB 272 includes a set of requirements that relates to both the process of updating an LCP and the content of LCP policies themselves. This step provides general recommendations for the LCP sections and types of LCP policies that should be updated to reflect identified vulnerabilities, environmental justice concerns, and adaptation approaches. While the content and specific policies will vary in each LCP, for consistency with SB 272, the LCP should:

- Require the use of best available science
- Require risk disclosures/assumptions of risk
- Reflect and address identified vulnerabilities in an equitable manner
- Allow for/require the implementation of identified adaptation approaches for specific areas/development types
- Lay the foundation for implementation of identified adaptation projects, recognizing that CDPs for such projects will include more detail
- Identify lead agencies or departments responsible for implementing identified projects
- Identify next steps, such as highlighting topics or strategies for which additional analysis is needed (in combination with the timeline for updates)
- Identify a timeline for completion of, or updates to, the vulnerability assessment, adaptation plan, and LCP (or specific LCP policies) that reflects current information on vulnerabilities, identified adaptation strategies, and an economic impact analysis for critical public infrastructure

Note that these types of policies reflect the minimum requirements of SB 272 to be included in an LCP by January 2034. Importantly, the Coastal Commission is committed to working with local governments to support a phased approach to LCP updates in which initial updates may be built upon and further developed in future updates. The Commission will consider appropriate LCP policies and timelines for updates that reflect where in the process different jurisdictions are, and will coordinate with funding agencies to prioritize funding for appropriate next steps. For example, a more basic initial LCP update may call for (and include a timeline for) completing an adaptation plan, and funding to support such a planning effort should be prioritized.

**Expected outcomes from Step 6**: Certified/updated LCP with policies and land use designations that address sea level rise and related hazards and ensure protection of coastal resources and communities consistent with the Coastal Act.

## Step 7 – Implement LCP and monitor and revise as needed

Upon certification of the new or updated LCP, sea level rise adaptation strategies will be implemented through the certified implementing ordinances and related processes and actions (e.g., local review of CDPs, proactive action plans). Additionally, an important component of successful adaptation is to secure funds for implementation, regularly monitor progress and results, continue engagement with environmental justice communities, and update policies, approaches, and projects as needed and in line with the identified timeline for updates. Sea level rise projections should also be re-evaluated and updated as necessary.

- **Secure resources for implementation:** SB 272 calls for funding for implementation of identified adaptation strategies and projects to be prioritized for those jurisdictions that have completed an LCP update consistent with the relevant guidelines described in this document. As highlighted above, the Commission will work with funding agencies to prioritize funding for implementation of next steps identified in certified LCPs, including funding for continued planning, analysis, and construction of identified adaptation strategies.

  Currently, there are a number of different sources of funds available to help local governments plan and implement adaptation strategies. For example, the Coastal Commission, the Ocean Protection Council, and the Coastal Conservancy have grant programs designed to support local adaptation efforts (see Appendix C for additional details on each of these programs), including significant funds for efforts such as sea level rise vulnerability assessments, adaptation planning, more specific studies such as feasibility assessments and preliminary designs, and implementation of adaptation projects.

  As described previously, there may also be overlap between LCP planning and Local Hazard Mitigation planning. FEMA's Hazard Mitigation Assistance (HMA) grant programs provide significant opportunities to reduce or eliminate potential losses to State, Indian Tribal governments, and local assets through hazard mitigation planning and project grant funding. Currently, there are several programs that provide funding resources for local communities: the Hazard Mitigation Grant Program (HMGP); Pre-Disaster Mitigation (PDM); Flood Mitigation Assistance (FMA); and the Building Resilient Infrastructure and Communities program (BRIC).[51] Cal OES administers the HMA and

[51] Each HMA program was authorized by separate legislative action, and as such, each program differs slightly in scope and intent.

FMA programs. More information can be found at the Cal OES HMGP website and the FEMA HMA website.

The Commission recognizes that funding opportunities are constantly evolving, that demand for funding is increasing, and that there is a significant need for the development of additional funding opportunities.

- **Identify key conditions, resources, and other factors to monitor:** Implementation of certain strategies and future updates to the LCP may be triggered by changing conditions or other identified factors. As discussed previously, these could include characteristics such as sea level rise amounts, changing conditions (e.g., certain beach widths), economic considerations (e.g., damage repair costs), or social aspects (e.g., number of days a Coastal Trail segment is flooded and inaccessible). Certain species can also be indicators of whether and when sea level rise is affecting an ecosystem, such as the presence of certain plant species indicating the salinity of soils. Monitoring programs should ensure that these triggers are recognized and responded to at the appropriate time.

- **Continue engagement with environmental justice communities:** Continued engagement with environmental justice communities will maintain a level of ongoing trust and relationship building even after the adoption of an LCP. Increased trust and partnership between environmental justice communities and the local government can be widely beneficial and can potentially streamline future outreach regarding specific projects or additional updates. Examples of ongoing outreach practices include periodic calls or emails and participation in neighborhood workshops and events to provide updates and an outlet for continuous feedback. Such feedback evaluations can be used as a resource for planners to learn what communication methods work for particular groups and what can be adjusted.

- **Periodically update LCPs:** As discussed in previous steps, local governments should review their vulnerability and risk assessments and adaptation plans on a regular basis as significant new scientific information becomes available, as conditions change, and as various strategies are implemented, and they should propose amendments as appropriate. Given the evolving nature of sea level rise science, policies may need to be updated as major scientific advancements are made, changing what is considered the best available science. It will likely be important to modify maps of current and future hazard areas on a five- to ten-year basis or as necessary to allow for the incorporation of new sea level rise science, monitoring results, and information on coastal conditions. Regular evaluation of LCPs is important to make sure policies and adaptation strategies are effective in reducing impacts from sea level rise.

**SB 272 Consistency:** SB 272 requires local governments to identify a timeline for updates to the LCP. This step reiterates the importance of periodically updating the LCP and describes implementation of the LCP and identified adaptation strategies.

**Expected outcomes from Step 7**: Implementation of the LCP and identified adaptation projects; a plan to monitor the LCP planning area for changing conditions and effectiveness of various adaptation strategies; ongoing communication and coordination with environmental justice communities and organizations that serve them; and a plan to update and revise the LCP (and relevant vulnerability assessments and adaptation plans) based on an identified timeline.

The box below provides a summary of the components needed for consistency with SB 272 and a description of the minimum requirements for each component, as discussed throughout this chapter. Following this summary box is a flowchart (Figure 14) that illustrates the seven-step process discussed in this chapter. Notice that the process is circular. Because sea level rise science and adaptation approaches will be refined and updated in the future, planners should periodically, and in line with the identified timeline, repeat this seven-step process to update and improve their LCPs.

For additional resources and examples of ways to incorporate sea level rise into the LCP, see Appendix C.

## Summary of Minimum Requirements for Consistency with SB 272

SB 272 requires local governments in the coastal zone to develop a sea level rise plan as part of a new or updated LCP that includes, at a minimum, the following components:

1. Use of best available science
2. A vulnerability assessment that includes efforts to ensure equity for at-risk communities
3. Sea level rise adaptation strategies and recommended projects
4. Identification of lead planning and implementation agencies
5. An economic impact analysis of, at a minimum, costs to critical public infrastructure
6. A timeline for updates, as needed, based on sea level rise projections, local conditions, identified adaptation strategies/projects, and other locally relevant factors

SB 272 applies to both the *process* for updating an LCP as well as the *policy content* of the LCP itself. Although the Coastal Commission does not certify documents such as vulnerability assessments and adaptation plans, for the Commission to certify an LCP as consistent with the requirements of SB 272, the LCP must include policies that reflect, allow for, or otherwise reference the findings of these other documents. Therefore, both the LCP and the associated planning documents must meet certain minimum requirements. These minimum requirements are summarized below. Information on LCP policies and options that would reflect a phased approach to LCP updates is included at the end of this box.

**To be fully consistent with SB 272, by January 1, 2034, local governments must complete the six components listed above. More detail on and minimum requirements for each of the six components are summarized below, along with links to additional relevant discussion throughout this chapter. Jurisdictions must then incorporate that greater level of detail in a new or updated LCP. Minimum requirements for LCP policies/zoning that reflect these six components are highlighted following the details for the six components.**

**Component #1: Best Available Science**

- LCP policies must require the use of best available science, currently identified as the 2024 California State Sea Level Rise Guidance, to guide land use planning and permitting decisions and inform risk disclosures/assumptions of risk.
- Other key resources for sea level rise information, including mapping tools, are highlighted throughout the Guidance (see, e.g., Chapter 3; Table 6; Appendices B and C).

**Component #2: SLR Vulnerability Assessment**

- Use of best available science (**Component #1**) (see Chapter 3).
- Consideration of multiple sea level rise scenarios that cover a long-term planning horizon (through ~2130) (see Step 2).
- Analysis of the physical impacts of sea level rise, including assessing coastal hazards that will be exacerbated by sea level rise (e.g., flooding, erosion, groundwater change) (see Step 3; Appendix B).
- Analysis of how sea level rise and changing coastal hazards will impact coastal resources and development, including but not limited to coastal-dependent development, critical infrastructure, public accessways, the Coastal Trail, beaches, wetlands, agricultural lands, cultural sites, and archaeological resources (see Step 4).
- Identification of EJ communities that may be impacted by sea level rise and consideration of how sea level rise may differentially impact EJ communities (see Chapter 4; Steps 1 and 4).

- Discussion of the findings of the vulnerability assessment including, maps, tables, descriptions, and other quantitative and qualitative information.
- Public outreach, engagement, and education regarding impacts from sea level rise (see Chapter 4; Step 1).
- **Beyond the minimum requirements** – topics for more detailed analyses or refinements to the Vulnerability Assessment:
    - Development of additional technical information to fill specific data gaps, such as more detailed groundwater analyses or consideration of impacts exacerbated by other climate change stressors.
    - Analysis of additional sea level rise scenarios.

**Component #3: Adaptation Plan with Strategies and Recommended Projects** (see Step 5)

- Use of best available science (**Component #1**) (see Chapter 3).
- Consideration of a range of sea level rise adaptation options. Such options may include, but are not limited to, nature-based adaptation options, retreat and realignment, armoring, elevation, stormwater management, and conservation of open space (see Chapter 7).
- Analysis and discussion of the pros and cons of different adaptation strategies, including a discussion of the consistency of adaptation options with the Coastal Act and other relevant laws/policies and how various strategies will have differential impacts to different types of coastal resources.
- Analysis and discussion of how different adaptation strategies may differentially impact EJ communities (see Chapter 4; Steps 1 and 4).
- Analysis and discussion of the applicability of different adaptation options for the jurisdiction (or for various sub-areas, development types, habitat areas, assets, etc.), and what the consequences/results for implementing different strategies would be for the jurisdiction. Analysis/discussion may initially be high-level or conceptual, with more detailed analysis subject to future planning efforts, which may be reflected in an identified timeline for updates, per **Component #6**.
- Identification of conceptual preferred approach (or combination of approaches) and discussion of how such an approach will ensure equity and balanced protection of coastal resources.
- Identification of specific adaptation projects. Unlike higher level, conceptual ideas, this list should include more concrete and implementable projects or next steps that are geared for completion in the near term (e.g., 10 years), such as constructing a living shoreline for a certain area, buying out properties for removal of development, acquiring land for realignment of a section of Coastal Trail, or upgrading an armoring

structure. Identification of specific adaptation projects may be the subject of a future planning effort (reflected in an identified timeline for updates, per **Component #6**).

- Identification of lead agencies, asset managers, or other entities responsible for carrying out adaptation approaches and identified projects (**Component #4**).
- Public outreach, engagement, and education regarding sea level rise adaptation strategies (see Chapter 4; Step 1).
- **Beyond the minimum requirements** – topics for more detailed analyses or refinements to the Adaptation Plan:
    - Development of a vision/goal statement(s) and analysis and discussion of how different adaptation strategies may support the identified vision/goals.
    - Completion of feasibility studies or other planning/assessment work to aid in refining preferred adaptation approaches.
    - Development and identification of adaptation strategies relevant to certain sub-areas, neighborhoods, assets, development types, etc. based on shared characteristics.
    - Identification of additional, specific adaptation projects or prioritization of various identified projects.
    - Development of phased adaptation approaches or adaptation pathways, along with relevant triggers and threshold conditions for implementing new strategies.

**Component #4: Identification of lead planning and implementation agencies** (Step 1)

- While SLR planning processes may be initiated or led by a variety of local government departments/individuals, LCPs are developed by local government planning departments, and planning department staff should be an integral part of any planning team.
- LCP policies related to specific adaptation projects, other next steps, or which address City/County-owned assets should identify the lead agency, asset manager, or other entity responsible for carrying out adaptation approaches/identified projects. This information may also be included in the Adaptation Plan (**Component #3**).

**Component #5: Economic Analysis**

- Economic analysis for, at a minimum, critical public infrastructure, defined in SB 272 as including but not limited to "…transit, roads, airports, ports, water storage and conveyance, wastewater treatment facilities, landfills, powerplants, and railroads." Other critical infrastructure types that should be considered include sewer lines, stormwater facilities, gas lines, and other utility infrastructure.

- Analysis of the costs associated with damage to such critical infrastructure assets from the coastal hazards and SLR scenarios included in the vulnerability assessment, and the subsequent required repairs (see Step 4).
- Analysis of costs associated with adaptation options or specifically identified adaptation projects for such assets (see Step 5).
- Information may be incorporated into the Vulnerability Assessment or Adaptation Plan, or as a standalone document(s). Analyses may also be completed by relevant asset managers.
- **Beyond the minimum requirements** – topics for more detailed analyses or refinements to the Economic Analysis:
    - Completion of an economic analysis that addresses other coastal resources.
    - Assessment of the costs of each of the identified adaptation projects (**Component #3**)
    - Incorporation of more detailed economic information, such as non-market valuation of public trust and natural resources or valuation of lost revenues or tax base associated with changing land uses.
    - Coordination with asset managers to complete life cycle analyses for individual assets/facilities that evaluates the costs associated with routine repair and maintenance, normal replacement/upgrades of components, and repairs and/or adaptation options associated with anticipated hazard exposure as compared to larger-scale retreat options to help determine when assets cannot function without substantial investment in new infrastructure, protective measures, or relocation.

**Component #6: Timeline for updates** (Steps 6 and 7)

- LCP policies must identify an explicit timeline(s) for updates to completed vulnerability assessments, adaptation plans, other relevant materials, and LCP provisions, as necessary to reflect changing conditions, updated science, and evolving best practices.
- Continued consistency with SB 272 will require local governments to meet the identified deadlines.

**As discussed above, to be consistent with SB 272, jurisdictions are required to complete/develop each of the six components identified above by January 1, 2034. Thereafter, they must obtain CCC certification of a new or updated LCP that reflects this greater level of detail for the plans to become effective and to be prioritized for adaptation funding. Minimum requirements for the LCP certification for this purpose include** (Step 6)**:**

- LCP policies that require use of best available science.
- LCP policies that require risk disclosures/assumptions of risk.

- LCP policies/zoning that reflect and address identified vulnerabilities in an equitable manner.
- LCP policies/zoning that allow for/require the implementation of identified adaptation approaches for specific areas/development types.
- LCP policies/zoning that lay the foundation for implementation of identified adaptation projects, recognizing that CDPs for such projects will include more detail.
- LCP policies that identify lead agencies or departments responsible for implementing identified projects.
- LCP policies that identify next steps, such as highlighting topics or strategies for which additional analysis is needed (in combination with the timeline for updates).
- LCP policies that identify a timeline for updates to the vulnerability assessment, adaptation plan, economic analysis, and other relevant studies to reflect, for example, new information on sea level rise science, vulnerabilities, changing conditions, new adaptation options, and completion of specific adaptation projects, as well as for subsequent updates to the LCP (or specific LCP policies).

**The Coastal Commission supports a phased approach towards LCP updates. A number of jurisdictions have initiated planning and have completed some but not all of the six components required by SB 272. Rather than waiting for completion of all six components, the Commission encourages jurisdictions to complete phased LCP updates that reflect completed work. Examples of LCP policies that could be included in a phased LCP update include:**

- Baseline sea level rise policies, similar in nature to those recommended by the Coastal Commission Local Government Working Group, including requirements to use best available science (**Component #1**) and to incorporate risk disclosures/assumptions of risk.
- Policies like those included in the section above that reflect information that has already been developed. For example, if a jurisdiction has completed a vulnerability assessment but not an adaptation plan, additional policies/zoning should address and reflect the identified vulnerabilities.
- LCP policies that include explicit timelines (**Component #6**) for completion of a vulnerability assessment, adaptation plan, economic analysis, or related document/study that addresses the six minimum components (or any combination thereof that has not yet been completed and/or will be the subject of continued, more detailed planning). Such timelines should account for completion of these components by January 1, 2034, and the subsequent LCP certification that reflects the more detailed information.

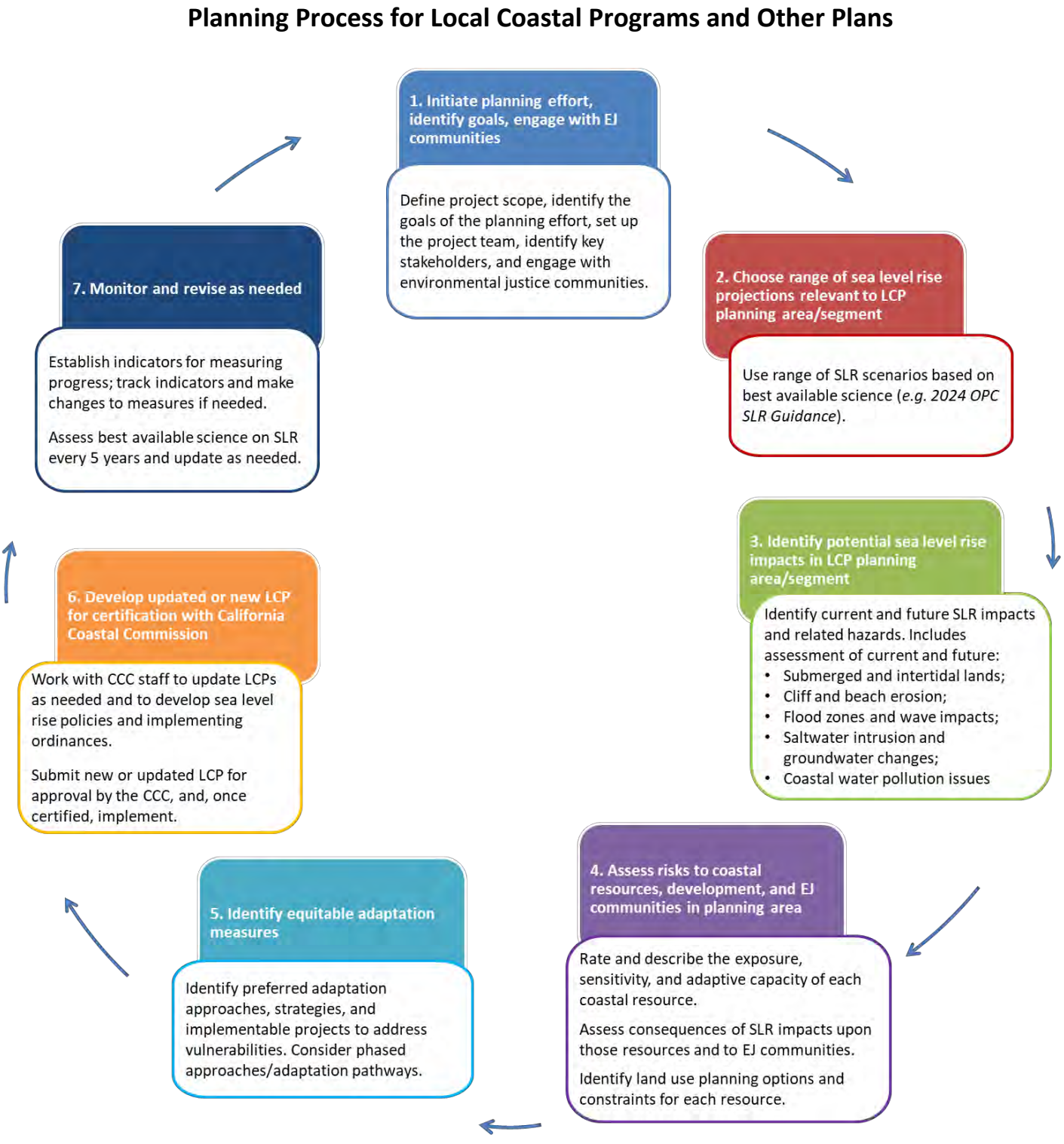



Figure 14. Flowchart for addressing sea level rise in Local Coastal Programs and other plans



# Chapter 6. Addressing Sea Level Rise in Coastal Development Permits

Development in the coastal zone generally requires a Coastal Development Permit (CDP).[52] In areas of retained jurisdiction and areas without a certified Local Coastal Program (LCP), the Commission is generally responsible for reviewing the consistency of CDP applications with the policies of Chapter 3 of the Coastal Act (Public Resources Code Sections 30200-30270).[53] In areas with a certified LCP, the local government is responsible for reviewing the compliance of CDP applications with the requirements of the certified LCP and, where applicable, the public access and recreation policies of the Coastal Act. Certain local government actions on CDP applications are appealable to the Commission. On appeal, the Commission also applies the policies of the certified LCP and applicable public access and recreation policies of the Coastal Act.[54] The Commission and local governments may require changes to the project or other mitigation measures in order to assure compliance with Coastal Act policies or LCP requirements by both minimizing risks to the development from coastal hazards and avoiding or compensating for impacts to coastal resources.

The Coastal Act, the LCP, and the CDP Application cover the broad range of information and analyses that must be addressed in a CDP application. This CDP guidance focuses only on sea level rise and those conditions or circumstances that might change as a result of changing sea level. It does not address other Coastal Act or LCP requirements.

Adopting or updating LCPs as recommended in this Guidance should facilitate subsequent review of CDPs. LCPs can identify areas where close review of sea level rise concerns and related environmental justice impacts is necessary and where it is not. If kept up to date, they can also provide information for evaluation at the permit stage and specify appropriate mitigation measures for CDPs to incorporate.

Sea level rise will be important for some, but not all, of the projects reviewed through the CDP process. Locations currently subject to inundation, flooding, groundwater rise, wave impacts, erosion, or saltwater intrusion will be exposed to increased risks from these coastal hazards

[52] Coastal Act Section 30106 defines "Development" to be, “on land, in or under water, the placement or erection of any solid material or structure; discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not limited to, subdivision pursuant to the Subdivision Map Act (commencing with Section 66410 of the Government Code), and any other division of land, including lot splits, except where the land division is brought about in connection with the purchase of such land by a public agency for public recreational use; change in the intensity of use of water, or of access thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; and the removal or harvesting of major vegetation other than for agricultural purposes, kelp harvesting, and timber operations which are in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practice Act of 1973 (commencing with Section 4511).”

[53] The Commission retains CDP jurisdiction below mean high tide and on public trust lands.

[54] Local governments may assume permitting authority even without a fully certified LCP (*see* Public Resources Code, §§ 30600(b), 30600.5), but only the City of Los Angeles has done so. Any action on a CDP application by a local government without a fully certified LCP may be appealed to the Commission. (Public Resources Code, § 30602.)

with rising sea level and will require review for sea level rise effects on coastal resources, public access, and environmental justice communities. Locations close to, or hydraulically connected to these at-risk locations, will themselves be at risk as sea level rises and increases the inland extent of these hazards. The following box provides some of the general situations for which sea level rise will need to be included in the project analysis.

**General situations when sea level rise should be considered in the project analysis include when the project or planning site is:**

1. Currently in or adjacent to an identified floodplain (e.g., FEMA flood zone)
2. Currently or has been exposed to flooding or erosion from waves or tides
3. Currently in a location protected by constructed dikes, levees, bulkheads, or other flood-control or protective structures
4. On or close to a beach, estuary, lagoon, or wetland
5. On a coastal bluff with historic evidence of erosion
6. Reliant upon shallow wells for water supply
7. Shown as exposed to hazards under the 2.0m SLR scenario on a SLR viewer such as CoSMoS

Many of the projects reviewed through the CDP application process already examine sea level rise as part of the hazards analysis. Such examination will need to continue, and these guidelines offer direction and support for a thorough examination of sea level rise and its associated impacts based on current climate science, coastal responses to changing sea level and storm events, and consequences of future changes.

To comply with Coastal Act Section 30253 or the equivalent LCP section, projects will need to be sited, designed, or otherwise include adequate adaptation plans for the changing water levels and associated impacts that might occur over the life of the development. In addition, project planning should anticipate the migration and natural adaptation of coastal resources (beaches, access, wetlands, *etc.*) due to future sea level rise conditions in order to avoid future impacts to those resources from the new development. Projects should also consider the equitable distribution of burdens to environmental justice communities, including how the project itself may create disproportionate burdens as well as how any adverse impacts to coastal resources considering sea level rise could exacerbate existing burdens. Conducting outreach and engaging with affected environmental justice communities is key to understanding relevant issues and concerns so that impacts can be avoided or minimized. As LCPs are updated to reflect changing conditions and to implement sea level rise adaptation strategies, it will be important that CDPs are also conditioned and approved in ways that similarly emphasize an adaptive approach to addressing sea level rise hazards. Such

coordination between LCP and CDP adaptation policies and strategies will help ensure that coastal development, communities, and resources are resilient over time.

## Steps for Addressing Sea Level Rise in Coastal Development Permits

The steps presented in Figure 15 and described in more detail below, provide general guidance for addressing sea level rise in the project design and permitting process for those projects where sea level rise may contribute to or exacerbate hazards, impact coastal resources, and affect surrounding environmental justice communities.

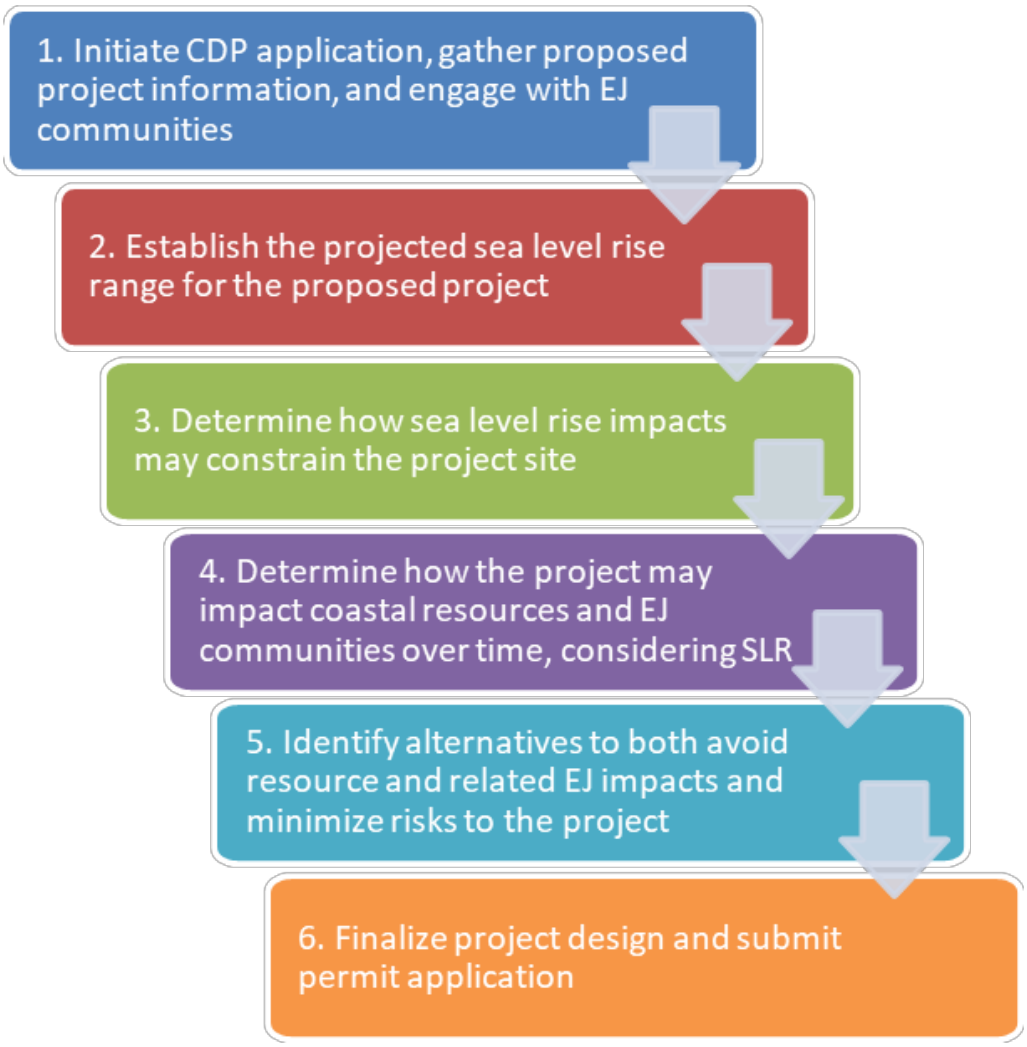



Figure 15. Process for addressing sea level rise in Coastal Development Permits

The goal of these steps is to ensure that projects are designed and built in a way that minimizes risks to the development and avoids impacts to coastal resources, including that these impacts do not exacerbate burdens to environmental justice communities in light of current conditions and the changes that may arise over the life of the project. Many project sites and proposed

projects may raise issues not specifically contemplated by the following guidance steps or the permit filing checklist at the end of this section. It remains the responsibility of the project applicant to adequately address these situations so that consistency with the Coastal Act and/or LCP may be fully evaluated. There are many ways to evaluate and minimize the risks associated with sea level rise, and the Commission understands that different types of analyses and actions will be appropriate depending on the type of project or planning effort. The following steps describe these concepts in more detail.

**Use scenario-based analysis**

This Guidance recommends using various sea level rise scenarios for the analysis of possible resource changes and site risks associated with sea level rise. Given the uncertainty about the magnitude and timing of future sea level rise, a scenario-based analysis will examine the consequences of a range of situations rather than basing project planning and design upon one sea level rise projection.

One approach for scenario-based analysis is to start with the highest sea level rise scenario relevant to the type of development at hand (High, Intermediate-High, or Intermediate, see Chapter 3 and Step 2 below). If a developable area can be identified that is at no or low-risk from inundation, flooding, and erosion, then there may be no benefit to undertaking additional analysis for sea level rise and the project can continue with the rest of the analyses that are part of the Coastal Act or LCP (coastal habitats, public access, scenic and visual qualities, and other issues unrelated to sea level rise).

If the site is constrained under the highest sea level rise scenario that is analyzed, additional analysis of other, lower sea level rise amounts can help determine thresholds for varying impacts to coastal resources (including how those impacts affect environmental justice communities), and types and extent of site constraints that need to be considered during project planning. The analyses of lower and intermediate sea level rise projections are used to better understand the timing and probability of the constraints. For further description of scenario-based analysis, see Chapter 3 of this Guidance.

## Step 1 – Initiate CDP application, gather proposed project information, and engage with environmental justice communities

Similar to the process for addressing sea level rise in an LCP, the first step in considering how sea level rise may affect a proposed project is to define the scope of the project and begin to gather relevant information that will be needed to inform the following steps. This includes gathering project-specific and site-related materials such as blueprints, site plans, and information regarding on-site and nearby coastal resources that will be used to inform the hazards and resource analyses described in the following steps. An important part of this step is to identify and engage with environmental justice communities who could be impacted by the proposed project. The following section describes steps and best practices for meaningfully

engaging with environmental justice communities. Note that, as discussed in Chapter 4, environmental justice is inclusive of tribal and indigenous communities, but these communities also experience distinct and unique challenges. The rest of this section touches on broader environmental justice concerns. Local governments are encouraged to consult the Commission's Tribal Consultation Policy and coordinate with the California Native American Heritage Commission for support with engaging with tribal communities in and around the project area.

It is important to note that the type and scope of the proposed project may affect the type and level of community engagement, as well as the level of detail and types of hazard and resource analyses necessary. For example, siting of a new industrial facility will likely raise greater concerns from both an environmental justice perspective and a sea level rise perspective (and the interplay of both issues as well as other Coastal Act topics) than the siting of a single-family residential structure in an infill area away from the shorefront. In some cases, a variety of hazard and environmental justice information may already be available from LCP update work as described in Chapter 5, or from similar planning and engagement efforts. However, this type of information may need to be refined for site specific purposes, or new or updated information may be necessary.

Throughout the CDP analysis, applicants are advised to contact planning staff (either at the Commission or the local government, whichever is appropriate) to discuss the proposed project, project site, and possible resource or hazard concerns. Applicants are also encouraged to contact the Commission's Environmental Justice Team (or relevant local government staff) to discuss meaningful engagement strategies and best practices and potential concerns or impacts from sea level rise to environmental justice communities. The extent and frequency of staff coordination and public engagement may vary with the scale of the proposed project and the constraints of the proposed project site. The following section discusses methods and best practices for meaningful engagement with environmental justice communities, and additional detail information can be found in Chapter 5.

### MEANINGFUL ENGAGEMENT WITH ENVIRONMENTAL JUSTICE COMMUNITIES

As highlighted above, the type and extent of engagement efforts with environmental justice communities will vary depending on the type and scope of a proposed project. The Commission's Environmental Justice Policy expands upon on the Coastal Act's mandate to provide the widest opportunity for public participation by expressly recognizing that environmental justice communities are valuable stakeholders in the protection and enjoyment of the coast. As such, this step aims to recognize and set the stage to engage with these communities that have been historically excluded from planning and permitting decisions and from accessing the benefits of coastal development and resources. This step also helps to identify any potential environmental justice concerns and impacts early in the application process to ensure they can be adequately evaluated and accounted for throughout the analysis process. Importantly, applicants should be aware that even though their project may not be

located in or near an environmental justice community, individuals may still be affected by the proposed project including workers, visitors, or commuters from these communities.

The questions below are provided as examples for applicants to consider in identifying environmental justice communities and determining the level of engagement with affected communities. Please note that these questions are not exhaustive, and a project may have unique circumstances that warrant outreach and engagement with environmental justice communities.

- Is there an environmental justice community in or near the project area? If the project is not in or near an environmental justice community, are individuals from underserved communities affected in other ways (workers, visitors, unsheltered individuals, etc.)? Are underserved communities in the broader region or state affected by the project?
- How might surrounding environmental justice community members interact with or be affected by the proposed project?
- Are there community members that have expressed opposition to the application due to environmental justice concerns?

**Use mapping tools to identify environmental justice communities**

Identifying environmental justice communities in and around a project location as well as environmental justice communities that use, have an important connection to a project location, or otherwise are directly affected by the sea level rise range determined in Step 2 is a core step in the outreach and engagement process. As described in Chapter 5, there are several resources that can aid in this step. Applicants are also encouraged to contact their local government office who may have additional survey data on use of an area that may be informative (e.g., cellular surveys of beach use that identifies where beach users travel from).

- Coastal California Environmental Justice Mapping Tool: Commission staff developed the Coastal California Environmental Justice Mapping Tool, which can be used to assist in the identification and analysis of environmental justice communities and future sea level rise scenarios. This mapping tool compiles public information (including some information available on CalEnviroScreen and EPA EJScreen) such as socioeconomic data, sea level rise projections, Coastal Zone Boundary, LCP segments, and coastal public access points.
- CalEnviroScreen: A mapping tool created by CalEPA Office of Environmental Health Hazards Assessment to identify California communities most affected by multiple sources of pollution. CalEnviroScreen uses environmental, health, and socioeconomic information to produce scores for every census tract in California, which are mapped to compare how pollution burden varies among communities.
- Cal EPA's SB 535 Disadvantaged Communities map: This map shows the disadvantaged communities designated by CalEPA for the purpose of SB 535. These areas represent the 25% highest scoring census tracts in CalEnviroScreen 4.0.

- EPA EJScreen: EJScreen is an EPA's environmental justice mapping and screening tool that provides EPA with a nationally consistent dataset and approach for combining environmental and demographic socioeconomic indicators.
- CA State Parks' Outdoor Equity Program Community FactFinder: A mapping tool created by California State Parks to identify and visualize communities' access to parks and open spaces, using environmental, health, and socioeconomic data to highlight areas with the greatest need for improved outdoor equity and access.
- U.S. Census Data: The U.S. Census Bureau provides data about the nation's people and economy. Every 10 years, it conducts a census counting every resident in the United States. The Census Bureau provides a variety of tools (including the EPA EJScreen) to identify environmental justice communities.

In addition to information that can be gathered from the tools listed above, applicants should also consider obtaining qualitative information about environmental justice communities. This information can be gathered from meetings with community members and organizations and social and local news media as well as contacting the local government. As detailed in SB 272, local governments are now required to conduct a vulnerability assessment that includes an assessment of environmental justice communities, identified as at-risk communities, so some of this information may already be available. Project applicants should contact their local government for help with information gathering regarding environmental justice communities in and around, and with connections to, the project site.

As discussed in Chapter 5, understanding historic and current burdens experienced by environmental justice communities can inform more equitable project alternatives and outcomes. However, the level of research that an applicant should conduct to understand the specific reasons that distinguish environmental justice communities from other populations depends on the scale and impact of the proposed project. For example, development of critical infrastructure (such as a wastewater treatment plant) that would have considerable public health, public safety, or environmental impacts are encouraged to explore and note the historic and current burdens of environmental justice communities who may be impacted by the proposed project to ensure that the project does not further exacerbate burdens.

**Expected outcomes from Step 1:** Initiation of CDP application process, identification of project scope, informational materials, and environmental justice communities in or near the project site or that have an important connection to the project location.

### *S*tep 2 – Establish the projected sea level rise range for the proposed project

A range of sea level rise scenarios should be obtained from the best available science, which is summarized below as well as in Chapter 3, Appendix A, and the State Sea Level Rise Guidance

(OPC 2024). These scenarios should cover the expected life of the proposed project, as the ultimate objective will be to assure that the project is safe from coastal hazards, without the need for shoreline protection or other detrimental hazard mitigation measures, over its lifetime.

- **Define Expected Project Life**: The expected project life will help determine the amount of sea level rise to which the project site could be exposed while the development is in place. Importantly, the point of this step is not to specify exactly how long a project will exist (and be permitted for), but rather to identify a project life timeframe that is typical for the type of development in question so that the hazard analyses performed in subsequent steps will adequately consider the impacts that may occur over the entire life of the development.

  Some LCPs include a specified design life for new development. If no specified time frame is provided, a more general range may be chosen based on the type of development. For example, temporary structures, ancillary development, amenity structures, or moveable or expendable construction may identify a relatively short expected life such as 25 years or less. Residential or commercial structures will likely be around for some time, so a time frame of 75 to 100 years may be appropriate. A longer time frame of 100 years or more should be considered for critical infrastructure like bridges or industrial facilities and for subdivisions of land. Resource protection or enhancement projects such as coastal habitat conservation or restoration projects should also consider longer time frames of 100 years or more, as these types of projects are typically meant to last in perpetuity.[55]

- **Determine Sea Level Rise Range:** Using the typical project life identified above, the project analysis should identify a range of sea level rise scenarios based on the best available science that may occur over the life of the project. At present, the State Sea Level Rise Guidance (OPC 2024) is considered to be the best available science (see Chapter 3 and Appendix A for more information) though an equivalent resource may be used provided that it is peer-reviewed, widely accepted within the scientific community, and locally relevant. The State Guidance includes a set of sea level rise scenarios for statewide use (Table 7), as well as scenarios for each of the 14 tide gauges in California (Appendix F). Project applicants should identify appropriate scenarios (as described below) from the tide gauge closest to the project location.[56]

[55] Determining an anticipated life for restoration activities or other related projects is somewhat more complex than for typical development projects because these activities are typically meant to exist in perpetuity. As such, assessing sea level rise impacts may necessitate analyzing multiple different time frames, including the present, near future, and very long term depending on the overall goals of the project. For restoration projects that are implemented as mitigation for development projects, an expected project life that is at least as long as the expected life of the corresponding development project should be considered.

[56] More detailed refinement of sea level rise scenarios is not considered necessary at this time, as variations from the nearby tide gauges will often be quite small, and may be insignificant compared to other sources of

As explained in Chapter 3, the State Sea Level Rise Guidance (OPC 2024) offers the following framework to generally guide the selection of sea level rise scenarios to include in technical analyses, including at the project level and in broader vulnerability assessments:

1. *Intermediate Scenario*: The Intermediate scenario should be included in technical analyses for development with low risk aversion, i.e., development that would have limited consequences or a higher ability to adapt, such as some ancillary development or public access amenities like sections of unpaved coastal trail, public accessways, and other small or temporary structures that are easily removable and would not have high costs if damaged.
2. *Intermediate-High Scenario*: The Intermediate-High scenario should be included in technical analyses for development with medium-high risk aversion, i.e., development that would experience greater consequences and/or have a lower ability to adapt, such as most residential and commercial structures.
3. *High Scenario*: The High scenario should be included in technical analyses for development with extreme risk aversion, i.e., development with little to no adaptive capacity that would be irreversibly destroyed or significantly costly to repair, and/or would have considerable public health, public safety, or environmental impacts should that level of sea level rise occur. In the Coastal Commission's jurisdiction, this could include new wastewater treatment plants, power stations, highways, or other critical infrastructure.

In general, the Coastal Commission recommends taking a precautionary approach by evaluating the higher sea level rise scenarios, such as the Intermediate-High scenario, for most development. For critical infrastructure, development with a very long project life (e.g., 100 years or greater), or assets that have little to no adaptive capacity, that would be irreversibly destroyed or significantly costly to repair, and/or would have considerable public health, public safety, or environmental impacts if damaged, the analysis should consider the High scenario.[57] Considering these higher end amounts of sea level rise is important for understanding what types of planning and adaptation options may be necessary if worst case scenarios come to pass, or to inform decisions for new development with long lifetimes that would be hard to relocate, remove, or otherwise adapt to higher amounts of sea level rise in the future. In addition, analysis of lower sea level rise amounts may assist in identification of tipping points, or amounts of sea level rise or other combinations of hazard conditions that could lead to significant impacts and warrant adaptive responses. These considerations should each be carried forward through the rest of the steps in this chapter.

uncertainty. However, the Coastal Commission recognizes that other studies exist with localized data, for example those completed in the Humboldt Bay region, which may also be appropriate for use.

[57] For more information on sea level rise planning for critical infrastructure, see also the Coastal Commission's Critical Infrastructure at Risk planning guidance.

**Expected outcomes from Step 2**: A proposed or expected project life and corresponding range of sea level scenarios—up to and including a relatively high, precautionary scenario relevant to the planning/project context —that will be used in the following analytic steps.

Table 7. Sea Level Rise Scenarios for California [58]

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 |
| **2040** | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
| **2050** | 0.5 | 0.6 | 0.8 | 1.0 | 1.2 |
| **2060** | 0.6 | 0.8 | 1.1 | 1.5 | 2.0 |
| **2070** | 0.7 | 1.0 | 1.4 | 2.2 | 3.0 |
| **2080** | 0.8 | 1.2 | 1.8 | 3.0 | 4.1 |
| **2090** | 0.9 | 1.4 | 2.4 | 3.9 | 5.4 |
| **2100** | 1.0 | 1.6 | 3.1 | 4.9 | 6.6 |
| **2110** | 1.1 | 1.8 | 3.8 | 5.7 | 8.0 |
| **2120** | 1.1 | 2.0 | 4.5 | 6.4 | 9.1 |
| **2130** | 1.2 | 2.2 | 5.0 | 7.1 | 10.0 |
| **2140** | 1.3 | 2.4 | 5.6 | 7.7 | 11.0 |
| **2150** | 1.3 | 2.6 | 6.1 | 8.3 | 11.9 |

[58] This table provides median values for sea level scenarios for California, in feet, relative to a year 2000 baseline. These statewide values all incorporate an average statewide value of vertical land motion – a negligible rate of 0.1 mm (0.0003 ft) per year uplift (OPC 2024). The red box highlights the three scenarios that the *State Sea Level Rise Guidance* and this guidance recommend for use in various planning and project contexts.

## Step 3 – Determine how physical impacts from sea level rise may constrain the project site

The Coastal Act requires that development minimize risks from coastal hazards. Sea level rise can both present new hazards and exacerbate hazards that are typically analyzed in CDP applications. In this step, project applicants determine the types and extent of sea level rise impacts that may occur now and into the future.

As described in Chapter 3 of the Guidance, impacts associated with sea level rise generally include erosion, inundation, flooding, groundwater rise, wave impacts, and saltwater intrusion. An assessment of these impacts is often required as part of a routine hazards assessment or the coastal hazards chapter of the LCP. Therefore, information in the local LCP can provide an initial determination of potential hazards for the project in question, if available. However, proposed development will often need a second, site-specific analysis of hazards to augment the more general LCP information.

**Analyze relevant sea level rise impacts for each sea level rise scenario.**

A CDP application for new development in a hazardous area should include a report analyzing the anticipated impacts to the project site associated with each sea level rise scenario identified in Step 1. Generally, the analyses pertinent to sea level rise include geologic stability, erosion, flooding/inundation, groundwater impacts, wave runup, and wave impacts, and these analyses are described in detail below. Depending on the site, however, different analyses may be required. Applicants should work with planning staff (Coastal Commission or local government staff) to perform a pre-application submittal consultation to determine what analyses are required for their particular project. In some locations with applicable LCPs, LCP policies and zoning code provisions may specify the required components of a site-specific analysis. Analysis of hazards that will not be altered by sea level rise (such as the location of faults, fire zones, *etc.*) should be undertaken at the same time as the assessment of sea level rise-affected hazards so a complete understanding of hazard constraints can be used for identification of safe or low-hazard building areas. After the submission of the CDP application, any additional analyses that are required will be listed in an application filing status review letter.

The professionals who are responsible for technical studies of geologic stability, erosion, flooding/inundation, groundwater, wave runup, and wave impacts should be familiar with the methodologies for examining the respective impacts. However, the methodologies do not always adequately examine potential impacts under rising sea level conditions as established by best available science. Appendix B provides technical information for incorporating the best available science on sea level rise into the more routine analyses, which are summarized below. The analyses should be undertaken for each of the sea level rise scenarios identified in Step 1.

- **Geologic Stability:** The CDP should analyze site-specific stability and structural integrity without reliance upon existing or new protective devices (including cliff-retaining structures, seawalls, revetments, groins, buried retaining walls, and caisson

foundations) that would substantially alter natural landforms along bluffs and cliffs. Geologic stability can include, among others, concerns such as landslides, slope failure, liquefiable soils, and seismic activity. In most situations, the analyses of these concerns will be combined with the erosion analysis (below) to fully establish the safe developable area.

- **Erosion:** Both bluff erosion and long-term shoreline change will generally increase with time. Thus, some estimate of project life is needed to determine expected bluff and shoreline change, and to fully assess the viability of a proposed site for long-term development. The CDP application should include an erosion analysis that establishes the extent of erosion that could occur from current processes, as well as future erosion hazards associated with the identified sea level rise scenarios over the life of the project. If possible, these erosion conditions should be shown on a site map, and the erosion zone, combined with the geologic stability concerns, can be used to help establish locations on the parcel or parcels that can be developed without reliance upon existing or new protective devices (including cliff-retaining structures, seawalls, revetments, groins, buried retaining walls, and caissons) that would substantially alter natural landforms along bluffs and cliffs.
- **Flooding and Inundation:** The CDP application should identify the current tidal datums and include analysis of the extent of flooding or inundation that potentially could occur from the identified sea level rise scenarios, and under a range of conditions that could include high tide, storm surge, water elevation due to El Niños, Pacific Decadal Oscillations, a 100-year storm event, and the combination of long-term erosion and seasonal beach erosion. If possible, this information and resulting flood zones should be shown on a site map and/or a typical cross section detailing flood elevations and the elevations of key development features (e.g., finished first floor, future site grade) in relation to a standard vertical datum.[59]
- **Groundwater rise**: The CDP application should include an analysis of potential shallow or emergent groundwater particularly in low-lying areas near tidally connected water bodies (e.g., canals and creeks). The analysis should include discussion of how shallow groundwater may threaten buried components of a development such as basements, foundations, and pipelines such as through increased loads, corrosion, or buoyancy forces.
- **Wave Runup and Wave Impacts:** Building upon the analysis for flooding, the CDP application should include analysis of the wave runup and impacts that potentially could occur over the anticipated life of the project from a 100-year storm event, combined with the identified sea level rise scenarios, and under a range of extreme static water levels considering the potential effects of high tides, atmospheric forcing (e.g., storm

[59] Local governments and other stakeholders may be familiar with FEMA flood zones, Flood Insurance Rate Maps (FIRMs), and related building regulations, but it is important to note that these maps do not include climate change and sea level rise in flood hazard analysis. Instead, they typically rely on historical data to determine flood hazards, meaning that they will underestimate flood risks when considering the full life of a proposed project in an area that will be subject to sea level rise.

surge) and oceanographic forcing (e.g., El Niño) in addition to the combination of long-term erosion and seasonal beach erosion. If possible, this information and resulting wave runup zones should be shown on a site map and/or site profile (cross section).

- **Tsunami:** CDP applications should include an analysis of existing tsunami risk and discussion of how tsunami risk may be worsened by sea level rise. The level of analysis will vary depending on the type of development; critical infrastructure should include more extensive discussion on the risks from extreme events like tsunamis.
- **Other Impacts**: Any additional sea level rise related impacts that could be expected to occur over the life of the project, such as saltwater intrusion should be evaluated. This may be especially significant for areas with a high groundwater table such as wetlands or coastal resources that might rely upon groundwater, such as agricultural uses.

**Expected outcomes from Step 3**: Detailed information about the sea level rise related impacts that can occur on the site and changes that will occur over time under various sea level rise scenarios. High risk and low risk areas of the site should be identified. The scenario-based analyses should also provide information on the potential effects of sea level rise, such as coastal erosion, that could occur over the proposed development life, without relying upon existing or new protective devices.

### Step 4 – Determine how the project may impact coastal resources, including as they relate to environmental justice communities, considering the influence of sea level rise upon the landscape over time

The Coastal Act requires that development avoid or minimize impacts to coastal resources. Sea level rise will likely cause some coastal resources to change over time, as described in Chapters 3 and 4. The Coastal Act also requires the Commission and local governments to consider environmental justice in CDP decisions, and the Commission's Environmental Justice Policy includes a guiding principle on evaluating and addressing the disproportionate environmental and public health burdens environmental justice communities experience from climate change and sea level rise. Whatever harms to coastal resources resulting from the impacts of sea level rise will likely exacerbate burdens already felt among environmental justice communities who have a higher social vulnerability to climate change (Roos, 2018). Therefore, in this step, applicants should 1) analyze how sea level rise will affect coastal resources now and in the future, and 2) analyze how adverse impacts on coastal resources may exacerbate burdens to environmental justice communities, as well as such communities that may be located farther from the site but have a shared and important connection to the project area, so that alternatives can be developed in Step 5 to minimize the project's impacts to coastal resources, and as they relate to environmental justice communities, throughout its lifetime.

This section discusses only those resources that might change due to rising sea level or possible responses to rising sea levels. As in Step 2, each sea level rise scenario (high, low, and intermediate values) should be carried through this step. A complete CDP application will need to assess possible impacts to all coastal resources – including public access and recreation, water quality, natural resources (such as ESHA and wetlands), agricultural resources, natural landforms, scenic resources, and archaeological and paleontological resources. Analysis of those resources that will not be affected by sea level rise (along with their implications for environmental justice communities) should be undertaken at the same time as the assessment of the sea level rise-affected resources so a complete map of resource constraints can be used for identification of the most resource-protective building area.

### 4.1 Analyze coastal resource impacts and hazard risks for each sea level rise scenario

Analysis of resource impacts will require information about the type and location of the resources on or in proximity to the proposed project site and the way in which the proposed project will affect such resources and the communities that use and depend on them both initially and over time. The following discussion of each resource will help identify the key impacts to each that might result from either sea level rise or the proposed development, as well as how impacts to each resource may exacerbate or cause new burdens for environmental justice communities.

If coastal resources will be affected by sea level rise, such as changes to the area and extent of a wetland or riparian buffer, these changes must be considered in the analysis. Much of the following discussion recommends analysis of impacts from current and future inundation, flooding, erosion, and from the ways in which the project proposes to address such impacts. Appendix B provides guidance on how to undertake this analysis and includes lists of suggested resources that can provide data, tools, or other resources to help with these analyses. This analysis should be repeated for each sea level rise scenario identified in Step 1. Also, it may be important for local planners to coordinate and share information with environmental justice communities as well as other local partners – including those in charge of emergency management, law enforcement, and related services – in order to identify risks and vulnerabilities. Information on the following coastal resources is included. To skip to a section, click on the links below:

- New Development (addressed in Step 2, above)
- Public Access and Recreation
- Coastal Habitats
- Natural Landforms
- Agricultural Resources
- Water Quality and Groundwater
- Scenic Resources

**Public Access and Recreation**: Public access and recreation resources include lateral and vertical public accessways, public access easements, beaches, recreation areas, campgrounds public trust lands,[60] parking lots, and trails, including the California Coastal Trail. These areas may become hazardous or unusable during the project life due to sea level rise and/or due to the proposed project. Approaches to identify potential risks to public access and recreation include:

- Identify all public access locations on or near the proposed project site and, if possible, map these resources in relation to the location of the proposed project. The analysis should also identify existing public trust areas in relation to the proposed project, which may necessitate a survey of the mean high tide line.
- Determine whether any access locations or public trust lands will be altered or impacted by sea level rise and/or the proposed project for the identified sea level rise scenarios. Such impacts could result from flooding, inundation, shoreline erosion, or from proposed project elements. At a minimum, establish the extent of likely and/or possible changes to public access and recreation and to public trust lands.
- If any access locations will be altered by sea level rise and/or the proposed project, map or otherwise identify the potential changes to the location of these access resources for the identified sea level rise scenarios.
- Describe the potential adverse impacts to environmental justice communities if public access locations and amenities may be affected by sea level rise and/or the proposed project. For example, if sea level rise and/or the proposed project would limit public beach space, this may disproportionately affect environmental justice communities who rely on such beaches to escape inland heat. These areas also provide vital free or low-cost opportunities for environmental justice communities to access and recreate along the coast.
- Identify whether there are locations on the proposed project site that can support development without encroachment onto the existing or future locations of these access areas, and without other impacts to public access and recreation. Overlay with development constraints (e.g., fault zones, landslides, steep slopes, property line setbacks) and with other coastal resource constraints.

**Coastal Habitats** (e.g., ESHA, wetlands): Coastal habitats, especially those that have a connection to water, such as beaches, intertidal areas, and wetlands, can be highly sensitive to changes in sea level. Ways to identify potential resource impacts associated with the project include:

[60] The State Lands Commission has oversight of all public trust lands and many local governments are trustees of granted tidelands. The State Lands Commission or other appropriate trustee should be contacted if there is any possibility that public trust lands might be involved in the proposed project. As a general guide, public trust lands include tide and submerged lands as well as artificially filled tide and submerged lands.

- Identify all coastal habitats and species of special biological or economic significance on or near the proposed project site and, if possible, map these resources in relation to the location of the proposed project.
- Determine whether any coastal habitats will be altered or affected by sea level rise and/or the proposed project over the proposed life of the project. Such impacts could result from flooding, inundation, shoreline erosion, or changes to surface or groundwater conditions (see discussion below on water quality). At a minimum, use the identified sea level rise scenarios to establish the extent of likely and/or possible changes to coastal habitats.
- If any coastal habitats will be altered by sea level rise and/or the proposed project, map or otherwise identify potential changes to the location of these coastal resources for the identified sea level rise scenarios.
- Describe the potential adverse impacts to environmental justice communities if coastal habitats were affected by sea level rise and/or the proposed project. For example, if sea level rise and/or the proposed project eliminated a coastal habitat, this may disproportionately affect environmental justice communities who rely on it for subsistence fishing. Coastal habitats may contain important cultural and ancestral ties for indigenous communities as well as provide educational opportunities to environmental justice communities.
- Identify locations of the proposed project site that can support development without encroachment onto the existing or future locations of these coastal habitats, and without other impacts to coastal habitats. Overlay with development constraints (e.g., fault zones, landslides, steep slopes, property line setbacks) and with other coastal resource constraints.

**Natural Landforms**: Natural landforms can include coastal caves, rock formations, bluffs, terraces, ridges, and cliffs. Steps to identify natural landforms at risk include:

- Identify all natural landforms on or near the proposed project site and, if possible, map these resources in relation to the location of the proposed project.
- Determine whether any natural landforms will be altered or impacted by sea level rise and/or the proposed project for the identified sea level rise scenarios. Such impacts could result from flooding, inundation, shoreline armoring, or shoreline erosion. At a minimum, use the identified sea level rise scenarios to establish the zone of likely and/or possible changes to natural landforms.
- If any natural landforms will be altered by sea level rise and/or the proposed project, map or otherwise identify the likely changes to location of these coastal resources for the identified sea level rise scenarios.
- Identify locations of the proposed project site that can support development without encroachment onto the existing or future locations of these natural landforms and without other impacts to such landforms. Bluffs and cliffs can often require additional

analysis for slope stability to determine the setback from the eroded bluff face that can safely support development over its lifetime. Overlay with development constraints (e.g., fault zones, landslides, steep slopes, property line setbacks) and with other coastal resource constraints.

**Agricultural Resources**: Agricultural resources may be affected by sea level rise through changes to surface drainage and the groundwater table. Other changes can result from flooding, inundation, or saltwater intrusion. If agricultural lands are protected by levees or dikes, they can be affected by changes to the stability or effectiveness of these structures. Steps to identify risks to agricultural resources include:

- Identify whether the proposed project site is used for or zoned for agricultural uses, contains prime agricultural soils, or is in the vicinity of or upstream of lands in agricultural use.
- Identify surface water drainage patterns across the site or from the site to the agricultural use site.
- If any drainage patterns are closely linked to and potentially influenced by the elevation of sea level, examine changes in drainage patterns with rising sea level on the proposed site or the agricultural use site.
- Describe the potential adverse impacts to environmental justice communities if agricultural resources were affected by sea level rise and/or the proposed project. Impacts to agricultural resources may exacerbate burdens to environmental justice communities who live or work in these areas. For example, if sea level rise and/or the proposed project impacted any nearby lands in agricultural use, this may result in displacement of farmworkers through loss of wages, health coverage, and housing.

**Water Quality and Groundwater**: Sea level rise may cause drainages with a low elevation discharge to have water back-ups. It may also cause a rise in the groundwater table. Both of these changes could alter on-site drainage and limit future drainage options. If the proposed site must support an on-site wastewater treatment system, or if drainage and on-site stormwater retention will be a concern, consider the following, as appropriate:

- Identify surface water drainage patterns across the site.
- Examine changes with rising sea level of any drainage patterns that are closely linked to and likely influenced by the elevation of sea level. At a minimum, use the identified sea level rise scenarios to establish the zone of likely changes to drainage patterns.
- Identify the elevation of the groundwater table. Since groundwater can fluctuate during periods of rain and drought, attempt to identify the groundwater zone.
- Estimate the likely future elevation of the groundwater zone, due to sea level rise. At a minimum, use the identified sea level rise scenarios to establish the zone of likely changes to groundwater.
- Evaluate whether changes in groundwater will alter the proposed site conditions.

- Identify environmental justice communities that may be impacted by changes in water drainage patterns and groundwater elevations and any damage to water and wastewater infrastructure. These impacts may increase financial and health burdens on environmental justice communities which often face additional barriers to accessing resources and seeking aid that other, wealthier, communities may have.

**Scenic Resources**: Visual and scenic resources include views to and along the ocean and scenic coastal areas. Development modifications to minimize risks from sea level rise could have negative consequences for scenic resources, including creating a structure that is out of character with the surrounding area, blocks a scenic view, or alters natural landforms. Steps to identify impacts to scenic resources, including any impacts from possible adaptation measures, include:

- Identify all scenic views to and through the proposed project site from public vantage points such as overlooks, access locations, beaches, trails, the Coastal Trail, public roads, parks, and if possible, map these views and view lines in relation to the location and maximum allowable elevation of the proposed project.
- Identify locations of the proposed project site that can support development and avoid or minimize impacts to scenic views from current and future vantage points. Overlay with development constraints (fault zones, landslides, steep slopes, property line setbacks, *etc.*) and with other coastal resource constraints.

### 4.2 Synthesize and assess development, resource, and environmental justice constraints

After completing the detailed analysis of each coastal resource, the applicant should summarize the potential resource impacts under each sea level rise scenario identified in Step 1. This set of results, when combined with potential impacts to those coastal resources not affected by sea level rise, should give the applicant valuable information about the degree of risk posed to each coastal resource and to the development itself. If practical, for each sea level rise scenario, applicants should produce a constraints map illustrating the location and the extent of resource impacts that could occur over the life of the development. Based on the analysis of resource impacts and potential hazard risks over the life of the development, the applicant should develop an overlay identifying the development and resource constraints.

In addition to identifying each coastal resource impact, the applicant should also summarize any potential adverse impacts that may exacerbate burdens to environmental justice communities. The purpose of this analysis is to assess how the proposed project combined with sea level rise may result in adverse coastal resource-related impacts to environmental justice communities in order to help develop adaptation measures in Step 5 that prioritizes more equitable outcomes. Furthermore, this can also help shape how outreach and communication with environmental justice communities on the proposed project should be framed and conducted.

### 4.3 Identify areas suitable for development

The final part of this step is to identify the locations on the project site that could support some level of development without impacts to coastal resources, and without putting the development at risk.

**Expected outcomes from Step 4**: Upon completing this step, the applicant should have detailed information about the types of coastal resources on the project site and the level of risk that sea level rise poses to each resource under each sea level rise scenario, including resource locations and the extent of resource impacts that could occur over the life of the proposed project. The applicant should also have identified the project's potential coastal resource-related impacts to environmental justice communities. This step should also provide an overlay of all development and resource constraints, and clearly identify the locations on the proposed project site that could support some level of development that appropriately minimizes or avoids risk and protects coastal resources, as well as appropriately considers effects on environmental justice communities.

## Step 5 – Identify project alternatives that avoid both resource and related environmental justice impacts and minimize risks to the project

By this step, applicants should have identified environmental justice communities in Step 1, developed a set of factors based on the sea level rise hazards identified in Step 3, identified potential resource impacts in Step 4, and analyzed other site conditions (such as archaeological resources or fault lines) to identify the buildable areas that avoid or minimize both risk from coastal hazards and impacts to coastal resources, including resources that would disproportionately affect environmental justice communities. Hazard and resource avoidance is usually the preferred option, and, in many cases, applicants may find that the site is safe from sea level rise hazards for all the identified sea level rise scenarios and no further identification of project alternatives would be necessary in order to address sea level rise concerns.

For some cases, the site constraints may require consideration of project alternatives that fit with the available buildable area, without the use of protective structures. In these cases, one of the alternatives may be to revise the project design initially considered for the site. In other cases, development that is safe from hazards and is resource protective may be possible if certain adaptation strategies are used to modify the project over time and as the potential hazard areas increase or move closer to the project. For these cases, the possible adaptation pathways would be included as part of the proposed project, along with necessary monitoring and triggers for implementing the adaptation options. In still other cases, hazard minimization may be the only feasible option for development on hazard-constrained sites, in which case the project should be designed and sited appropriately to minimize coastal resource and hazard impacts. In all cases, projects must be sited and designed to address all applicable Coastal Act

and LCP requirements, including any new requirements within LCPs that have been updated to adapt to sea level rise.

The results from the analysis of sea level rise scenarios should factor into the decisions made in this step. In particular, after looking at the results from Steps 3 and 4 as a whole, applicants can better decide the project changes, types of adaptation strategies, and design alternatives that would be most appropriate given the degree of risk posed by possible sea level rise and how long the development might be free from risk. The applicant also might identify triggers (e.g., a certain amount of sea level rise or certain physical impacts from sea level rise) when certain adaptation measures should be implemented to reduce risk and/or impacts to coastal resources.

Importantly, land divisions and lot line adjustments in high hazard areas can change hazard exposure and should therefore be undertaken only when they can be shown to not worsen or create new vulnerability. In particular, no new lots or reconfigured lots with new development potential should be created if they cannot be developed without additional shoreline hazard risks.

**Strategies to Avoid Resource Impacts and Minimize Risks**

The best way to minimize risks to development and coastal resources is to avoid areas that are or will become hazardous as identified by the sea level rise scenarios analysis in the previous steps. Such avoidance often includes changes to the proposed project to bring the size and scale of the proposed development in line with the capacity of the project site. However, if it is not feasible to site or design a structure to completely avoid sea level rise impacts, the applicant may need to modify or relocate the development to minimize risks to the development or to coastal resources. Some changes, such as the use of setbacks, may be necessary at the outset of the project. Other changes, such as managed retreat or added floodproofing, may be useful as adaptive strategies that can be implemented after the initial project completion. Considerations involved in choosing and designing an appropriate adaptation strategy may include those listed below. See Chapter 7 for more information on specific adaptation measures. For a list of other sea level rise adaptation resources, see Appendix C.

- **Assess Design Constraints:** Determine whether there are any significant site or design constraints that might prevent future implementation of possible sea level rise adaptation measures. Some project locations may be constrained due to lot size, sea level related hazards, steep slopes, fault lines, the presence of wetlands or other ESHA, or other constraints such that no safe development area exists on the parcel. Ideally, such parcels would be identified during the LCP vulnerability analysis, and the land use and zoning designations would appropriately reflect the constraints of the site. However, in some cases development may need to be permitted even if it cannot avoid all potential hazards. As stated above, care should be taken in these cases to avoid resource and community impacts and minimize risks as much as possible by developing

and implementing a sea level rise adaptation plan for the proposed development. In creating this plan, it is important to identify any design constraints that will limit the ability to implement adaptation strategies in the future, as described below.

- **Identify Adaptation Options:** Identify possible adaptation strategies (such as those found in Chapter 7) for the proposed project and evaluate each adaptation option for efficacy in protecting the development. Also, evaluate the consequences from each proposed adaptation measure to ensure it will not have adverse impacts on coastal and sensitive environmental resources, including visual impacts and public access. Applicants should also consider that adaptation measures do not exacerbate burdens to environmental justice communities.

  For example, an option that is often considered for sea level rise is to elevate the development or the structures in order to provide flood protection. However, elevated structures will change the scenic quality and visual character of the area, oftentimes providing more benefit to the individual property owner while negatively affecting scenic views for others who may not live along the coast. Also, elevation of the main development may be of little long-term utility to the property owner if the supporting infrastructure, such as the driveways, roads, utilities, or septic systems are not also elevated or otherwise protected. Elevation of existing levees or dikes can provide flood protection for an area of land and all the development therein. However, the foundation of the levee or dike must have been designed to support the additional height or else it may have to be expanded and the increased footprint of the foundation could have impacts on intertidal area, wetlands, or other natural or cultural resources. Thus, the long-term options for adaptation should be considered as part of any permit action, to ensure that current development decisions are not predetermining resource impacts in the future.

- **Use Adaptation Pathways:** "Adaptation pathways" refers to a planning approach in which planners consider multiple possible futures and analyze the robustness and flexibility of various adaptation options across those multiple futures. In the context of sea level rise planning, if the likelihood of impacts is expected to increase with rising sea level, it may be necessary to design the initial project for some amount of sea level rise but to also include design flexibility that will allow future project changes or modifications to prevent impacts if the amount of sea level rise is more than anticipated in the initial design. Changes and modifications could include the use of foundation elements that will allow for building relocations or removal of portions of a building as it is threatened or reserving space to move on-site waste treatment systems away from eroding areas or areas that will be susceptible to a rising water table or increased flooding.

- **Develop Project Modifications**: Highly constrained sites may not be able to support the amount of development that an applicant initially plans for the site. Even a small building footprint may be at risk from flooding or erosion under high sea level rise

scenarios. In such cases, it will be important to work closely with the appropriate planning staff to develop a project option that can minimize hazards from the identified sea level rise scenarios for as long as possible, and then incrementally retreat once certain triggers are met. Some examples of triggers could be that erosion is within some distance of the foundation, or monthly high tides are within some distance of the finished floor elevation. The time period for relocation or removing the structure would be determined by changing site conditions but relocation would most likely occur prior to the time period used in Step 2 to determine long-term site constraints.

- **Plan for Monitoring:** Develop a monitoring program or links to other monitoring efforts to ensure that the proposed adaptation measures will be implemented in a timely manner. Following a monitoring protocol and requirements for evaluating sea level rise impacts to coastal habitats over time can help to identify the triggers that would lead to revising project life, other project modifications or additional adaptation efforts.

- **Consider Community Benefits Agreements:** Community Benefits Agreements (CBAs) are contracts between developers and impacted communities and/or their representatives (governmental and non-governmental) that are a way for applicants to address a project's impacts on coastal resources and develop adaptation measures by implementing social, economic, and environmental benefits to support communities affected by proposed development. Depending on the project and its impacts on coastal resources, community benefits could include an increase in open spaces in the development, clean water programs, and local workforce training and hiring programs.[61] CBAs are not in lieu of avoiding impacts and appropriate mitigation, but can provide a benefit to communities by the developer as a way to address some project impacts and garner public support for a project (Akibode, 2017). Thus, CBAs could address both coastal resource impacts as well as other impacts that are important to the community. When community benefits effectively ensure that community interests are well represented, they can empower communities to take part in the planning process, enhance the project approval process, and help achieve social equity.[62] For CDPs, CBAs can be implemented through special condition language and in project descriptions.[63]

[61] An increase in open spaces could address impacts to coastal access and recreation, clean water programs could address impacts to water quality and supply, and local workforce training and hiring programs could contribute to a reduction in vehicle miles traveled.

[62] Note that CBAs may not always fulfill community expectations, and all members of the community may not support them.

[63] See Special Condition 22 of A-5-VEN-21-0011 for an example of a CBA that implements access to a garden education program, prioritizes local hiring, increases access to outdoor spaces, and provides free, non-motorized transportation and bicycle parking.

**Expected outcomes from Step 5**: This step may involve an iterative process of project modifications and reexamination of impacts, leading to one or more alternatives for the project site. The alternative that will best minimize risks from coastal hazards and avoid or minimize impacts to coastal resources, including coastal resource-related impacts to environmental justice communities, should be identified. Possible adaptation options could be identified and analyzed, including options to address environmental justice issues, if appropriate. If the site is very constrained, modifications to the expected project life might be suggested.

## Step 6 – Finalize project design and submit CDP application

After Step 5, the applicant should have developed one or more project alternatives and identified a preferred alternative. The alternatives should include mitigation measures or adaptation strategies to minimize impacts if hazards cannot be avoided entirely. The CDP application step involves the following:

1. **Work with the planning staff to complete the CDP application**. Depending upon the proposed project and extent of prior interactions with the planning staff, the initial submittal may be the first time the planner has been provided with information about the general project or the preferred alternative. Once a proposed project is submitted, the coastal planner will need to become familiar with the project location, area around the project site, the proposed actions and the studies and analyses that have been undertaken in support of the application. The planner will review the application for completeness to ensure that there is sufficient information to analyze the project for all appropriate LCP or Coastal Act Chapter 3 policies and the Commission's Environmental Justice Policy. If analysis for sea level rise concerns is needed, the planner will also check that analyses for sea level rise risks have been included in the submittal. Much of the information developed in Steps 1-5 will be useful for the application process. The Suggested Filing Checklist for CDP Applications (located at the end of this chapter) covers the typical information that might be included in a CDP application necessary for planning review of the sea level rise aspects of the proposed project. Applicants who are unfamiliar with the permit process should consult the local government website, Coastal Commission website, or contact the appropriate district office for instructions on how to complete a CDP application.

   The review of an application might involve an iterative process, wherein planning staff requests more information about the proposed project, project alternatives, analysis of the hazards or identification of potential resource impacts to help in the review for compliance with the LCP or the Coastal Act. At the same time, planning staff may request that some of the technical staff review the submitted material to ensure that there is sufficient information in all technical information and analyses to support a decision on the proposed project. Planning staff may also consult with the Environmental Justice Team to confirm that the environmental justice analysis and

planned outreach is appropriate. This process may be repeated until the application provides the studies, analyses and project review necessary for planning review.

2. **Submit a complete CDP application.** Once a complete application has been accepted, the planning staff will do a more thorough review and analysis of the potential hazards and resource impacts associated with the proposed project. Ideally, the planner will have requested all necessary project information at the filing stage. In some instances, additional information may be needed after the application has been accepted. This is normally limited to clarifications of some of the information or further details about some of the possible, but not preferred alternatives. During this stage in the CDP application process, the planner may identify necessary project modifications that were not part of the initial application and identify various conditions that will be needed if the project is to be approved. Chapter 7 includes many of the possible project modifications and permit conditions that might be used to address sea level rise concerns and potential resource impacts.

   During the project analysis, the planning staff will review all submitted material, discussing the proposed project with other staff members, and obtaining further review. Working with their supervisors and managers, they will also develop a staff recommendation and prepare a staff report that supports the proposed recommendation. Please consult the Coastal Commission website or contact your district office for instructions on how to complete a CDP application.

3. **Permit action.** Once the proposed project has been through planning review and a staff recommendation has been prepared, the proposed project will be brought to hearing before either the local government or the California Coastal Commission. The outcome of the hearing process will be project approval, approval with conditions, or denial. Based on the regulatory decision, the project may be constructed, or additional modifications and condition requirements may have to be met.

4. **Monitor and revise.** CDP approvals may include conditions that require monitoring. Applicants should monitor the physical impacts of sea level rise on the project site, provide reports and updates to planning staff and introduce adaptive changes to the project in accordance with the permit and permit conditions.

**Expected outcomes from Step 6**: This step, combined with supporting documentation from the previous steps, should provide a basis for evaluating the proposed project's hazard risks and impacts that can result from sea level rise. Such an analysis will provide one of the bases for project evaluation and complements the other resource evaluations and analyses that are part of a complete CDP application.

## Planning Process for Coastal Development Permits

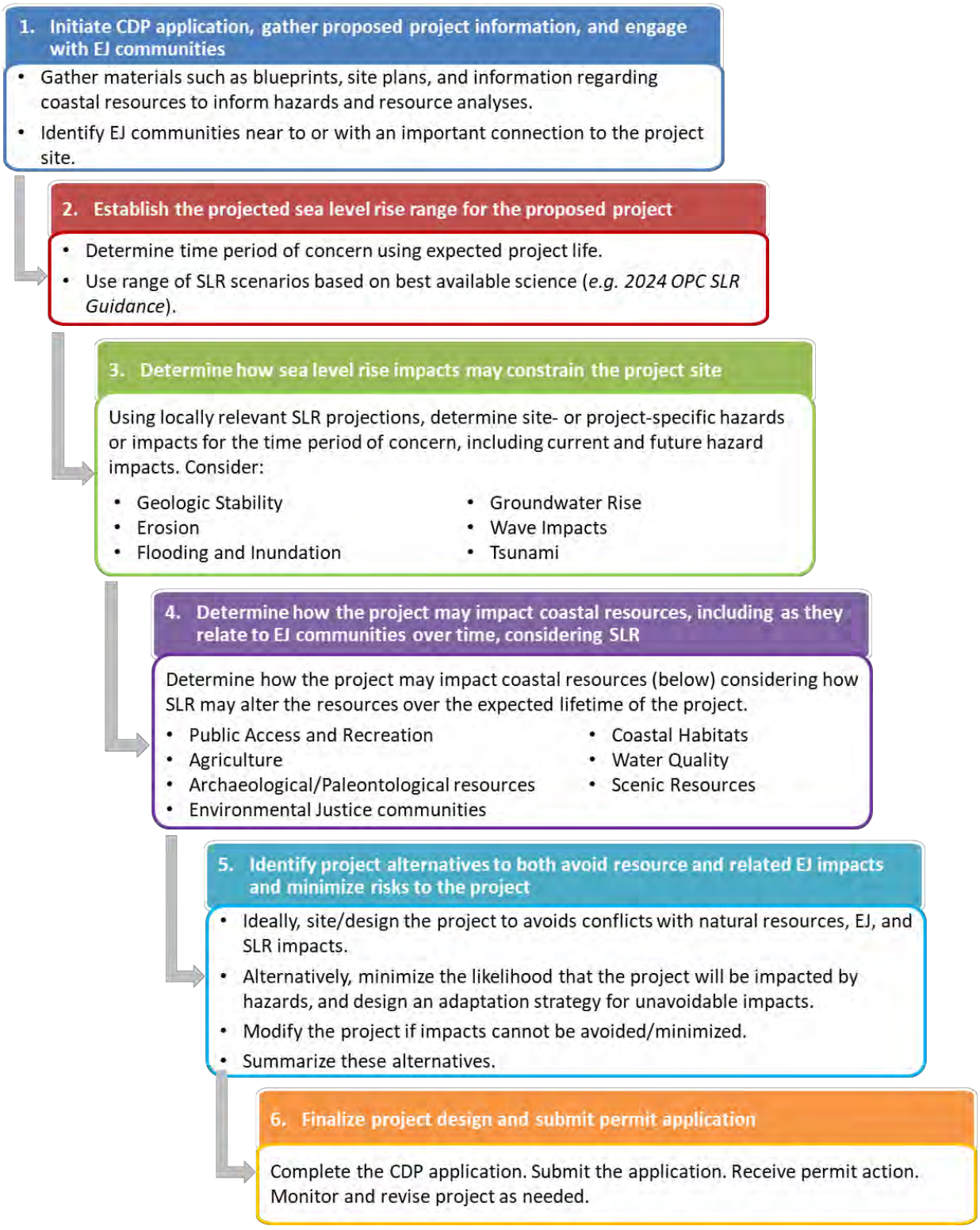



Figure 16. Flowchart for steps to address sea level rise in Coastal Development Permits

**Suggested Filing Checklist for Sea Level Rise Analysis**

- Identify Environmental Justice Communities (site maps)
- Proposed/Anticipated Project Life
- Sea Level Rise Scenarios used in Impacts Analyses
- Impacts Analyses (possibly from Vulnerability Assessment)
  - **Structural and Geologic Stability**: Identify current tidal datum; perform geotechnical report and erosion analysis; identify blufftop setback and safe building area; show setback, safe building area and proposed project footprint (site maps)
  - **Erosion**: Perform coastal processes study and erosion analysis; quantify total erosion amount for proposed project site; show retreat along with proposed project footprint (site maps)
  - **Groundwater**: Identify groundwater depth and range and local geology and soil porosity; show future depths under relevant sea level rise scenarios
  - **Flooding and Inundation Risks**: Perform coastal processes study and wave runup analysis; quantify flood elevation and flooding extent; show flood extent with proposed project footprint (site map); show flood elevation on site profile, with proposed project elevation; provide flood certificate if in FEMA designated 100-year flood zone
  - **Tipping points for sea level rise impacts**, specific to proposed project site
- Impacts to coastal resources for current conditions and changes due to sea level rise and related impacts
  - **Public Access and Recreation**: Show access resources and future changes (site maps)
  - **Water Quality, surface and groundwater**: Provide surface drainage patterns and runoff and future changes (site maps); provide zone of groundwater elevation
  - **Coastal Habitats**: Provide wetland delineation, ESHA determination, if appropriate; provide boundary determinations or State Lands review, if appropriate; show all coastal habitats and future changes (site maps)
  - **Agricultural Resources**: Show agricultural resources and future changes (site maps)
  - **Natural Landforms**: Show all natural landforms and future changes (site maps)
  - **Scenic Resources**: Show views from public access and future changes due to access changes
  - Overlay all coastal resources to establish areas suitable for devel. (site maps)
  - Identify disproportionate or inequitable effects on environmental justice communities from any of the above impacts
- Analysis of Proposed Project and Alternatives
  - Provide amount(s) of sea level rise used in project planning and design
  - Provide analysis of the proposed project and alternatives
  - Identify proposed current and future adaptation strategies
  - Show avoidance efforts (site map)
  - Identify hazard minimization efforts that avoid resource, EJ impacts (site maps)

### Example for Addressing Sea Level Rise in Coastal Development Permits

To illustrate the process described in this chapter for how to address sea level rise in the CDP process, consider three example projects: a wetland restoration project, a new bluff-top residential development with a fronting beach, and a new wastewater treatment facility. These examples will follow each of the recommended CDP steps, showing how the guidance could be applied in specific situations. Note that these are simplified examples used to demonstrate the process described in this chapter. Decisions about how to address various challenges presented by sea level rise will be more complex than those illustrated below, and the Coastal Commission encourages applicants to coordinate with staff as necessary and feasible throughout the process.

**Step 1: Initiate CDP application, gather proposed project information, and engage with Environmental Justice communities**

- *Wetland Restoration Project:* Gather relevant project materials such as blueprints and site plans. Begin EJ analysis by identifying nearby EJ communities with a connection to the project site. According to an EJ Mapping Tool, there are several environmental justice communities nearby and visitors who could benefit from the recreational value and outdoor space that the wetland restoration project could produce. After consulting with local government representatives, there is also a community-based organization focused on increasing local public health and water quality that is interested in this wetland restoration project. Sea level rise could potentially threaten the viability of the wetland restoration project and lead to a loss of this green space for communities and for the local ecosystem.

- *Bluff-top Residential Development:* Gather relevant project materials such as blueprints and site plans. Begin EJ analysis by identifying nearby EJ communities with a connection to the project site. According to an EJ Mapping Tool, there are zero environmental justice communities who live proximate to this property. However, after consulting with local government staff, non-profit organizations, and community-based organizations, staff is made aware that the beach fronting the property is a well-known pocket beach that many inland and environmental justice communities visit. Sea level rise could severely impact this pocket beach and lead to the loss of this coastal public accessway if armoring for the project leads to “coastal squeeze” and the inability of the sandy beach to migrate inland due to the bluff.

- *Wastewater Treatment Facility:* Gather relevant project materials such as blueprints and site plans. Begin EJ analysis by identifying nearby EJ communities with a connection to the project site. According to an EJ Mapping Tool, a majority of communities adjacent and proximate to the facility are environmental justice communities. Due to historic injustices in land use planning, environmental justice communities are often located near and adjacent to industrial facilities. Flood-damaged or inundated wastewater facilities could limit access to sanitation and hygiene services. Sea level rise could also severely impact the local environmental justice communities by impairing local water quality through the potential seeping of

untreated sewage, damage to local sewage transmission pipelines, and subsequent impacts to public health.

**Step 2: Establish the projected sea level rise range for the proposed project**

- *Wetland Restoration Project:* Sea level rise scenario ranges should be chosen based on the goals of the project. For example, if wetland restoration efforts are intended as mitigation for a development project, the lifetime for the wetland restoration should be, at a minimum, the lifetime of the development project. For wetland restoration projects in which the desired outcome is the protection of the wetland in perpetuity, sea level rise ranges should be projected over a minimum of 100 years, with consideration of the intervening years as well as the even longer term for ongoing adaptive management.
- *Bluff-top Residential Development:* The lifetime of the project is assumed to be at least 75 years, unless the LCP specifies a different time period. Sea level rise scenarios up to and including the Intermediate-High scenario are established, appropriate for the proposed area over the assumed 75-year project life.
- *Wastewater Treatment Facility:* Wastewater treatment facilities are normally critical infrastructure. For this example, a minimum life of 100 years is assumed, unless the LCP specifies a different time period. Sea level rise scenarios up to and including the High scenario are established, appropriate for the proposed area over the assumed 100-year or longer project life.

**Step 3: Determine how physical impacts from sea level rise may constrain the project site**

- *Wetland Restoration Project:* Current topography of the wetland area is mapped, current barriers to inland migration are identified, and an analysis of erosion and flooding potential (and subsequent effects to wetland extent) is performed for various sea level rise scenarios. Potential changes to groundwater are evaluated. Potential changes in sediment flows or other physical properties as a result of changing conditions are examined. It is determined that in this case, open space exists behind the wetland to allow for inland migration over time.
- *Bluff-top Residential Development:* The average long-term beach and bluff retreat rate, erosion rate due to various sea level rise scenarios, and erosion potential from 100-year storms and other extreme events are determined. Beach and bluff erosion will vary with sea level rise rates. The geologic stability of the bluff over the life of the development is analyzed assuming that no protective structure (such as a seawall) either exists or will be built.
- *Wastewater Treatment Facility:* Erosion and flooding potential over the lifetime of the facility under sea level rise scenarios up to and including the High scenario are analyzed, as are current and future wave runup and storm impacts for 100-year storms. The geologic stability of the site over the life of the facility is analyzed assuming that no protective structure either exists or will be built. Potential damage to infrastructure (for example, corrosion due to saltwater intrusion) is examined.

**Step 4: Determine how the project may impact coastal resources and Environmental Justice communities, considering the influence of sea level rise upon the landscape over time**

- *Wetland Restoration Project:* Coastal resources present in the proposed project site are mapped and sea level rise impacts to these resources are analyzed over the lifetime of the project. It is unlikely that the project will have any adverse impacts on coastal resources. Barriers to wetland migration are examined and it is determined in this case that enough open space currently exists to allow for the wetland to migrate inland over time. The few barriers that exist can be modified in the future, if necessary. This will allow for continued use and enjoyment by local communities and environmental justice communities, maintenance of habitat area, and ecosystem services.
- *Bluff-top Residential Development:* Maps are developed that identify scenic viewsheds, the bluff extent, and adjacent coastal habitats including the fronting beach, and descriptions of each are provided. Opportunities for public access are identified. Through partnership with local community-based organizations and local government staff, environmental justice communities are consulted and have shared that they enjoy visiting the fronting beach. Impacts to each of these resources as a result of sea level rise are analyzed, as are impacts that would result from the development project. It is determined that the development has the potential to result in the loss of a fronting beach if a protective structure is installed. However, development setbacks are designed to ensure that no such structure is planned over the lifetime of the development under any sea level rise scenario to ensure the protection of coastal public access for all.
- *Wastewater Treatment Facility:* Maps are developed that identify coastal resources in the area and impacts to these resources resulting from sea level rise are analyzed. As with the bluff-top development, any protective structure would have detrimental effects to the fronting beach, but no such structure is determined to be necessary. Any potential impacts to adjacent habitat areas or to water quality as a result of damage to infrastructure (for example sewage outflow or backup of seawater into the system) are examined under the range of sea level rise scenarios for the life of the facility to ensure that subsequent public health and water quality impacts will not affect the public, including members of adjacent environmental justice communities.

**Step 5: Identify project alternatives to both avoid resource and EJ impacts and minimize risks to the project**

- *Wetland Restoration Project:* In this example, there are no concerns related to detrimental impacts to coastal resources as a result of this project. Natural barriers will be removed through grading and contouring of the land to ensure that the wetland has the ability to migrate inland with sea level rise and that hydrologic function will be maintained. Inland areas are protected into the future to ensure the space will be open for migration. Additionally, a plan is included to monitor changes

in sea level, sediment dynamics, and overall health of the wetland so that adaptive management options can be applied as needed.

- *Bluff-top Residential Development:* The optimal site for a bluff-top residential development is one that avoids the hazards identified in Step 3 and impacts to coastal resources identified in Step 4 over the lifetime of the project. If the proposed site does not avoid risks, alternative locations on the project sites should be identified and examined. If no such location exists, efforts should be made to minimize hazards and impacts to resources, or the project should be denied. Minimization efforts may include: increasing the setback from the bluff-face, developing a managed retreat plan, and designing buildings to be easily relocated. If the safe building envelope will not be sufficient for a reasonable-sized building, local governments could consider allowing reduced setbacks on portions of the site located away from the bluff face (e.g., side or front yard setbacks), reduced off-street parking, additional height on safe portions of the site, or other development that doesn't require shore protection. No seawall is planned as such a device would result in the loss of the fronting beach and impacts to coastal public access. A plan to monitor rates of erosion at various places along the bluff as well as any impacts to adjacent resources is developed, and erosion rates/scenarios that would trigger the need for retreat are identified.
- *Wastewater Treatment Facility:* The optimal site for a wastewater treatment facility is one that avoids the hazards identified in Step 3 and impacts to coastal resources identified in Step 4 over the lifetime of the project. If the proposed site does not avoid risks, alternative sites should be identified and examined. If no such site exists, efforts should be made to minimize hazards and impacts to resources. Minimization efforts may include: building the facility further back from the beach, elevating outflow pipes, and adding one-way valves to prevent backflow of sea-water into the system. A plan to monitor erosion rates along the beach as well as wave and storm impacts and any impacts to coastal resources caused by the facility is developed.

**Step 6: Finalize project design and submit CDP application**

- *Wetland Restoration Project:* The best site and design option is chosen and presented to the Commission or local government for the permit process. Application includes likely options for adaptive management to maintain wetlands and key monitoring needed to examine ongoing wetland function.
- *Bluff-top Residential Development:* The best site and design option is chosen and presented to the Commission or local government for the permit process. Application includes analyses of hazards, potential environmental justice impacts, resource risks, and any plans for adaptive project designs and proposed monitoring.

  *Wastewater Treatment Facility:* The best site and design option is chosen and presented to the Commission or local government for the permit process. Application includes analyses of hazards, potential environmental justice impacts, resource risk, and plans for site monitoring.

*This page intentionally left blank*



# Chapter 7. Adaptation Strategies

Chapters 5 and 6 provide guidance on the sequential processes for addressing sea level rise in Local Coastal Programs (LCPs) and Coastal Development Permits (CDPs). This chapter describes some of the specific adaptation strategies to consider in these planning and development review processes. Given the range of impacts that could occur as a result of sea level rise, and the uncertainties surrounding the amount of sea level rise to expect over the lifetimes of many coastal projects, communities, planners, coastal managers, and project applicants will need to use adaptation strategies to effectively address coastal hazard risks, environmental justice and equity concerns, and protect coastal resources over time.

As described in Chapters 5 and 6, adaptation strategies should be chosen based on the specific risks and vulnerabilities of a region or project site and the applicable Coastal Act and LCP requirements, with due consideration of local priorities, goals, and environmental justice and equity concerns. Adaptation strategies may involve modifications to land use plans, regulatory changes, project modifications, or permit conditions that focus on avoidance or minimization of risks and the protection of coastal resources.

Some adaptation strategies may require land use plans or proposed projects to anticipate longer-run impacts now, such as assuring that critical infrastructure is built to last a long time without being put in danger (from hazards such as flooding and inundation which could impact local water and energy needs) or rezoning hazardous areas as open space (and implementing appropriate clean-up and restoration measures to address public health and safety concerns). Other adaptation strategies may build adaptive capacity into the plan or project itself, so that future changes in hazard risks can be effectively addressed over time while ensuring long-term resource protection in line with any schedule for updates established per SB 272 requirements. In most cases, especially for LCP land use and implementation plans, multiple adaptation strategies will need to be employed. For projects, adaptation strategies may be addressed through initial siting and design and through conditions that provide for specific adaptation over time.

The next sections provide an overview of the general categories of adaptation options, followed by a description of various specific adaptation strategies organized by type of coastal resource, as outlined in Chapter 3 of the California Coastal Act. The adaptation options described in this chapter are intended to provide guidance for potential LCP and permitting strategies. Many of these strategies constitute approaches to address identified vulnerabilities that could be incorporated into an LCP update to address sea level rise in line with SB 272.

As described in Chapter 4, it is imperative to consider any disproportionate impacts that alternative project designs or adaptation measures may inflict upon environmental justice and tribal communities, and these impacts should be evaluated when considering adaptation strategies for an LCP or permit. For example, some efforts to protect communities from the impacts of climate change and sea level rise could also contribute to or increase displacement of environmental justice communities. Anguelovski et al. (2019) found that these efforts often overlook, minimize, or do not consider the short- and long-term adverse impacts that certain greening projects have on environmental justice communities, while marketing these

adaptation strategies to developers, investors, and higher-income residents who value sustainability. Further, studies have identified that building green infrastructure projects within a neighborhood may draw further attention of local government planners, investors, and developers to invest in these neighborhoods by developing more housing, retail, and commercial spaces (Gould & Lewis, 2018). As a result, these investments often attract higher-income earners from outside of the community, thereby excluding the interests and needs of current residents, particularly in terms of affordability. In the long-term, current residents who are low- or moderate-income earners may become priced out of these neighborhoods. Recognizing that these planning patterns may lead to displacement or gentrification of environmental justice communities, practitioners should identify methods and resources that aim to consider and incorporate equity into resilience planning efforts.

Not all strategies listed here will be appropriate for every jurisdiction or every project, nor is this an exhaustive list of options. However, as described in Chapters 5 and 6, all local governments and all project applicants should analyze the possible effects of sea level rise and evaluate how the strategies in this chapter, or additional supplemental strategies, could be implemented in LCPs or CDPs to minimize the adverse effects of sea level rise.

## General Adaptation Approaches

There are a number of options for how to address the risks and impacts associated with sea level rise. Choosing to "do nothing" or following a policy of "non-intervention" may be considered an adaptive response, but in most cases, the strategies for addressing sea level rise hazards will require proactive planning to ensure protection of coastal resources and development. Such proactive adaptation strategies generally fall into three main categories: protect, accommodate, and retreat. In practice, a variety of adaptation strategies will be used in combination across a jurisdiction and over time.

For purposes of implementing the Coastal Act, no single category or even specific strategy should be considered the "best" option as a rule. Different types of strategies will be appropriate in different locations and for different hazard management and resource and community protection goals. The effectiveness of different adaptation strategies will vary across both spatial and temporal scales. In many cases, a hybrid approach that uses strategies from multiple categories will be necessary, and the suite of strategies chosen may need to change over time. As discussed later in the document, the legal context of various options will also need to be considered in each situation and ultimately, adaptive responses will need to be consistent with the Coastal Act. Nonetheless, it is useful to think about the general categories of adaptation strategies to help frame the consideration of land use planning and regulatory options in specific communities and places along the coast.

***Protect:*** Protection strategies refer to those strategies that employ some sort of engineered structure or other measure to physically defend development (or other resources) in its current location without changes to the development itself. Protection strategies can be further divided into "hard" and "soft" defensive measures or armoring. "Hard" armoring refers to engineered

structures such as seawalls, revetments, and bulkheads that defend against coastal hazards like wave impacts, erosion, and flooding. Such armoring is a fairly common response to coastal hazards. A 2019 study found that about 14% of the California coast is protected by some type of armoring, and in the more populated and developed coast of southern California, 38% is protected (Griggs and Patsch 2019).

Armoring can result in serious negative impacts to coastal resources, particularly as sea level rises. Most significantly, hard structures form barriers that impede the ability of natural beaches and habitats to migrate inland over time. If they are unable to move inland, public recreational beaches, wetlands, and other habitats will be lost as sea level continues to rise. This process is commonly referred to as "passive erosion" or "coastal squeeze," which is the narrowing of beaches due to the fact that the back of the beach on an eroding shoreline has been fixed in place (Flick *et al*., 2012). As sea levels rise, the potential for public trust lands and their associated upland public spaces to be subject to coastal squeeze against private upland development will only increase, exacerbating existing inequalities in coastal access and tipping the scales further toward injustice, particularly for lower income residents living inland. Placement of some hard armoring structures can result in immediate coastal squeeze, which can adversely impact environmental justice, tribal, and inland communities who may rely on public recreational beaches, wetlands, and other habitats as an open space refuge from inland heatwaves and other climate-induced weather events. Furthermore, the loss of public coastal access at one location could exacerbate the use and visitor impacts at a nearby coastal access point. Other detrimental impacts may include negative visual impacts or interference with other ecosystem services.

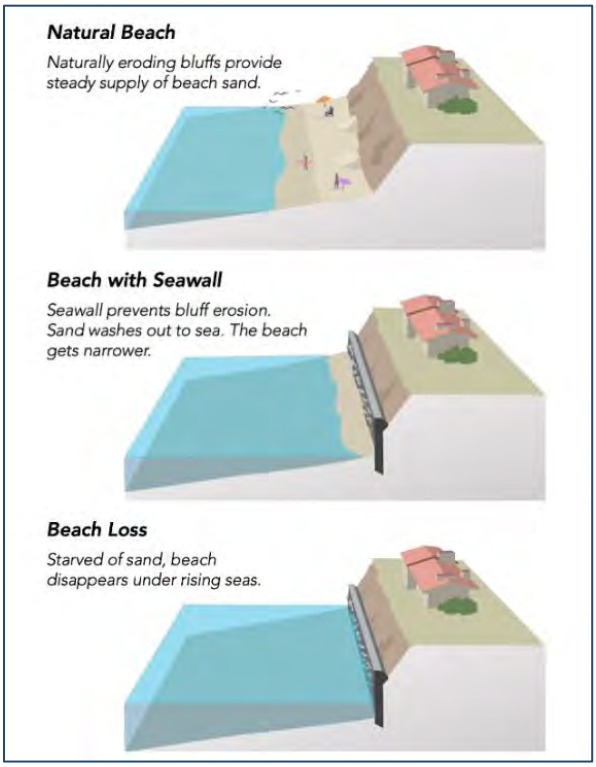



Figure 17. The effects of coastal squeeze (Graphic by Jeremy Smith).

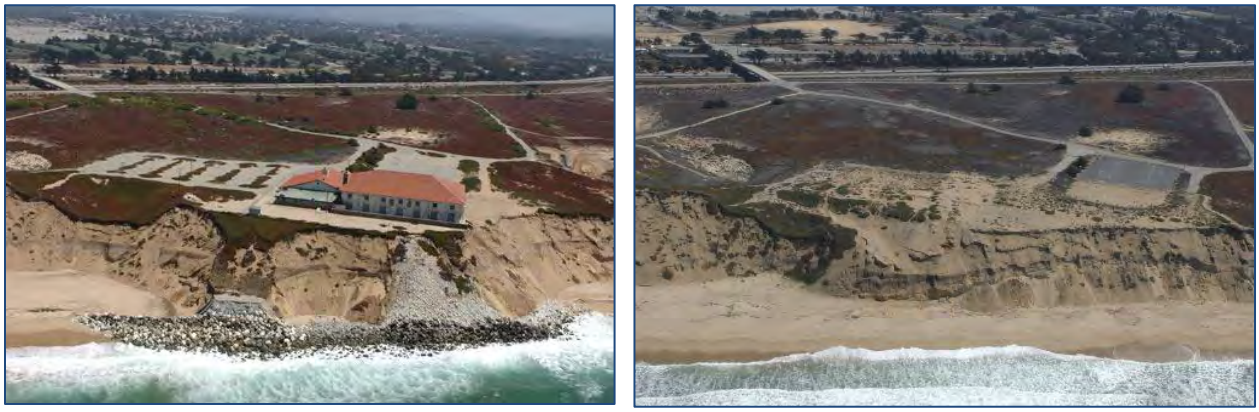


Figure 18. Photo depicting passive erosion. (*Left*) Passive erosion in front of a revetment at Fort Ord, illustrating the loss of beach where the development prevents the shoreline from migrating landward. The beach continues to migrate inland on either side of the revetment. (*Right*) Recovery of the beach following removal of the revetment and blufftop structure. (Source: California Coastal Records Project).

Protection strategies also often come with significant upfront and maintenance costs. For example, a 2019 study estimated that reinforcing and building new protective structures to protect California shorelines vulnerable to inundation by 2040 will cost approximately $22 billion in capital costs, with $2.1 billion per year in maintenance costs (adjusted to 2020 dollars) (LeRoy and Wiles 2019).

"Soft" armoring refers to nature-based adaptation strategies that are comprised of natural or mostly natural elements, and which contributes to the persistence and enhancement of coastal processes and ecological benefits while also offering protection services to inshore areas. Nature-based adaptation strategies can be subcategorized along a spectrum between: 1) soft strategies, which avoid fixing the shoreline with hard structures and instead rely on the use of dynamic systems to attenuate coastal hazards, such as dune or wetland restoration, or sand replenishment; and 2) hybrid armoring, which combines fixing the shoreline, such as with a buried revetment or other shoreline protective device, with a nature-based feature to provide ecological and other benefits. In cases in which soft strategies might not be completely effective or may not be preferred, hybrid armoring using both hard and natural infrastructure could be considered. As used here, the term, "nature-based adaptation strategy" is intended to encompass other synonymous terms, including living shorelines and green infrastructure.

Although the Coastal Act provides for shoreline protective devices in certain cases, it also directs that new development be sited and designed to not require future protection that may alter a natural shoreline. Nature-based adaptation strategies capitalize on the natural ability of these coastal ecosystems to protect coastlines from hazards while also providing benefits such as habitat, recreation area, more pleasing visual impacts, and the continuation or enhancement of ecosystem services. These strategies include those that restore and enable natural features and ecological processes that improve climate resilience. Research has highlighted that nature-based adaptation strategies could also enhance climate adaptation through a variety of co-benefits, including increased carbon sequestration, urban cooling, and stormwater management (Buma *et al.,* 2024). However, meaningful inclusion of environmental justice

communities should be considered during the design, planning, and implementation process to mitigate further community displacement and land dispossession (Kato-Huerta *et al.,* 2022; Dunlop *et al.,* 2024).

***Accommodate:*** Accommodation strategies refer to those strategies that employ methods that modify existing developments or design new developments to decrease hazard risks and thus increase the resiliency of development to the impacts of sea level rise. On an individual project scale, these accommodation strategies include actions such as elevating structures, retrofits and/or the use of materials meant to increase the strength of development, building structures that can easily be moved and relocated, or using extra setbacks. On a community-scale, accommodation strategies include any of the land use designations, zoning ordinances, or other measures that require the above types of actions, as well as strategies such as clustering development in less vulnerable areas or requiring mitigation actions to provide for protection of natural areas even as development is protected. As with protection strategies, some accommodation strategies could result in negative impacts to coastal resources. Elevated structures may block coastal views or detract from community character; pile-supported structures may, through erosion, develop into a form of shore protection that interferes with coastal processes, blocks access, and, at the extreme, results in structures looming over or directly on top of the beach. Accommodation strategies should avoid negative impacts to coastal resources and potential disproportionate impacts on environmental justice communities, such as loss of coastal public access and loss of subsistence fishing opportunities.

***Retreat:*** Retreat strategies are those strategies that relocate or remove existing development out of hazard areas and limit the construction of new development in vulnerable areas. Though complicated and controversial, retreat has already occurred in California in a range of cases, and has been occurring for decades (Lester *et al.,* 2021; Anderson *et al*., 2020). These strategies include land use designations and zoning ordinances that encourage building in more resilient areas or gradually removing and relocating existing development. Acquisition and buy-out programs, transfer of development rights programs, and removal of structures where the right to protection was waived (i.e., via permit condition) are examples of strategies designed to encourage managed retreat. Retreat strategies could raise significant issues, such as exacerbating displacement of environmental justice communities by increasing housing and rental prices, and promoting gentrification, by relocating vulnerable coastal communities and neighborhoods farther inland adjacent to or within environmental justice neighborhoods. Meaningful engagement with the community and stakeholders could facilitate a more purposeful, planned, and coordinated retreat plan away from areas of increased environmental degradation and risk exposure (Siders *et al.*, 2021).



Figure 19. Photo depicting “managed retreat” and restoration. Surfers' Point Managed Shoreline Retreat project in which the parking lot was moved back and beach area was restored. (Aerial composite by Rick Wilborne (February 28, 2013); photo courtesy of Surfrider Foundation)

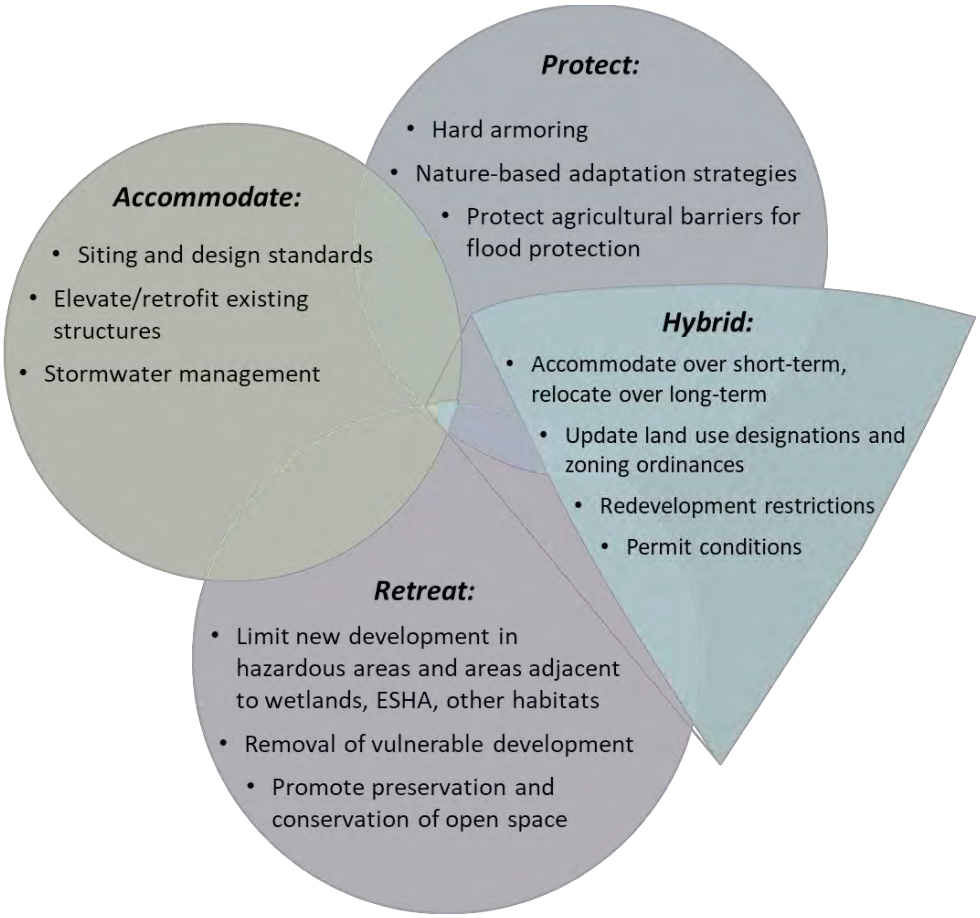



Figure 20. Examples of general adaptation strategies

***Phased adaptation and adaptation pathways*:** Phased adaptation, also called adaptation pathways, are sequences of adaptation actions that can be implemented progressively in response to the unfolding impacts of sea level rise over time (Fazey *et al*., 2015). This approach to adaptation can be especially useful for planning in future coastal hazard conditions given that there is uncertainty regarding the timing and exact magnitude of impacts. Adaptation pathways can include triggers, or thresholds of impacts, after which future phases of adaptation or adaptation planning will be implemented. Many local governments in California are developing sea level rise adaptation plans that provide adaptation pathways, phases, and triggers. Phased adaptation and adaptation pathways are also discussed in Chapter 6.

***Approaching adaptation strategies at a variety of scales*:** In addition to overall consistency with the Coastal Act, including minimizing coastal resource impacts and maximizing the safety and stability of development, adaptation measures must be developed in a way that is responsive to a number of issues affecting their feasibility, costs and benefits, community impacts, and so on. One of the issues that has become especially apparent over the last ten years of the Coastal Commission's work with local governments is the need to develop and implement a mix of adaptation strategies across a jurisdiction (and over time) to reflect the varied nature of our coastlines. In other words, a City/County will not utilize just a single or even a few adaptation strategies across its entire jurisdiction. Rather, a variety of strategies will be implemented to reflect different geological and land use considerations, and the different mix of residential, infrastructure, community, and natural resource needs. This mix of adaptation strategies will also reflect, and proactively balance, various tradeoffs and competing resource needs.

As highlighted in the California Climate Adaptation Strategy, the Coastal Commission's Strategic Plan, and many other state and local documents, priority should be given to options that protect, enhance, and maximize coastal resources and access, including giving full consideration to innovative nature-based approaches such as living shoreline techniques or managed/planned retreat. There is growing interest among practitioners to implement new climate-resilient practices to address sea level rise, including through the use of nature-based adaptation strategies that can respond to, adjust to, and withstand changing conditions while minimizing disruptions to communities, including environmental justice and tribal communities, and natural resources.

Adaptation approaches will need to be designed and implemented at a scale that matches the feasible spatial scale of available adaptation strategies (e.g., utility at a parcel scale versus a shoreline scale) as well as the constraints and opportunities of the natural backshore characteristics. Put another way, stretches of the coastline with shared geological characteristics may lend themselves to different sets of adaptation options, and the overall mix of these constraints and opportunities should be considered when developing a set of adaptation approaches that together maximize coastal resource benefits throughout a jurisdiction or wider region. For example, some stretches of shoreline might have the geophysical characteristics conducive to nature-based adaptation measures, whereas others may not, and still others may lend themselves to other broad approaches such as the inland

migration of coastal open spaces or to various types of protective measures. Local governments should consider how to spatially distribute these broad approaches along their shorelines to balance the protection of development with coastal resource benefits.

### SPECIFIC ADAPTATION STRATEGIES

The following sections, organized by category of coastal resource, present measures that local governments and coastal planners should consider including in their LCPs or individual CDPs. The purpose of this organization is to allow coastal managers and project applicants to easily find strategies that will help address the specific resource vulnerabilities identified in Steps 2-4 of the LCP and CDP processes laid out in Chapters 5 and 6. In the development of LCP policies, local governments should use adaptation measures that best implement the statewide resource protection and hazard policies of the Coastal Act at the local level given the diverse geography and conditions of different areas.

As part of identifying adaptation strategies, local governments should carefully examine the potential impacts to coastal resources that could occur from various adaptation strategies, including impacts to environmental justice communities. Adaptation strategies should be inclusive and comprehensive, engaging stakeholders across many sectors to protect impacted communities, habitats, and infrastructure. Some adaptation strategies will need to be implemented incrementally over time as conditions change, and many strategies will need to be implemented through both the LCP and CDP to be effective. For each issue area, there is a description of potential impacts that could occur due to sea level rise and a list of adaptation tools or actions to minimize impacts. To skip to a topic, click on the links below.

A. Coastal Development and Hazards
B. Public Access and Recreation
C. Coastal Habitats, ESHA, and Wetlands
D. Agricultural Resources
E. Water Quality and Supply
F. Archaeological and Paleontological Resources
G. Scenic and Visual Resources

The lists in these sections should be considered neither checklists from which all options need to be used, nor exhaustive lists of all possible adaptation strategies. Sea level rise adaptation is an evolving field, and policy language, environmental justice and tribal concerns, cost considerations, effectiveness of various strategies, and other topics are continuing to be developed. Planners, applicants, and partners will need to think creatively and adaptively respond to changing conditions, new science, and new adaptation opportunities, and the Coastal Commission will continue to support and collaborate on these efforts.

Additionally, sea level rise planning may involve a number of trade-offs among various competing interests, and no single adaptation strategy will be able to accomplish all planning objectives. Economic, social, and environmental justice implications of various adaptation options will likely play into the planning process at the local level. The important point is to analyze current and future risks from sea level rise, engage with affected communities, determine local priorities and goals for protection of coastal resources and development in light of Coastal Act requirements, and identify what land use designations, zoning ordinances, and other adaptation strategies can be used to meet those goals.

## A. Coastal Development and Hazards

The Coastal Act requires the Coastal Commission to take into account the effects of sea level rise in its coastal resources planning and management (Coastal Act Section 30270). The Coastal Act also requires that new development be sited and designed to be safe from hazards and to not adversely impact coastal resources (Coastal Act Sections 30235 and 30253). The main goals that relate to hazards and coastal development are:

- Update land use designations, zoning maps, and ordinances to account for changing hazard zones
- Include sea level rise in hazard analyses and policies
- Plan and locate new development to be safe from hazards, not require protection over its entire lifespan, and be protective of coastal resources
- Incorporate sea level rise adaptation into redevelopment policies
- Encourage the removal of development that is threatened by sea level rise
- Use nature-based adaptation strategies as a preferred alternative for protection of existing endangered structures
- Limit bluff and shoreline protective devices to protect existing endangered structures
- Require special considerations for critical infrastructure and facilities
- Protect transportation infrastructure

Chapter 3 of the Guidance covers the impacts to coastal development that might result from sea level rise. Certified LCPs should already have policies and standards to assure that coastal development is safe over its anticipated lifetime and that it does not adversely impact other coastal resources. However, LCP policies and standards may need to be updated in light of new knowledge and to consider sea level rise hazards. Adaptation options have been developed to support the development goals of the Coastal Act through both LCP policies and CDP conditions, and the following strategies cover a range of options for addressing the identified goals of the Coastal Act.

## Goal: Update land use designations, zoning maps, and ordinances to account for changing hazard zones

**A.1** **Establish mapped hazard zones or overlays:** Develop coastal hazard maps or overlay zones that include areas that will be subject to wave action, storm flooding, groundwater rise, and erosion due to sea level rise. Within those mapped areas, update land uses and zoning requirements to minimize risks from sea level rise. For example, limit new development in current and future sea level hazard zones, encourage removal of existing development when threatened, and/or require certain special conditions of approval of Coastal Development Permits such as assumptions of risk or design standards.

A.31a **Identify zones that require a more rigorous sea level rise hazards analysis**: Specify areas where a closer analysis of sea level rise is necessary at the permit application stage to avoid or minimize coastal hazards and impacts to coastal resources and communities. Ensure that the most up-to-date information on sea level rise is incorporated in such analyses.

A.31b **Incorporate wave runup zones and sea level rise in coastal flood hazard maps:** Develop coastal flood maps that include areas that will be subject to wave action and flooding due to sea level rise. These maps may be able to rely upon existing flood maps, such as the FEMA Flood Insurance Rate Maps, for current flood areas and base conditions, but should be augmented to include future conditions, including sea level rise, likely to occur through the life of proposed new development.

## Goal: Include sea level rise in hazard analyses and policies

**A.2** **Update policies to require sea level rise to be included in hazard analyses and management plans**: LCP policies should include requirements to analyze projected sea level rise. Consider specific sea level rise scenarios to be analyzed. (See Chapter 3 of the Guidance for a description of scenario-based planning.) LCPs could also specify which analyses are required for various types of projects/development (see Step 3 of Chapters 5 and 6 or Appendix B for suggested analyses).

A.2a **Site-specific evaluation of sea level rise**: Update policies, ordinances, and permit application requirements to include a required site-specific evaluation of coastal hazards due to sea level rise over the full anticipated lifetime of any proposed development. Analyses should be conducted by a certified Civil Engineer or Engineering Geologist with expertise in coastal processes.

A.2b **Incorporate sea level rise into calculations of the Geologic Setback Line**: Update geotechnical report requirements for establishing the Geologic Setback Line (bluff setback) to include consideration of bluff retreat due to sea level rise in addition to historic bluff retreat data, future increase in storm or El Niño events,

and any known site-specific conditions. The report should be completed by a licensed Geotechnical Engineer or an Engineering Geologist.

A.2c **Include sea level rise in wave runup, storm surge, and tsunami hazard assessments**[64]: Sea level rise should be included in wave runup analyses, including storm event and tsunami hazard assessments. This should include evaluating tsunami loads/currents on maritime facilities and coastal structures. Since tsunami wave runup can be quite large, sea level rise projections of only a few inches may not have a large impact on these assessments. However, for time periods or scenarios where sea level rise projections are large (perhaps 1 ft or more), it would be appropriate to include sea level rise because it could change the results to a significant degree.

**A.3 Establish shoreline management plans to address long-term shoreline change due to sea level rise**: Create policies that require a management plan for priority areas that are subject to sea level rise hazards and incorporate the plan into the larger LCP if applicable. Similar to an LCP, shoreline management plans generally include the short and long term goals for the specified area, the management actions and policies necessary for reaching those goals, and any necessary monitoring to ensure effectiveness and success. Incorporate strategies necessary to manage and adapt to changes in wave, flooding, and erosion hazards due to sea level rise. Such plans may identify specific adaptation actions identified per the requirements of SB 272 and may include a recommended or required timeline for updates.

## Goal: Plan and locate new development to be safe from hazards, not require protection over its entire lifespan, and be protective of coastal resources

**A.4 Limit new development in hazardous areas**: Restrict or limit construction of new development in zones or overlay areas that have been identified or designated as hazardous areas to avoid or minimize impacts to coastal resources and property from sea level rise impacts.

**A.5 Cluster development away from hazard areas**: Concentrate development away from hazardous areas. Update any existing policies that cluster development to reflect additional hazard zones due to sea level rise.

A.5a **Concentration of development/smart growth**: Require development to be concentrated in areas that can accommodate it without significant adverse effects on coastal resources or surrounding communities. This strategy is applicable for community wide planning through an LCP but may also apply to

[64] Tsunami evacuation maps are based upon current sea level conditions and they will need to be updated with changes in sea level.

CDPs for subdivisions or for larger developments involving large or multiple lots. See the Commission's Smart Growth Planning & Permitting in the Coastal Zone guidance for more information on integrating smart growth strategies into LCPs and CDPs.

A.5b **Transfer of Development Rights programs (TDR)**: Restrict development in one area ("sending area") and allow for the transfer of development rights to another area more appropriate for intense use ("receiving area"). LCPs can establish policies to implement a TDR program to restrict development in areas vulnerable to sea level rise and allow for transfer of development rights to parcels with less vulnerability to hazards. A TDR program can encourage the relocation of development away from at-risk locations and may be used in combination with a buy-out program.

**A.6** **Develop adequate setbacks for new development**: Ensure structures are set back far enough inland from the beach or bluff edge such that they will not be endangered by erosion (including sea level rise induced erosion) over the life of the structure, *without the use of a shoreline protective device*. When used to address future risk, setbacks are normally defined by a measurable distance from an identifiable location such as a bluff edge, line of vegetation, dune crest, or roadway. Establish general guidance and criteria for setbacks in LCPs that consider changes in retreat due to sea level rise. Require detailed, site-specific analyses through LCPs and CDPs to determine the size of the setback necessary to assure safety over the anticipated lifetime of the structure, taking into consideration sea level rise.




Figure 21. Photo depicting a development setback in Pismo Beach. (*Source:* California Coastal Records Project)

**A.7** **Limit subdivisions in areas vulnerable to sea level rise**: Prohibit any new land divisions, including subdivisions, lot splits, lot line adjustments, and/or certificates of compliance that create new beachfront or blufftop lots unless the lots can meet specific criteria that ensure that when the lots are developed, the development will not be exposed to hazards or pose any risks to protection of coastal resources.

**A.8** **Update development siting, code, and design standards to avoid, minimize, or reduce risks from coastal hazards and extreme events**: Establish and implement building codes and standards for building siting and construction that avoid or minimize risks from flooding and erosion and increase resilience to extreme events within sea level rise hazard zones. Such standards and applicable building code provisions should be included in LCPs as additional development controls in areas that are identified in the LCP as hazard areas, and applied in specific projects through a CDP.

A.8a **Update flood protection measures to incorporate both FEMA and Coastal Act requirements:** Require new development located in areas subject to current or future flood/wave action to be sited and designed to be capable of withstanding such impacts in compliance with both FEMA and Coastal Act requirements. For example, ensure that implementation of adaptation measures such as elevation of habitable areas, break-away walls, *etc*. will be consistent with both LCP and FEMA provisions.

A.8b **Limit basements and first floor habitable space**: Where applicable, in areas likely to be subject to current or future flood/wave action, revise residential building standards to prohibit habitable space at elevations subject to wave/flood risk. Specifically address potential impacts of basements on long-range adaptation options such as landward relocation or removal.

A.8c **Evaluate impacts from flood protection measures:** Require new development that must be located in areas likely subject to current or future flood/wave action or elevated groundwater to evaluate potential impacts to adjacent or nearby properties from all proposed structural flood protection measures to ensure that these measures will not create adverse direct and/or cumulative impacts either on-site or off-site.

**A.9** **Analyze options for removal when planning and designing new development:** Design options should not place an undue burden on future property owners or coastal resources. For new development in high hazard areas or resource-constrained areas where managed retreat might be an appropriate option at some time in the future, ensure that foundation designs or other aspects of the development will not preclude future incremental relocation or managed retreat. Foundation and building elements, such as deepened perimeter foundations, caissons or basements, may be difficult to remove in the future, or their removal may put adjacent properties at risk. Alternative design options should be considered, and employed if site conditions allow.

A.9a **Develop a plan to remove or relocate structures that become threatened:** Require new development authorized through a CDP that is subject to wave action, erosion, or other hazards to be removed or relocated if it becomes threatened in the future.

A.9b **Identify triggers for incremental removal of structures on constrained lots**: When a lot is not large enough to accommodate development that avoids coastal hazards for the expected life of the development, develop a project option that minimizes hazards from the identified sea level rise scenarios for as long as possible, and then requires incremental retreat once certain triggers are met.

Triggers for relocation or removal of the structure would be determined by changing site conditions such as when essential services to the site (e.g., utilities, roads) can no longer feasibly be maintained due to the coastal hazards; removal is required pursuant to LCP policies for sea level rise adaptation planning; the development requires new and/or augmented shoreline protective devices that conflict with relevant LCP or Coastal Act policies; or at pre-defined physical triggers such as when erosion is within a certain distance of the foundation, when monthly high tides are within a certain distance of the finished floor elevation, when building officials prohibit occupancy, or when the wetland buffer area decreases to a certain width.

A.9c **Avoid shoreline protection for new development:** Require CDPs for new development in hazardous locations to include as a condition of approval a waiver of rights to future shoreline protection that would substantially alter natural landforms or cause other adverse coastal resource impacts.

A.9d **Limit the use of foundations or basements that can interfere with coastal processes:** In locations where foundation or building elements, such as deepened perimeter foundations, caissons or basements may be exposed to wave action through rising sea level or erosion, require analysis of less extensive foundation or building options.

A.9e **Develop triggers for foundation and structure removal:** If no less damaging foundation alternatives are possible, ensure that the foundation design allows for incremental removal as the foundation elements become exposed, and develop pre-established triggers, for example when the bluff edge or shoreline comes within a certain distance of the foundation, for incremental or complete removal that will avoid future resource impacts.



Figure 22. Photo depicting eroding bluff and exposed caissons in Encinitas, CA. (*Photograph by Lesley Ewing*)

**A.10** **Ensure that current and future risks are assumed by the property owner**: New development should be undertaken in such a way that the consequences from development in high hazard areas will not be passed on to public or coastal resources. Recognize that over time, sea level rise will exacerbate hazards, cause the public trust boundary to move inland, and/or impact public services to the site. Establish standards, permit conditions, and deed restrictions that ensure that current and future risks are disclosed to and assumed by the property owner. Consider policies that would encourage or require property owners to set aside money, such as in the form of a bond, as a contingency if it becomes necessary to modify, relocate, or remove development that becomes threatened in the future.

**A.11** **Real estate disclosure**: Require sellers of real estate to disclose permit conditions related to coastal hazards, or property defects or vulnerabilities, including information about known current and potential future vulnerabilities to sea level rise, to prospective buyers prior to closing escrow. Consider translating the real estate disclosure into languages other than English to increase language access.

## Goal: Incorporate sea level rise adaptation into redevelopment policies

**A.12** **Avoid the expansion or perpetuation of existing structures in at-risk locations:** On an eroding shoreline, the seaward portions of an existing structure may become threatened as the setback or buffer zone between the structure and the mean high tide line or bluff edge is reduced due to erosion of the beach or bluff. When the seaward

portion of the structure no longer meets the standards or setback that would be required for new development, it becomes a "non-conforming" structure for purposes of redevelopment policies and regulations. The following should be considered, as consistent with the Coastal Act, FEMA policies, and other relevant standards, to address existing non-conforming development to avoid the need for shoreline or bluff protective devices and associated impacts to coastal resources.

A.12a **Update non-conforming structure policies and definitions**: Develop policies and regulations to define non-conforming development in the area between the sea and the first coastal roadway or other known hazard zones to avoid perpetuating development that may become at risk and require a new protective device or extend the need for an existing protective device.

A.12b **Limit redevelopment or upgrades to existing structures in at risk locations**: Use redevelopment policies or regulations to limit expansions, additions, or substantial renovations of existing structures in danger from erosion. Require removal of non-conforming portions of the existing structure, when possible, when a remodel or renovation is proposed.

A.12c **Limit foundation work within the geologic setback area:** To facilitate removal of non-conforming portions of an existing structure, use LCP regulations and CDPs to limit new or replacement foundations or substantial improvements, other than repair and maintenance, to the existing foundation when located seaward of the Geologic Setback line. Approve significant new foundation work only when it is located inland of the setback line for new development and when it will not interfere with coastal processes in the future.

A.12d **Limit increases to existing non-conformities:** Use LCP regulations and CDPs to allow non-exempt repair and maintenance and modifications only if they do not increase the size or degree of non-conformity of the existing structure. For shoreline or blufftop development, any decrease in the existing non-conforming setback would increase the degree of non-conformity.

A.12e **Limit additions to non-conforming structures:** Use LCP regulations and CDPs to acknowledge that additions to existing structures should be considered new development that must conform to the standards for new development including but not limited to avoiding future protective devices. Consider limitations on the size of additions unless non-conforming portions of the structure are removed.

A.12f **Address existing protection of non-conforming structures:** Use LCP regulations and CDP conditions to put current and future property owners on notice that if there is currently shoreline or bluff protection for an existing structure, the structure is likely at-risk and improvements to that structure in its current location may be limited. Also, consider acknowledging that any rights to retain the existing protective device(s) apply only to the structure that existed at the time the protective device was constructed or permitted.

**A.13** **Redevelopment of existing structures:** Define "redevelopment" as, at a minimum, replacement of 50% or more of an existing structure. Other options that may be used to define what constitutes redevelopment or a replacement structure could include 1) limits on the extent of replacement of major structural components such as the foundation or exterior walls, or 2) improvements costing more than 50% of the assessed or appraised value of the existing structure. The redevelopment definition should take into consideration existing conditions and pattern of development, potential impacts to coastal resources, and the need for bluff or shoreline protective devices if the structure remains in its current, non-conforming location.

A.13a **Require redevelopment to meet the standards for new development:** Use LCPs and CDPs to require that renovations meeting the threshold for redevelopment should not be approved unless the entire structure meets the standards for new development, including but not limited to a waiver of right to protection. Specify that if any existing non-conforming elements are permitted to remain, those non-conforming elements are not subject to rights to protection pursuant to Coastal Act Section 30235.

A.13b **Include cumulative improvement or additions to existing structures in the definition of redevelopment:** Use LCP regulations to acknowledge that demolition, renovation, or replacement of less than 50% (or less) of an existing structure constitutes redevelopment when the proposed improvements would result cumulatively in replacement of more than 50% of the existing structure from an established date, such as the effective date of the Coastal Act, January 1, 1977.

**A.14** **Remove existing shoreline protective devices**: On properties with existing shoreline protective devices, use regulations to require removal of the protective device when the structure requiring protection is redeveloped or removed. If removal is not possible, require a waiver of any rights to retain the protective device to protect any structure other than the one that existed at the time the protective device was constructed or permitted.

## Goal: Encourage the removal of development that is threatened by sea level rise

**A.15** **Use Rolling Easements**: The term "rolling easement" refers to the policy or policies intended to allow coastal lands and habitats including beaches and wetlands to migrate landward over time as the mean high tide line and public trust boundary moves inland with sea level rise. Such policies often restrict the use of shoreline protective structures (such as the "no future seawall" limitation sometimes used by the Commission), limit new development, and encourage the removal of structures that are seaward (or become seaward over time) of a designated boundary. This boundary may be designated based on such variables as the mean high tide line, dune vegetation line, or

other dynamic line or legal requirement. Despite the term "rolling easements," not all of the strategies related to rolling easements actually involve the use of recorded easements. The use of rolling easements (or ambulatory easements) can counteract the issues associated with coastal squeeze with the potential loss of coastal public access. Thus, rolling easements can positively impact inland, environmental justice, and tribal communities who seek to gain access to coastal public trust lands.

**A.16** **Develop an incentive program to relocate existing development at risk**: Provide incentives to relocate development out of hazardous areas and to acquire oceanfront properties damaged by storms, where relocation is not feasible. Consider creating a relocation fund through increased development fees, *in lieu* fees, or other funding mechanisms.

**A.17** **Transfer of Development Rights programs (TDR)**: See Strategy A.5b above.

**A.18** **Acquisition and buyout programs**: Acquisition includes the acquiring of land from the individual landowner(s). Structures are typically demolished or relocated, the property is restored, and future development on the land is restricted. Such a program is often used in combination with a TDR program that can provide incentives for relocation. Undeveloped lands are conserved as open space or public parks. LCPs can include policies to encourage the local government to establish an acquisition plan or buyout program to acquire property at risk from flooding or other hazards. However, buyout programs may raise significant social and environmental justice issues, such as exacerbating displacement in low-income, communities of color. Consult the Commission's Environmental Justice Policy for more information on how to engage with community members regarding TDR and buyout programs.

## Goal: Use nature-based adaptation strategies as a preferred alternative for protection of existing endangered structures

**A.19** **Require the use of nature-based measures as a preferred alternative**: Under appropriate shoreline conditions, require or encourage development to use nature-based adaptation strategies as an alternative to the placement of hard shoreline protection in order to protect development or other resources and to enhance natural resource areas. Examples of nature-based solutions include vegetative planting, dune restoration, and sand nourishment. Consider the need for regional, watershed, or littoral-scale planning and implementation of such strategies.

A.19a **Establish a beach nourishment program and protocols**: New policies may be needed to address increased demand or need for beach nourishment with sea level rise. Policies within an LCP may identify locations where nourishment may be appropriate; establish a beach nourishment program and protocols for conducting beach nourishment; establish criteria for the design, construction, and management of the nourishment area; and/or establish measures to

minimize adverse biological resource impacts from deposition of material, such as sand compatibility specifications, timing or seasonal restrictions, and identification of environmentally preferred locations for deposits. Beach nourishment programs should also consider how nourishment options may need to change over time as sea level rises.

A.19b **Dune management**: Establish management actions to maintain and restore dunes and natural dune processes. Dunes provide buffers against erosion and flooding by trapping windblown sand, storing excess beach sand, and protecting inland areas, and they also provide habitat. This is likely most effective for areas with some existing dune habitat and where there is sufficient space to expand a foredune beach for sand exchange between the more active (beach) and stable (dune) parts of the ecosystem. LCPs can identify existing dune systems and develop or encourage management plans to enhance and restore these areas, including consideration of ways that the system will change with rising sea level. CDPs for dune management plans may need to include periodic reviews so the permitted plans can be updated to address increased erosion from sea level rise, and the need for increased sand retention and replenishment.




Figure 23. Photo depicting dune restoration at Surfer's Point, Ventura. (*Photograph courtesy of Surfrider Foundation*)

A.19c **Regional Sediment Management (RSM) programs**: Develop a Regional Sediment Management (RSM) program including strategies designed to allow the use of

natural processes to solve engineering problems. To be most effective, RSM programs include the entire watershed, account for effects of human activities on sediment, protect and enhance coastal ecosystems, and maintain safe access to beaches for recreational purposes. LCPs can support development of an RSM program and its implementation, and the program should be periodically updated to address on-going changes from sea level rise. Natural boundaries for RSM may overlap within several LCPs, so regional cooperation may be needed for best implementation. Individual actions such as a beach nourishment project would be accomplished through a CDP. Many coastal RSM programs have already been developed and can be used as a resource. See the *Coastal Sediment Management Workgroup* website for more information.

A.19d **Maintenance or restoration of natural sand supply**: Adjustment of the sediment supply has been one of the ways natural systems have accommodated changes from sea level. Maintenance or restoration of sediment involves identifying natural sediment supplies and removing and/or modifying existing structures or actions that impair natural sand supply, such as dams or sand mining. LCPs could include policies and implementing standards that support nature-based responses to sea level rise by maintaining and restoring natural sand supply. Where applicable, develop policies and standards to prohibit sand mining, regulate sand replenishment, and promote removal of dams or the by-passing of sand around dams. Plans should take into consideration changes in sand supply due to sea level rise and may identify and designate high priority areas for restoring natural processes. These actions and policies can also be implemented through a Regional Sediment Management (RSM) program.

A.19e **Beneficial reuse of sediment through dredging management**: Dredging involves the removal of sediment from harbor areas to facilitate boat and ship traffic or from wetland areas for restoration. Dredging management actions and plans may need to be updated to account for elevated water levels. Policies can be developed with an LCP and/or carried out through a CDP to facilitate delivery of clean sediment extracted from dredging to nearby beaches or wetland areas where needed. Beneficial reuse of sediment in this way can be coordinated through a Regional Sediment Management (RSM) program, through a Sand Compatibility and Opportunistic Use Program (SCOUP), and/or through coordination with other jurisdictions.

## Goal: Allow bluff and shoreline protective devices only to protect existing endangered structures

**A.20 Use hard protection only if allowable and if no feasible less damaging alternative exists**: “Hard” coastal protection is a broad term for most engineered features such as seawalls, revetments, cave fills, and bulkheads that block the landward retreat of the shoreline. In some cases, caissons and pilings may also be considered hard shoreline

protective devices. Due to adverse effects on shoreline sand supply and beach area available for public use, as well as visual and other impacts, such protective devices should be avoided when feasible. Under current law, shoreline protection is allowed when required to serve coastal dependent uses or to protect existing structures or public beaches in danger from erosion if coastal resource impacts are avoided or minimized and fully mitigated where unavoidable.

A.20a **Retention of existing shoreline protection**: On intensely developed, urbanized shorelines, if the removal of armoring would put existing development at risk and not otherwise result in significant protection or enhancement of coastal resources, it may be appropriate to allow properly designed shoreline armoring to remain for the foreseeable future, subject to conditions that provide for potential future removal in coordination with surrounding development. However, the proper short term responses, longer term adaptation measures, and mitigation of ongoing resource impacts should be determined through updated context-specific LCP planning and consideration of the existing rights and responsibilities of development in the area (see strategies A.21 – A.25).

**A.21 Require monitoring of the structure:** Require periodic monitoring of the shoreline protective device to examine for structural damage, excessive scour, or other impacts from coastal hazards and sea level rise. Ensure that the structures remain within the initial footprint and that they retain functional stability.

**A.22 Conditional approval of shoreline protective device**: Use LCP regulations and permit conditions to require monitoring of impacts to shoreline processes and beach width both at the project site and the broader area and/or littoral cell as feasible and provide for such actions as removal or modification of armoring in the future if it is no longer needed for protection or if site conditions change.

A.22a **Limit the authorization of shoreline protective devices to the development being protected:** Use LCP regulations and CDP conditions to require permits for bluff and shoreline protective devices to expire when the currently existing structure requiring protection is redeveloped, is no longer present, or no longer requires a protective device, whichever occurs first. Prior to expiration of the permit, the property owner should apply for a CDP to remove the protective device, or to modify or retain it if removal is not feasible at that time.

A.22b **Require assessment of impacts from existing pre-Coastal Act or permitted shoreline armoring:** Use LCP regulations and permit conditions to specify that expansion and/or alteration of a pre-Coastal Act or legally permitted bluff or shoreline protective device requires a new CDP and the review should include an assessment of changes to geologic site and beach conditions including but not limited to, changes in beach width relative to sea level rise, implementation of any long-term, large scale sand replenishment or shoreline restoration

programs, and any ongoing impacts to public access and recreation from the existing device.

A.22c **Reassess impacts and need for existing armoring over time:** Use LCP regulations and CDPs to provide for reassessment of the impacts from protective devices at specific trigger points, including when substantial improvement or redevelopment of the structure requiring protection is proposed, or when existing armoring is being modified or expanded. Reassessment should consider the effect any significant improvement to a structure requiring protection will have on the length of time the protective device will remain, and if the existing armoring is still required, acknowledge that it is authorized to protect the existing structure only. The CDP review should assess existing site conditions and evaluate options to modify, replace, or remove the existing device in a manner that would eliminate or mitigate any identified impacts that may be occurring on public access and recreation, scenic views, sand supply, and other coastal resources, if feasible.

**A.23 Require mitigation for impacts of shoreline protective devices**: For unavoidable public resource impacts from shoreline structures permitted under the Coastal Act, require mitigation of resource impacts over the life of the structure as a condition of approval for the development permit. For example, require landowners to pay mitigation fees and/or complete other mitigation actions for the loss of sandy beach and other adverse impacts on public access and recreation due to shoreline protection devices. Importantly, mitigation measures should be planned in such a way that sea level rise will not impair their efficacy over time. Other mitigation measures could include acquisition of other shoreline property for public recreational purposes, construction of public access and recreational improvements along the shoreline, and/or easements to protect lateral access along the shoreline in areas where seawalls eliminate sandy beach.

A.23a **Reassess mitigation over time as necessary:** Impacts of shoreline structures, including to shoreline and sand supply, public access and recreation, ecosystem values, and other relevant coastal resources, should be fully mitigated. Where reassessment of an approved structure is authorized, phasing of necessary mitigation may be appropriate.

**A.24 Limit retention of existing shore protection:** On lots with existing pre-Coastal Act or permitted armoring, consider requiring a waiver of rights to retain such protection for any structures other than the structure that existed at the time the armoring was constructed or permitted.

**A.25 Removal of shoreline protection structures**: The removal of shoreline protection structures can open beach or wetland areas to natural processes and provide for natural responses to sea level rise. LCPs can specify priority areas where shoreline protection structures should be removed if they are no longer needed or in a state of great disrepair, including areas where structures threaten the survival of wetlands and other

habitats, beaches, trails, and other recreational areas. Once these priority areas have been identified, assessment of potential re-siting of structures and removal of armoring could be required by a CDP as redevelopment occurs.



Figure 24. Photo depicting removal of shoreline protective structure. Removal of rock revetment restores access and allows natural bluff erosion at the Ritz Carlton in Half Moon Bay. (*Source:* California Coastal Records Project)

A.25a **Remove shoreline protective structures located on public lands:** Over time, sea level rise will cause the public trust boundary to move inland. If the structures as originally approved were located on uplands but that land becomes subject to the public trust in the future, the State Lands Commission or any local government or other entity acting as trustee for public trust lands could require the structures to be removed. The Commission or local governments could approve permit conditions to ensure permittees obtain authorization to retain or remove structures if they ever become located on public trust lands. Removal might also be accomplished through non-regulatory means such as offering incentives for removal to property owners or by incorporating removal of public structures into Capital Improvement Plans.

## Goal: Require special considerations for critical infrastructure and facilities

**A.26** **Plan ahead to preserve function of critical facilities**: Addressing sea level rise impacts to critical facilities and infrastructure will likely be more complex than for other resources and may require greater amounts of planning time, impacts analyses, public input, and funding. To address these complexities, establish measures that ensure continued function of critical infrastructure, or the basic facilities, service, networks, and systems needed for the functioning of a community. Programs and measures within an LCP could include identification of critical infrastructure that is vulnerable to SLR hazards,

development of phased adaptation approaches that reflect cost and feasibility factors, establishment of a plan for managed relocation of at-risk facilities, and/or other measures to ensure functional continuity of the critical services provided by infrastructure at risk from sea level rise and extreme storms. Repair and maintenance, elevation or spot-repair of key components, or fortification of structures where consistent with the Coastal Act may be implemented through CDPs. Ensure that throughout their lifespan, these facilities will not increase impacts on environmental justice and tribal communities (e.g., air pollution, water quality, utility rates, public health issues, coastal access limitations).

A.26a **Develop or update a long-term public works plan for critical facilities to address sea level rise**: Develop a long-term management plan to address the complexities of planning for sea level rise that incorporates any potential maintenance, relocation, or retrofits and structural changes to critical facilities to accommodate changes in sea level and obtain Coastal Commission certification. Prioritize the cleanup or relocation of existing hazardous facilities and avoid siting new hazardous facilities in flood-prone areas and/or near or adjacent to environmental justice and tribal communities.

**A.27 Apply high sea level rise scenarios for siting and design of critical facilities:** Given the planning complexities, high costs, and potential impacts resulting from damage, there is reason to be particularly cautious when planning and designing new critical facilities and/or retrofitting existing facilities. Ensure that critical facilities are designed to function even if the high-end amounts of sea level rise occur and that sites with hazardous materials are protected from worst-case scenario sea level rise impacts. Sea level rise poses a significant risk to these facilities and can create new health hazards or exacerbate existing hazards stemming from these facilities. Identify environmental justice concerns relating to sea level rise impacts to critical infrastructure since these communities are often situated closer to these facilities, and the potential risks stemming from the impacts can increase burdens on these neighborhoods.

A.27a **Design coastal-dependent infrastructure to accommodate worst case scenario sea level rise**: Include policies that would require proposals and/or expansion plans to address sea level rise for coastal dependent infrastructure that must necessarily be sited in potentially hazardous areas, such as industrial, energy, and port facilities. Such facilities should be designed to withstand worst case future impacts while minimizing risks to other coastal resources through initial siting, design, and/or inclusion of features that will allow for future adaptation. Incorporate measures during design and construction of development in historically contaminated industrial sites to address soil and water contamination such that any future development will be protective of coastal resources and human health.

**A.28 Site and design wastewater disposal systems to avoid risks from sea level rise**: Wastewater treatment and disposal systems are particularly challenging in that they are

often located in areas that will be impacted by sea level rise. Flooding and groundwater rise may also impair the functionality of a wastewater treatment facility and lead to sewage contamination of water supplies and soil. Ensure that these systems are not adversely affected by the impacts of sea level rise over the full life of the structure and ensure that damage to these facilities would not result in impacts to water quality or other coastal resources. Avoid locating new facilities in hazardous areas and near environmental justice communities if possible. If complete avoidance is not possible, minimize elements of the system that are in hazardous areas (for example, locate the main facility on higher ground and use pump stations and force mains to transport wastewater from lower, potentially hazardous areas), and design any facilities in hazardous areas to withstand worst-case scenario sea level rise impacts. Consider potential disproportionate impacts to environmental justice communities in the event of system failure.

## Goal: Ensure safety and long-term functionality of transportation infrastructure

**A.29** **Identify priorities for adaptation planning and response:** Carry out vulnerability analyses to identify chronic problem areas that are highly subject to erosion, wave impacts, flooding, or other coastal hazards or that maybe become so in the near future. Coordinate with Caltrans and local public works/transportation agencies to address high priority areas and increase monitoring efforts of chronic problem areas.

**A.30** **Add policies to address impacts to transportation routes**: If transportation facilities are at risk from sea level rise, coordinate with Caltrans and local public works/transportation agencies to establish new alternative transportation routes or a plan to ensure continued alternative transportation and parking is available that allows for continued access to beaches and other recreation areas. Encourage multimodal, affordable transportation, including public transit, vehicles, pedestrians, and bicycles through and around a community to support a diversity of transportation options.

A.30a **Integrate LCP/land use planning processes with transportation planning processes:** Updates and changes to LCPs and other land use planning efforts should be jointly planned, evaluated, and implemented with Coordinated System Management Plans, Regional Transportation Plans, and other transportation planning efforts to ensure that long-term land use and access goals and needs are aligned.

**A.31** **Allow for phased implementation of realignment and relocation projects:** In some cases it may be necessary to make incremental changes in transportation networks so that access to and along the coast can be maintained while also addressing coastal hazards over the long-term. For example, a phased approach may allow for interim shoreline protection to maintain an existing road alignment while future realignment plans are evaluated and pursued. Such phased approaches should be coordinated with

Caltrans and local public works/transportation agencies and aligned with long-term LCP planning and adaptation goals. Individual projects will be implemented through CDPs.

A.31a **Consider adverse impacts of realignment and relocation projects to environmental justice communities:** Realignment and relocation of transportation routes may have disproportionate burdens on environmental justice communities. For example, when a specific transportation segment is closed due to flooding or erosion, redirecting traffic to an alternate route or relocating a vulnerable highway segment farther inland without assessing the communities who live nearby or use the current and alternate routes may result in a pollution or displacement burden to these inland communities. Relocating important transportation routes can also affect environmental justice communities during emergency evacuations and response efforts, often making it more difficult for these communities to access these services. Ensure that any relocation projects include robust community engagement before and throughout the planning process.




Figure 25. Photo depicting planned retreat for major public infrastructure. The Piedras Blancas Highway 1 Realignment will move nearly 3 miles (5km) of Highway 1 500 ft (152 m) inland. (Source: California Coastal Records Project)

**A.32 Plan and design transportation systems to accommodate anticipated sea level rise impacts:** Ensure that transportation networks are designed to function even if the highest projected sea level rise amounts occur. Efforts to realign, retrofit, and/or protect infrastructure should be coordinated with Caltrans, local public works/transportation agencies, environmental justice communities, tribal communities, and LCP planning efforts, and individual projects will be implemented through CDPs or possibly Public Works Plans.

A.32a **Retrofit existing transportation infrastructure as necessary:** In instances where relocation is not an option, repair damage and/or retrofit existing structures to better withstand sea level rise impacts. For example, use stronger materials,

elevate bridges or sections of roadways, and build larger or additional drainage systems to address flooding concerns.

A.32b **Build redundancy into the system:** Provide alternate routes, as possible, to allow for access to and along the coast in instances in which sections of roadways may become temporarily impassible as a result of coastal hazards. Ensure that alternate route information is provided to residents and visitors to coastal areas. Consider translating the communication materials and signage about the alternative route information into languages other than English to increase language access.

**A.33 Incorporate sea level rise considerations into Port Master Plans and other port activities**: Ensure that ports and related infrastructure are designed to function given anticipated sea level rise. In some cases, this may mean initially designing structures to accommodate projected sea level rise impacts. Other options may include planning for and ensuring capacity for future adaptive actions.

A.33a **Retrofit existing port infrastructure as necessary**: Given the coastal-dependent nature of many port structures, it may not be feasible to site or relocate development to avoid hazards. In these instances it may be more appropriate to include efforts to accommodate and withstand sea level rise during actions to repair or retrofit existing structures. Options may include using more robust designs or materials or elevating structures.

A.33b **Minimize resource impacts that may result from future use of shoreline protective structures**: If existing, coastal-dependent port structures require shoreline protective structures, minimize resource impacts as feasible and consistent with Chapter 3 and/or Chapter 8 of the Coastal Act, as applicable, by encouraging inland expansion of protective devices rather than further fill of coastal waters.

A.33c **Ensure that linkages to overland transportation networks are able to adapt to sea level rise impacts**: Coordinate with relevant stakeholders to ensure that linkages between port infrastructure and overland transportation networks will be resilient to future sea level rise impacts.

A.33d **Ensure that lessees and other parties understand sea level rise risks and vulnerabilities**: Coordinate with lessees and other stakeholders to ensure that they understand the risks associated with development in hazard areas as well as the responsibilities that come with such development.

## B. Public Access and Recreation

One of the highest priorities in the Coastal Act is the mandate to maximize public access and recreational opportunities to and along the coast. The main goals and Coastal Act policies (Sections 30210, 30220, 30221, 30213) that relate to public access and recreation are to:

- Maximize public access and recreational use by protecting beaches and other coastal areas suitable for such use
- Protect lower cost visitor and recreational facilities and accessways

Chapter 3 of the Guidance covers the impacts to public access and recreation that might result from sea level rise or the interaction of sea level rise with development patterns. Chapter 4 of the Guidance explains the importance of protecting coastal public access resources, including for environmental justice communities. Certified LCPs should already have policies and standards to assure that existing public access and visitor serving amenities are protected and that maximum public access is both planned for and provided with new development when warranted. However, LCP policies and standards may need to be updated to consider sea level rise hazards. Adaptation options have been developed to support the access goals of the Coastal Act through both LCP policies and CDP conditions, and the following strategies cover a range of options for addressing the identified goals of the Coastal Act.

### Goal: Maximize public access and recreational use by protecting beaches and other coastal areas

**B.1** **Incorporate sea level rise into a comprehensive beach management strategy**: Update or develop a new comprehensive beach management strategy to address loss of beach areas, including loss of lateral access, or changes in beach management due to sea level rise. Establish a program to minimize loss of beach area through, as may be appropriate, a beach nourishment program; restoring sand and sediment supply to the littoral cell; removal, adjustments, or maintenance to shoreline protection structures; use of man-made structures such as terminal groins or artificial reefs to retain sediment; or other actions. Include any adaptation actions identified as required by SB 272 and identify a relevant timeline for updates. Maximize public access with special attention to environmental justice communities within the LCP jurisdiction, as well as visitors from environmental justice communities outside the jurisdiction. Ensure amenities at coastal access sites are equitably accessible to all visitors (e.g., translated signage and wayfinding, ADA accessible, public restrooms, picnic areas, trails, playgrounds, etc.).

B.1a **Develop a sediment management and sand replenishment strategy**: Identify natural sediment supplies and remove and/or modify existing structures or

actions that impair natural sand supply, such as dams or sand mining. LCPs could include policies and implementing standards that support nature-based responses to sea level rise by maintaining and restoring natural sand supply. Where applicable, develop policies and standards to prohibit sand mining, regulate sand replenishment, and promote removal of dams or the by-passing of sand around dams. Plans should take into consideration changes in sand supply due to sea level rise. These actions and policies can also be implemented through a Regional Sediment Management (RSM) program.

**B.2** **Plan ahead to replace loss of access and recreation areas:** Identify replacement opportunities or otherwise plan ahead for how to replace recreation areas and accessways that will be lost due to inundation or damage associated with sea level rise. An LCP could designate and zone lands for this through, for example, a phased overlay or other regulatory measures that ensure that access and recreational areas are available in the future. Local governments may choose to provide additional incentives to encourage creation of new recreation areas or opportunities. Such incentives could include grants for protecting new recreation areas or tax breaks for recreation related businesses.

B.2a **Protect existing open space adjacent to the coast**: Plan for future coastal recreational space and parkland by protecting open space adjacent to coastal habitats so that beaches and other habitats can migrate or so that there is open space available as parkland or other areas are lost.

B.2b **Plan for removal of structures that limit inland migration of beaches**: Seawalls and other development adjacent to beaches and other coastal habitats will impede the ability of these habitats to migrate inland and will therefore result in the inundation and eventual loss of these areas. Consideration should be given to removing and relocating these structures to ensure that beaches and other habitats are able to persist over time. Additional detail on removal of structures can be found above in the “Coastal Development and Hazards” section of this chapter.

## Goal: Protect lower cost visitor and recreational facilities and accessways

**B.3** **Site and design access sites and facilities to minimize impacts**: Add policies that require public access sites, segments of the California Coastal Trail, and recreation and visitor-serving facilities to be sited and designed to avoid impacts from sea level rise, while maximizing public access and recreation opportunities. Examples of siting and design standards for development can be found in section A. Where facilities can be safely sited for the near term but future impacts are likely, require an adaptive management plan detailing steps for maintenance, retrofitting, and/or relocation. Ensure access points are located within reasonable proximity to environmental justice communities

and that they are accessible via multiple modes of transportation (e.g., public transit, bikes); require "Complete Streets" planning in transportation projects.[65]

B.3a **Require mitigation of any unavoidable impacts**: For unavoidable impacts to public access or recreation from shoreline armoring or other development, require mitigation of impacts through the addition of new public access, recreation opportunities, visitor-serving accommodations, or Coastal Trail segments, or payment of fees to fund such improvements. Importantly, mitigation measures should be planned in such a way that, if possible, sea level rise will not impair their efficacy over time.

**B.4 Plan ahead to replace loss of visitor-serving and recreational facilities**: Develop a plan to replace any visitor-serving facilities that are lost due to impacts from sea level rise, maximizing continued provision of affordable options and an appropriate mix of accommodations over time. For example, an LCP could include standards to re-site existing visitor-serving and recreational facilities when they become impacted by sea level rise and/or could identify and zone for future areas to be reserved for these functions.

B.4a. **Consider and prioritize environmental justice and tribal communities in planning for visitor-serving and recreational facilities:** This planning is especially important in the context of environmental justice and equity because the limited supply of low-cost visitor-serving facilities and accommodations exacerbates coastal access inequalities and disproportionately hinders the ability of individuals from low-income and environmental justice communities to recreate or stay overnight on the coast. Reserve areas for and encourage free or lower-cost visitor-serving uses (e.g., picnic grounds or gathering areas, beach equipment rental, concessions, natural and scenic resource viewing, visitor centers, visitor tours). Protect and provide free public access to piers and other areas for subsistence fishing. Require no-net-loss of lower-cost accommodations, such as the conversion of low-cost to high-cost facilities; in the case of unavoidable loss, require mitigation through construction of off-site facilities, in-lieu fees, and/or other community benefits (see Chapter 6 for more information on Community Benefits Agreements). Provide a range of accommodation types that will accommodate a range of income levels; ensure such overnight accommodation prioritizes low-cost alternatives. Prioritize, protect, and preserve facilities or services that are culturally significant to tribal communities.

**B.5 Add requirements for retrofit/relocation of public access and recreation sites at risk**: The LCP can add policies that require all new public access and recreation areas, sections of the California Coastal Trail, visitor- serving accommodations, or related

[65] Complete Streets is an approach to planning, designing, building, operating, and maintaining streets that enables safe access for all people who need to use them, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities.

recreation facilities to be retrofitted or relocated if they become threatened from erosion, flooding, or inundation. For new facilities and public access sites, the CDP conditions of approval can specify how maintenance, retrofit, or relocation will take place. Policies and plans should be designed to be adaptive so that retrofits and or/relocations are implemented as sea level rise impacts occur.

B.5a **Retrofit or relocate recreation and visitor-serving facilities**: Consider options to retrofit existing recreation and visitor-serving facilities to better accommodate sea level rise impacts. Such retrofits could include use of different building materials and/or relocating facilities.

B.5b **Retrofit or relocate vertical accessways**: Consider options to retrofit existing accessways to reduce impacts from sea level rise. Such retrofits could include using different materials that can better withstand impacts or re-orienting the layout or other features of accessways to lessen damage and other impacts. Also begin to plan for and identify triggers and options for relocating accessways over time as conditions change.

B.5c **Retrofit or relocate sections of the Coastal Trail**: Use boardwalks, bridges, and/or other design features to ensure continuity of the California Coastal Trail in sections that are vulnerable to SLR hazards. Some sections may need to be relocated over time. An LCP could identify vulnerable sections of the California Coastal Trail and establish a phased approach to relocate sections of the trail in such a way that is consistent with provisions of the Coastal Act and ensures continued lateral connectivity and that the California Coastal Trail remains within sight, sound, or smell of the sea.

## Goal: Foster efforts to better understand impacts of sea level rise

**B.6** **Support research on impacts to recreation and public access**: Changes in sea level will affect wave conditions and sediment transport, but additional research is needed to understand how these changes will affect specific conditions for subsistence fishing, surfing, and other recreation activities. While such research programs may be outside the scope of individual local jurisdictions, statements of support for the local issues that need to be addressed can help guide research agendas at the regional state or federal level. Or, such needs can serve to guide grant applications to undertake the needed projects within a jurisdiction. To the extent possible, add policies to promote research on sea level rise impacts to recreational activities like subsistence fishing, surfing, or other coastal recreational uses in the LCP jurisdiction.

# C. Coastal Habitats, ESHA, and Wetlands

The Coastal Act provides for the protection of both land and marine habitats. It mandates that ESHA and marine resources shall be protected against significant disruption of habitat value and shall be maintained, enhanced, and restored as feasible (Sections 30230, 30233, 30240, 30240(a), 30240(b)). The Coastal Act also requires the Commission to account for sea level rise in its coastal resource planning and management and to avoid and mitigate the adverse effects of such sea level rise (Section 30270). The main goals and Coastal Act policies that relate to coastal habitats are to:

- Protect, enhance, and restore sensitive habitats
- Avoid significant disruption to sensitive habitats
- Avoid significant impacts to habitats from adjacent development
- Manage sediment in ways that benefit habitats
- Protect these habitats over time, accounting for sea level rise

Chapter 3 of the Guidance covers the impacts to coastal habitats and resources that might result from sea level rise or the interaction of sea level rise with development patterns. Certified LCPs should already have policies and standards to ensure that ESHA, wetlands, and other coastal habitats and resources are protected to the maximum extent feasible. However, LCP policies and standards may need to be updated to consider sea level rise hazards. Adaptation options have been developed to support the habitat protection goals of the Coastal Act through both LCP policies and CDP conditions, and the following strategies cover a range of options for addressing the identified goals of the Coastal Act.

## Goal: Protect, enhance, and restore sensitive habitats

**C.1** **Open space preservation and conservation**: Preserve land for its ecological or recreational value. This may involve limiting or prohibiting development and any uses that conflict with ecological preservation goals. LCPs can establish transfer of development rights programs to offset reduced development potential and can develop open space management plans that evaluate and consider the impacts of sea level rise, extreme events, and other climate change impacts. LCPs can establish open space and conservation areas through land use designations and zoning, redevelopment restrictions, acquisition and easement programs, and setback and buffer requirements.

C.1a **Update policies to provide for new or restored coastal habitat**: Update policies to require new coastal habitat to be provided or for degraded areas to be restored to account for the expected loss of existing habitat that will occur when development blocks the necessary upland migration due to sea level rise. Use an adaptive management approach where applicable. Encourage policies that

provide for conservation or restoration of multiple habitat types. Consider the need for regional, watershed, or littoral scale planning for restoration efforts to improve effectiveness of this work. Prioritize projects providing equitable co-benefits from habitat protection, such as clean water and ecosystem services, for environmental justice communities.

C.1b **Identify areas for public acquisition**: New or updated LCPs can establish a program to partner with state, federal, and non-profit organizations to acquire and protect natural resource areas for public use, including areas that could serve as refugia for species impacted by sea level rise, or areas that could be appropriate sites for coastal habitat creation or restoration.

C.1c **Establish conservation easements or other development restrictions to protect habitat**: Establish a formalized program to identify, acquire, and manage areas appropriate for some form of conservation protection. Easements or other strategies may be used to limit or restrict development on portions of a lot parcel that are most vulnerable to SLR impacts. The program might develop standard agreements to be used for easements and identify the entities that could hold the easements. A conservation easement program could be established on a community wide basis through an LCP and implemented on a parcel by parcel basis through individual CDPs.

C.1d **Require open space protection as a component of new development located adjacent to coastal habitats**: The LCP can require permit conditions for new development in certain areas that buffers around natural resource areas be protected through a conservation easement, deed restrictions, or other comparable mechanism.

C.1e **Use Rolling Easements**: See Strategy A.15 above.

C.1f **Transfer of Development Rights programs (TDR)**: See Strategy A.5b above.

## Goal: Avoid significant disruption to habitats

**C.2** **Use ecological buffer zones and/or increase the size of buffers**: Buffer zones are intended to protect sensitive habitats from the adverse impacts of development and human disturbance. An important aspect of buffers is that they are distinct ecologically from the habitat they are designed to protect. LCPs can establish requirements for ecological buffers and provide guidance on how to establish or adjust these buffers to accommodate sea level rise. CDPs should require buffers to be designed, where applicable, to provide “habitat migration corridors” that allow sensitive habitats and species to migrate inland or upland as sea level rises.

C.2a **Consider sea level rise buffer zones**: Update buffer zone policies to allow room for coastal habitats to migrate with changes in sea level. The size of the buffer needed to allow for migration will vary depending on the individual wetland or habitat type, as well as site-specific features such as natural or artificial

topography and existing development. For instance, in flat areas, a larger buffer may be needed, but in steep areas, a smaller buffer may be acceptable.

**C.3** **Avoid impacts to Marine Protected Areas**: Recognize the importance of the State's network of marine protected areas (MPAs) in protecting the diversity and abundance of marine life. Understand that planning and permitting decisions made on land could have impacts on these areas, particularly as conditions change with sea level rise, and avoid disruptions to these habitats as feasible and applicable.

**C.4** **Protect specific ESHA functions:** Environmentally Sensitive Habitat Areas (ESHA) are areas that are critically important for the survival of species or valuable for maintaining biodiversity. These areas can include nursery grounds, spawning areas, or highly diverse areas. Where at risk from sea level rise, the LCP should establish measures to ensure the continued viability of the habitat areas, such as protection of migration zones, habitat corridors, and other applicable adaptation strategies, as listed below. ESHA that is not at risk from sea level rise should also be afforded special protection in the LCP to serve as refugia.

C.4a **Protect wildlife corridors, habitat linkages, and land upland of wetlands to allow habitat migration**: Preserve open areas that are adjacent to wetlands to allow for migration of these habitats as sea levels rise.

C.4b **Protect refugia areas**: Protect refugia, or areas that may be relatively unaltered by global climate change and thus can serve as a refuge for coastal species displaced from their native habitat due to sea level rise or other climate change impacts.

C.4c **Promote increased habitat connectivity to allow species movement**: Connectivity refers to the degree to which the landscape facilitates animal movement and other ecological flows. Roads, highways, median barriers, fences, walls, culverts, and other structures can inhibit movement of animals. Develop LCP policies that will enable identification of important animal movement corridors. Develop regulations to protect these corridors for present and future conditions, taking into account habitat shifts from climate change. In LCPs and through CDPs, require that new structures such as highways, medians, bridges, culverts, and other development are designed to facilitate movement of animals.

C.4d **Facilitate wetland and other habitat migration**: Reserve space for a "habitat migration corridor" or areas into which wetlands and other habitats could migrate as sea level rise induced inundation of existing wetland areas occurs. In the LCP, identify potential habitat migration corridors. These areas could be reserved for this purpose in an LCP through land acquisition, use designations, zoning buffers, setbacks, conservation easement requirements, and clustering development. LCPs should also consider developing a plan for acquisition of important habitat migration corridors.

## Goal: Avoid significant impacts to habitats from adjacent development

**C.5** **Limit new development in areas adjacent to wetlands, ESHA, and other coastal habitats**: Restrict the construction of new development in areas that are adjacent to wetlands, ESHA, and other coastal habitats in order to preserve buffers and open areas to allow for habitat migration.

C.5a **Cluster development away from coastal habitats**: Existing LCPs will likely have policies that already require clustering of development. To address sea level rise, these policies might need to be updated to include clustering development away from land where wetlands and other coastal habitats could migrate with sea level rise.

C.5b **Limit subdivisions**: Update subdivision requirements to require provision for inland migration of natural resource areas or to require lots to be configured in a way that allows such migration. Lot line adjustments may sometimes be appropriate if they facilitate locating physical development further away from hazards or sensitive resources.



Figure 26. Photo depicting the preservation and conservation of open space along an urban-rural boundary. North end of Pismo Beach from 1972 (*left*) to 2002 (r*ight*). (*Source:* California Coastal Records Project)

## Goal: Manage sediment in ways that benefit habitats

**C.6** **Identify opportunities for Regional Sediment Management**: Sediment supplies will be important for the long-term sustainability of many beaches and wetland areas. Strategies to maintain or restore natural sediment supplies and to coordinate sediment removal efforts with opportunities for reuse can provide multiple benefits to coastal ecosystems. See Strategy A.19c above for more detail on RSM programs.

C.6a **Restore natural sediment sources to wetlands**: Restoration of natural hydrodynamic systems will help to ensure the ability of wetlands to persist with sea level rise by ensuring that sediment is available for wetland accretion. Such actions may include restoring natural channels in streams and waterways that

have been armored or channelized. Organizing and coordinating such efforts may be accomplished through a Regional Sediment Management Plan.

C.6b **Identify opportunities for beneficial reuse of sediment to support wetland restoration**: Consider facilitating the delivery of clean, dredged sediment to areas where former wetlands have subsided or to areas where existing wetlands are or may become sediment-limited as sea levels rise.

## Goal: Incorporate sea level rise into habitat management actions

**C.7** **Include sea level rise in site-specific evaluations**: Update policies to require site-specific biological evaluations and field observations of coastal habitat to include an evaluation of vulnerability to sea level rise where appropriate. Such an evaluation should consider both topographic features as well as habitat and species sensitivities (for example, sensitivity to inundation and saltwater intrusion).

**C.8** **Incorporate sea level rise in restoration, creation, or enhancement of coastal habitats**: Update policies to require site-specific biological evaluations and field observations of coastal habitat to include an evaluation of vulnerability to sea level rise. Such an evaluation should consider both topographic features as well as habitat and species sensitivities (for example, sensitivity to inundation and saltwater intrusion). Habitat restoration, creation, or enhancement projects should be designed to withstand impacts of sea level rise and adapt to future conditions. As applicable, the LCP should contain policies to ensure restoration and management techniques account for future changes in conditions. CDPs for restoration projects should incorporate sea level rise and provisions to ensure habitats can adapt with changing future conditions.

**C.9** **Update habitat management plans to address sea level rise**: Add policies stating that the effects of sea level rise should be addressed in management plans for coastal habitats. For example, plans should evaluate the full range of sea level rise impacts to coastal habitats and provide a strategy for managing coastal habitats given changing sea level rise conditions. Existing management plans may need to be updated to add new monitoring and restoration requirements to address sea level rise. The strategies listed below are examples of strategies that could be included in habitat management plans.

C.9a **Use an adaptive management approach in ecosystem management, restoration, or design**: Habitat management plans and/or other habitat projects should establish an adaptive management approach, with clearly defined triggers for adaptive actions. Such an approach would allow for and ensure that coastal habitats are able to migrate and transition with changes in sea level.



Figure 27. Photo depicting habitat protection at Salinas River State Beach. Dunes are roped off to protect Snowy Plover nesting habitat. (*Source:* California Coastal Records Project)

**C.10** **Pursue strategies to protect ecosystem function under a range of future sea level rise or climate change scenarios**: The LCP and/or habitat management plans can recommend coastal habitat management strategies that strive to protect ecosystem function in the future. Strategies include protecting a wide range of ecosystem types, protecting refugia, protecting wildlife and habitat corridors, and establishing methods to monitor ecosystem change over time.

C.10a **Update monitoring requirements for coastal habitats**: As part of the LCP and/or habitat management plans, consider establishing a monitoring protocol and requirements for evaluating sea level rise impacts to coastal habitats over time. Such a protocol would also help identify triggers at which additional adaptation options are necessary.

## D. Agricultural Resources

Agriculture is a priority use within the Coastal Act, which mandates that the maximum amount of prime agricultural land shall be protected and maintained (Sections 30231, 30241, 30242). The main goals and Coastal Act policies that relate to agriculture are to:

- Protect the maximum amount of prime agricultural land
- Limit conversion of lands suitable for agriculture to non-agricultural uses
- Minimize impacts to water quality that could result from agricultural practices
- Promote water conservation efforts

Chapter 3 of the Guidance describes the impacts to agricultural resources that may result from sea level rise. Certified LCPs should already have policies and standards to ensure that agricultural resources are protected to the maximum extent feasible. However, LCP policies and standards may need to be updated to address sea level rise hazards. Adaptation options have been developed to support the agricultural protection goals of the Coastal Act through both LCP policies and CDP conditions, and the following strategies cover a range of options for addressing the identified goals of the Coastal Act.

### Goal: Protect the maximum amount of prime agricultural land

**D.1** **Identify and designate areas suitable for agricultural production to replace agricultural production areas that could be lost to sea level rise:** Identify any non-sensitive open or developed areas, both within and outside of the Coastal Zone, which could potentially be used to replace agricultural land that is lost to sea level rise. Update LCP designations and/or policies to protect these identified areas for agricultural production and, as applicable, to provide for their conversion to agricultural use. Encourage and support regional coordination as feasible and applicable.

D.1a **Establish SLR-specific agricultural protection program:** Establish a formal program to identify, acquire, incentivize, and manage areas appropriate for new/renewed agricultural use and/or for protection of current and/or future agricultural uses. Such program should target key areas and properties where agricultural conversion threats are highest and should dovetail with existing agricultural protection programs. Easements and other legal restrictions may be used as part of such program to help limit or restrict development in areas where agricultural land and production are most vulnerable to sea level rise impacts. The program might develop standard language and/or legal documents that can be used for easements or other property restrictions. The program should be flexible enough to be able to be implemented on both a large scale (e.g., though LCP policies and programs) as well as on a smaller scale (e.g., through the CDP process).

D.1b **Prioritize and center environmental justice communities when planning for agricultural land protection:** Agricultural lands and farms are important areas that provide wages and housing for low-income and communities of color. Management of existing and future agricultural areas should account for any disruptions to farmworkers and avoid displacement of these communities. Conduct targeted engagement and consultation with affected farmworkers in a manner that accounts for barriers such as work hours, language access and internet connection.

**D.2** **Protection, maintenance, and adaptation of dikes and levees**: Repairing and maintaining existing flood barriers such as dikes and levees may be a cost-effective way to continue to protect agricultural areas. While some repair and maintenance activities are exempt from the need for a CDP, the repair and maintenance exemption does not apply to repair and maintenance work that is located within an ESHA, within any sand area, within 50 feet of the edge of a coastal bluff or ESHA, or within 20 feet of coastal waters. LCPs could identify opportunities for these kinds of actions and ensure that they are appropriately permitted, with consideration to the environmental protection and restoration goals of the Coastal Act. While landowners have the right to repair and maintain existing legal levees in their current configurations, the Commission and local governments administering LCPs have the authority to regulate, via the CDP process, the proposed methods of repair and maintenance. To raise, reconfigure, enlarge, or widen levees is not repair and maintenance and requires a Coastal Development Permit. Such activities may not be consistent with the Coastal Act or certified LCP, such as in cases involving wetland fill impacts. However, where there are opportunities to restore marine resources and the biological productivity of wetlands and estuaries, it may be possible to permit a dike/levee reconstruction project that provides for substantial restoration.

## Goal: Limit conversion of lands suitable for agriculture to non-agricultural uses

**D.3** **Limit conversion of agricultural land to other developed land uses**: Develop policies to assure maximum environmentally feasible protection of rural agricultural land, open space, and other coastal resources, including areas that may be considered non-prime agricultural land at this time. Anticipate areas that could become more difficult to farm and identify strategies to avoid or mitigate the potential impacts.

## Goal: Minimize impacts to water quality that could result from agricultural practices

**D.4** **Include sea level rise in water quality protection policies**: Where needed, coordinate with regional water quality control boards to add policies to reduce water pollution from runoff should agricultural lands become flooded or inundated due to sea level rise.

D.4a **Minimize water quality impacts from flooding of agricultural lands**: Agricultural practices that are designed to minimize water quality impacts, such as those designed to minimize runoff, may need to be updated or enhanced to ensure water quality protection if sea level rise results in more frequent flooding of agricultural lands.

D.4b **Add policies to address saltwater intrusion**: Add policies to protect water supply for priority coastal agriculture, including policies to address saltwater intrusion, such as limits on groundwater withdrawal or diversification of water supplies. Strategies to pump freshwater and/or highly treated wastewater into aquifers to reduce saltwater intrusion should be minimized in areas with limited freshwater resources.

## Goal: Promote water conservation efforts

**D.5** **Maximize water conservation to protect priority agricultural water supplies**: Saltwater intrusion and other climate change impacts may result in reduced water availability. LCP policies should be updated to establish or enhance standards related to water conservation and/or to identify opportunities for water recycling, dual plumbing systems, and the like. For more information on options such as relocating wells and reducing pumping in sensitive aquifers, see the following section on Water Quality and Water Control Management.

**D.6** **Identify alternate water sources for agriculture**: Establish a program to identify alternate water sources for agriculture.

# E. Water Quality and Supply

The main water quality protection policy of the Coastal Act requires minimizing the adverse effects of wastewater discharges, runoff, and groundwater depletion in order to protect the biological productivity and quality of coastal waters, as described in Section 30231. The main goals related to water quality include:

- Control runoff and stormwater pollution
- Minimize adverse effects of wastewater discharges and entrainment
- Prevent depletion of groundwater supplies from saltwater intrusion
- Improve long-term water quality through research

Chapter 3 of the Guidance covers the impacts to coastal waters from increased runoff, wastewater discharge and saltwater intrusion into groundwater sources from sea level rise. Adaptation options have been developed to limit the amount of pollutants that enter coastal waters through runoff or discharges.

## Goal: Control runoff and stormwater pollution

**E.1** **Update water quality Best Management Practices (BMPs)**: Evaluate and update BMPs to account for changes in water quality and supply issues due to sea level rise, as applicable. Updates could include practices to provide greater infiltration/inflow of rainwater, increased stormwater capture and/or water recycling programs, the use of low impact development, improved maintenance procedures for public sewer mains, policies to address impaired private sewer laterals, and other proactive measures.

**E.2** **Include sea level rise in stormwater management plans and actions**: Control the amount of pollutants, sediments, and nutrients entering water bodies through precipitation-generated runoff. LCPs should include sea level rise and extreme storms in stormwater management plans and actions. CDPs for stormwater infrastructure should consider sea level rise.

E.2a **Increase capacity of stormwater infrastructure**: Actions to reduce impacts from higher water levels could include widening drainage ditches, improving carrying and storage capacity of tidally-influenced streams, installing larger pipes and culverts, adding pumps, converting culverts to bridges, creating retention and detention basins, and developing contingency plans for extreme events. Encouraging and supporting these types of efforts upstream may also be important.

E.2b **Use green stormwater infrastructure to the maximum extent feasible**: Employ natural, on-site drainage strategies to minimize the amount of stormwater that

flows into pipes or conveyance systems. These strategies include low impact development, green roofs, permeable pavements, bioretention (e.g., vegetated swales, rain gardens) and cisterns. LCPs can include policies that require green infrastructure be used whenever possible *in lieu* of hard structures. Incorporate sea level rise and extreme storms into the design, where available space, soils hydrology, and other site conditions allow. LCPs can also encourage comprehensive watershed restoration planning that addresses the entire watershed, integrating strategies like creek daylighting, wetland restoration, and reforestation. These broader, interconnected approaches can help reduce stormwater runoff, enhance biodiversity, and create natural buffers against sea level rise and flooding.

E.2c **Retrofit existing development with inadequate stormwater infrastructure**: Identify and prioritize development in low-lying or other at-risk areas with inadequate stormwater infrastructure and take steps to retrofit these systems to better accommodate sea level rise driven changes. Retrofits should incorporate the green infrastructure options detailed in strategy E.2b above as applicable.

## Goal: Minimize adverse effects of wastewater and stormwater discharges

**E.3 Add policies to address water quality risks from wastewater treatment plants, septic systems, and ocean outfalls**: Consider establishing a program to retrofit, relocate, or eliminate ocean outfalls and other wastewater infrastructure deemed at risk. Alternatives include modifications to outfall lines, the use of green infrastructure, and redesign of waste or combined waste and stormwater systems.

E.3a **Update siting and design policies**: Add policies to ensure that new ocean outfalls, wastewater treatment facilities, and other facilities that could negatively impact water quality if flooded or inundated, are sited and designed to minimize impacts from sea level rise. Avoid construction of new stormwater outfalls. Direct stormwater to existing facilities with appropriate treatment and filtration where feasible. Where new outfalls cannot be avoided, plan, site, and design stormwater outfalls to minimize adverse impacts on coastal resources, including consolidation of existing and new outfalls where appropriate. Consolidate new and existing outfalls where appropriate.

E.3b **Retrofit, relocate, or eliminate outfalls and other wastewater components deemed "at risk"**: An ocean outfall is a pipeline or tunnel that discharges municipal or industrial wastewater, stormwater, combined sewer overflows, cooling water, or brine effluents from desalination plants to the sea. LCPs should identify areas where sea level rise could affect flow of wastewater from outfalls and lead to backup and inland flooding, and plans should be made to retrofit, relocate, or eliminate these outfalls to prevent damage and impacts to water quality. Similarly, LCPs should identify vulnerabilities to other components of

wastewater treatment facilities and plan for necessary changes to these. Additionally, CDPs for new ocean outfalls, treatment plants, and components of treatment plants should consider sea level rise in the design.

E.3c **Reduce or find alternatives for septic systems in hazardous areas**: Flooding, inundation, and changing groundwater dynamics may result in impacts to septic systems, which rely on leach fields for dispersal of wastewater, that could cause water quality impairments. Options to reduce the potential for these impacts by redesigning or eliminating septic systems in hazardous areas should be identified. New development that will rely on septic systems should be limited in hazardous areas.

## Goal: Prevent depletion of groundwater supplies from saltwater intrusion

**E.4 Groundwater Management**: Plan and coordinate monitoring, operation, and administration of a groundwater basin or portion of a groundwater basin with the goal of fostering long-term sustainability of the resource. The LCP can add policies that specify limits or establish other standards for the use of groundwater and sensitive aquifers. These policies should be made in accordance with other regional water planning efforts, such as Integrated Regional Water Plans as well as relevant state water policies. CDPs involving the use of groundwater should address groundwater management issues.

E.4a **Add policies to address saltwater intrusion into aquifers**: Consider adding policies that establish a long-term strategy for addressing saltwater intrusion in aquifers, including limiting development that would use sensitive aquifers as applicable. For some areas of the state, additional information is needed on the site-specific impacts of sea level rise on aquifers. For these areas, the LCP could identify the local information needs and promote the establishment of a research program to increase understanding of the vulnerability of coastal aquifers.

E.4b **Limit groundwater extraction from shallow aquifers**: Groundwater extraction from shallow aquifers can increase susceptibility to saltwater intrusion. Regulating development to limit or prevent extraction and avoid overdraft from vulnerable aquifers can reduce the impacts of saltwater intrusion and preserve fresh groundwater supplies. LCPs or CDPs can add restrictions to the use of aquifers susceptible to saltwater intrusion and can encourage measures to recharge shallow aquifers that are depleted.

E.4c **Relocate wells and water intake facilities**: Identify opportunities to relocate wells and water intake facilities away from hazards and/or areas where saltwater intrusion may be a problem.

E.4d **Restrict development of new wells in sensitive areas**: Require new water wells to be sited away from areas where saltwater intrusion could occur.

E.4e **Limit development that relies on vulnerable water supplies**: Limit or restrict new development in areas that are dependent on water supplies that are or will become susceptible to saltwater intrusion.

E.4f **Ensure adequate long term water supplies:** When siting and designing new development, ensure that adequate and sustainable water sources are available for the lifetime of the development and suitable for the intended use of the development, considering potential impacts of sea level rise and saltwater intrusion upon groundwater supplies.

E.4g **Limit development in areas subject to hazards from rising groundwater:** Limit or restrict new development in areas where rising or emergent groundwater threatens development, including subsurface utilities and other critical infrastructure.

## Goal: Improve long-term water quality through research

**E.5 Identify research and monitoring needs to more precisely understand local issues**: Research programs may be established to analyze the particular local challenges related to water quality and supply as a result of sea level rise. Opportunities for innovative solutions, such as restoring wetlands, oyster reefs, or other nature-based adaptation strategies, to these challenges should be identified. Coordinate with the State and Regional Water Boards, the Department of Toxic Substances Control, and other agencies with a role in managing water quality.

E.5a **Clearly define areas at risk**: The LCP should include an updated inventory of potential pollutant sources due to sea level rise, including toxic waste sites, ocean outfalls and wastewater treatment facilities at risk of inundation, as well as aquifers and wells at risk of saltwater intrusion. Policies may also be added to prioritize low-lying contaminated sites for remediation and restoration, especially those that are sited near or adjacent to environmental justice communities.

E.5b **Prioritize safe water quality and supply for environmental justice communities:** Sea level rise poses a significant risk to toxic waste sites and wastewater treatment facilities and can create new health hazards or exacerbate existing hazards stemming from these facilities. Account for environmental justice communities who are often situated closer to these facilities and may experience a greater burden if these systems were to become impaired. Require best available technology in industrial development to minimize environmental impacts and to protect nearby communities and resources. Analyze and address costs of sea level rise adaptation for these facilities on environmental justice communities, including displacement and exposure to environmental hazards

and contaminants. Ensure that any new costs or rate payer increases do not disproportionately burden low-income ratepayers.

## F. Archaeological, Tribal Cultural, and Paleontological Resources

The Coastal Act provides for the protection of archaeological and paleontological resources, stating in Section 30244 that:

> "Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required."

Chapter 3 of the Guidance discusses the impacts to archaeological and paleontological resources that might result from sea level rise. Certified LCPs should already have policies and standards to ensure that these resources are protected to the maximum extent feasible; however, such policies and standards may need to be updated to consider sea level rise hazards. The following strategies cover a range of options for addressing the identified goals of the Coastal Act.

### Goal: Protect archaeological and paleontological resources

**F.1** **Add policies to protect archeological, tribal cultural, and paleontological resources from sea level rise:** Add policies to require site-specific evaluation of potential sea level rise impacts to archeological, tribal cultural, and paleontological resources on a development site. The LCP can also add requirements that a monitoring program and plan be established as a condition of approval for development located on a site with artifacts vulnerable to sea level rise. Adaptation or protection strategies used may depend on the significance of the resources in question.

F.1a **Consult with relevant tribes for guidance:** If tribal cultural resources are at risk, the appropriate entity (including but not limited to the relevant Native American tribe(s)) should be contacted to develop a coordinated management plan for archaeological, tribal cultural, and paleontological resources. For engagement with tribal communities located in and around the LCP planning area, please consult the Native American Heritage Commission and the Commission's Tribal Consultation Policy.

F.1b **Coordinate with the State Historic Preservation Officer (SHPO):** In line with the provisions of the Coastal Act, work with the State Historic Preservation Officer to identify actions to protect archaeological, tribal cultural, and paleontological resources.

## G. Scenic and Visual Resources

The scenic value of the coast is a resource of public importance. As noted in Section 30251 of the Coastal Act, development shall be sited and designed to:

> "Protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural landforms…and to restore and enhance visual quality in visually degraded areas."

As stated in Chapter 3 of the Guidance, some options to address rising sea levels, such as elevating structures or utilizing seawalls or bluff retention devices, have the potential to alter or degrade the visual character of an area. Certified LCPs should already have policies and standards to ensure scenic and visual resources are protected to the maximum extent feasible, but these may need to be updated to consider sea level rise hazards. Coastal regions with scenic overlays or designated scenic corridors, or those areas designated as scenic in the California Coastal Preservation and Recreation Plan in particular should pay close attention to actions that could be used to minimize risks to development. The following adaptation options address some of the methods for protecting the scenic qualities of the coast.

### Goal: Protect views to and along the ocean and scenic coastal areas

**G.1** **Establish design standards to protect visual resources**: Update and/or add design standards to ensure that adaptation measures protect visual resources while minimizing hazards. Adaptation strategies such as shoreline armoring or elevation techniques should be designed such that the visuals are subordinate to, and in character with, the surrounding visual resources of an area.

G.1a **Establish standards for the use of caissons or other means of elevating structures:** Ensure that the use of caissons or other elevation techniques do not result in negative visual impacts. Develop policies regarding where elevation of structures may be allowable and establish standards guiding the use of these techniques. Ensure that the appearance of caissons will not detract from the scenic character of an area if or when they become visible as a result of erosion or other processes.

G.1b **Maintain height limitations in scenic areas**: Avoid modifications to height limits in scenic areas and provide for options to modify roof-lines or elevate the lowest flood elevation for flood protection in a manner that is consistent with scenic character. In some cases it may be appropriate to update height limitations to allow for elevation in response to sea level rise hazards. However, such decisions will require trade-offs and will need to strike a balance in terms of adapting to sea level rise and protecting visual resources and community character in line with the requirements of the Coastal Act.

G.1c **Develop or redevelop property to be safe from hazards without impairing scenic resources**: Emphasize the use of adaptation strategies that will not impact visual resources. Such strategies may include short-term retrofits with plans for longer term relocation or removal.

G.1d **Establish new scenic communities**: Designate areas with significant visual resources that could be negatively impacted by adaptation responses (e.g., due to seawalls or "spider" homes) as scenic communities with special protections. Establish standards in LCPs to specifically protect visual resources in these areas.



Figure 28. Photo depicting protection of visual resources and public access. A seawall visually blends in with the natural bluff while surfing access is also provided at Pleasure Point, Santa Cruz (2013). (*Source:* California Coastal Records Project)

# Chapter 8. Legal Context of Adaptation Planning

Land use law is dynamic and must be interpreted and applied based on case-specific factors at the time of decision. Nonetheless, sea level rise and adaptation planning raise a number of important legal issues that coastal managers should consider as they develop and apply adaptation strategies.

This section includes discussion of the legal contexts for addressing:

- Seawalls and other shoreline protective devices
- The public trust boundary
- Potential private property takings issues

### SEAWALLS AND OTHER SHORELINE PROTECTIVE DEVICES

Section 30235 of the Coastal Act provides that seawalls and other forms of construction that alter natural shoreline processes "shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply." Despite other Coastal Act provisions that could often serve as the basis for denial of shoreline protective devices (for example, new development requiring shoreline protection can also conflict with Coastal Act policies requiring protection of public access and recreation, coastal waters and marine resources, natural landforms, and visual resources), the Coastal Commission has interpreted Section 30235 as a more specific overriding policy that requires the approval of Coastal Development Permits (CDPs) for construction intended to protect coastal-dependent uses[66] or existing structures if the other requirements of Section 30235 are also satisfied.[67] The Commission thus will generally permit a shoreline protective device if (1) there is an existing structure, public beach, or coastal-dependent use that is (2) in danger from erosion; and (3) the shoreline protection is both required to address the danger (the least environmentally-damaging, feasible alternative) and (4) designed to eliminate or mitigate impacts on sand supply.

In contrast to Section 30235, Coastal Act Section 30253 requires that "new development… assure stability and structural integrity, and neither create nor contribute significantly to erosion… or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs." The Commission has long applied this policy to implement appropriate bluff-top and shoreline setbacks for new development. Such setbacks are based on an assessment of projected erosion and related hazards at the site for the life of the proposed development and help ensure that

[66] Coastal-dependent uses are those that require a site on, or adjacent to, the sea to be able to function at all. (Public Resources Code, § 30101.)

[67] Some commenters argue that because shoreline armoring often conflicts with Coastal Act policies other than Section 30235, the Commission should evaluate proposed armoring under the conflict resolution provisions of the Act. (See Public Resources Code, § 30007.5, 30200(b).) Because the conflict resolution provisions require the Commission to resolve the conflict in a manner which on balance is the most protective of significant coastal resources, this approach could result in the more frequent denial of shoreline armoring, especially when it is intended to protect residential development or other uses that the Coastal Act does not identify as priority uses.

seawalls and other protective devices that could lead to adverse impacts would not be necessary in the future.

Additionally, from its earliest days, the Commission has also required that landowners "assume the risks" of developing along shoreline and coastal bluffs where risks of coastal hazards are present. Since at least the late 1990s, the Commission has approved many new developments with required deed restrictions that specifically prohibit any future construction of shoreline protection for these developments. These deed restrictions require that property owners waive any rights that may exist for a shoreline structure under Section 30235 and thus internalize the risks of building in an inherently hazardous location. This, in turn, will protect shoreline areas with natural resources or other access, recreational, or scenic value, including as required by Section 30253. If and when the approved development is threatened by erosion and becomes uninhabitable, these deed restrictions prevent the construction of a shoreline protective device and require property owners to remove the development, as well as clean up any debris that may result from erosion undermining the development.[68]

Read together, the most reasonable and straight-forward interpretation of Coastal Act Sections 30235 and 30253 is that they evince a broad legislative intent to allow shoreline protection for development that was in existence when the Coastal Act was passed, but avoid such protective structures for new development now subject to the Act. In this way, the Coastal Act's broad purpose to protect natural shoreline resources and public access and recreation would be implemented to the maximum extent when new, yet-to-be-entitled development was being considered, while shoreline development that was already entitled in 1976 would be "grandfathered" and allowed to protect itself from shoreline hazards if it otherwise met Coastal Act tests even if this resulted in adverse resource impacts. Such grandfathering of existing conditions is common when new land use and resource protection policies are put in place, and the existing development becomes "non-conforming."

Even still, in the case of Coastal Act Section 30235, existing development is only entitled to shoreline protection if it is in fact in danger, and the proposed shoreline protection is the least environmentally-damaging alternative to abate such danger. It may be that in certain circumstances existing development can be modified or feasibly relocated, or that other non-structural alternatives such as reducing blufftop irrigation or pursuing beach replenishment, may effectively address the risk to the development without the need for a shoreline protective device.

In practice, implementing Sections 30235 and 30253 has been challenging because many urban areas are made up of both developed and undeveloped lots. In addition, many developments in existence in 1976 have since been "redeveloped" through renovations, remodeling, additions, and complete demolition and rebuild. The reality of effective shoreline management is that the

[68] This legal instrument is not an easement but it does provide for "planned retreat" into the future as a site erodes. Once a development is removed, a site may have potential for new development if it is once again set back and restricted against future shoreline protection device construction.

Coastal Act and LCPs must address and be applied to a wide variety of physical and legal circumstances that may not be addressed by a simple application of the clean Coastal Act distinction between existing development that may be entitled to shoreline protection and new development that is not. In some urban areas, for example, one may find intermingled shoreline developments that pre-date the Coastal Act, both with and without shoreline protection, post-Coastal Act developments approved by the Coastal Commission or local governments pursuant to an LCP that theoretically won't need shoreline protection (though some may have it), and developments that may have pre-dated the Coastal Act but that were redeveloped pursuant to a coastal development permit. Moreover, some of the post-Coastal Act developments may have conditions that prohibit shoreline protection while adjacent properties may be eligible for or have a protective device because they pre-date the Act.

For purposes of implementing this Guidance, it is important that local governments, property owners, development applicants, and others take full advantage of available legal tools to mitigate hazards and protect resources, but to do so in way that considers the specific legal context and circumstances of LCP updates and individual development decisions in context and on a case-by-case basis. For example, although the Coastal Act does not explicitly define what qualifies as an "existing structure" for the purposes of Section 30235, how this term is interpreted in specific cases and through LCPs may be critical to the success of an adaptation strategy over the long-run.

The Commission has relatively infrequently evaluated whether structures built after 1976 should be treated as "existing" and thus entitled to shoreline protection pursuant to Section 30235. When it has, the shoreline protection being proposed to protect the structure has often also been identified as necessary to protect adjacent pre-Coastal Act structures.[69] In a few instances, however, the Commission has treated structures built after 1976 as existing structures entitled to shoreline protection even if no adjacent pre-Coastal Act structure also needed protection. Nonetheless, going forward, the Commission recommends the rebuttable presumption that structures built after 1976 pursuant to a coastal development permit are not "existing" as that term was originally intended relative to applications for shoreline protective devices, and that the details of any prior coastal development approvals should be fully understood before concluding that a development is entitled to shoreline protection under Section 30235.

As mentioned, in order to find new development consistent with Section 30253 or related LCP requirements and to limit the potential proliferation of armoring to protect newly approved structures, the Commission has long used setbacks, assumption of risk conditions and, over the last couple of decades, generally required that applicants proposing new development in hazardous shoreline locations waive any rights under Section 30235 (or related LCP policies) to

[69] For example, CDP A-3-CAP-99-023-A1, *Swan and Green Valley Corporation Seawall*. In this situation, repairs to maintain a seawall fronting the pre-coastal Swan Residence could only be undertaken by encroachment onto the adjacent property, Green Valley Corporation; however, the Green Valley Corporation development had been approved with a condition to prohibit any future shore protection.

build shoreline protection for the proposed new development. Notably, no appellate decision addresses whether the term "existing structures" in this context includes only structures built prior to the Coastal Act or instead includes structures in existence at the time the Commission acts on an application for shoreline protection, or otherwise addresses the interplay between 30235 and 30253.

LCP updates are an opportunity to clarify how the distinction between existing and new development will be applied in specific areas, and some LCPs have already done so. For example, local governments have sometimes specified a date by which a structure must have been constructed in order to qualify as an "existing structure" for the purpose of evaluating whether it may be eligible for shoreline protection. In Morro Bay, the Local Coastal Program policy that implements Section 30235 states that new shoreline protective devices "shall only be allowed where required to serve a coastal-dependent use or to protect existing structures (i.e., structures legally constructed prior to January 1, 1977, that have not been redeveloped since then) …." Similarly, the City of Long Beach's Local Coastal Program (SEASP) states: "'existing structure' means a principal structure (e.g., residential dwelling or accessory dwelling unit) that was legally permitted and in existence prior to the effective date of the Coastal Act (January 1, 1977) and that has not subsequently undergone redevelopment." In Marin County, the Local Coastal Program policy that implements Section 30235 specifies that existing structures are those that existed on the date the LCP was originally adopted (May 13, 1982). LCPs can also codify the prohibition on shoreline protective devices for new development, such as the following provision from the San Luis Obispo County North Coast Area Plan standard:

> ***Seawall Prohibition****. Shoreline and bluff protection structures shall not be permitted to protect new development. All permits for development on blufftop or shoreline lots that do not have a legally established shoreline protection structure shall be conditioned to require that prior to issuance of any grading or construction permits, the property owner record a deed restriction against the property that ensures that no shoreline protection structure shall be proposed or constructed to protect the development, and which expressly waives any future right to construct such devices that may exist pursuant to Public Resources Code Section 30235 and the San Luis Obispo County certified LCP.*[70]

The distinction between existing and new development inherent in the Coastal Act is often directly raised by proposals for redevelopment as well. This Guidance thus deals directly with potential approaches for managing shoreline hazards and protecting coastal resources as shorelines are redeveloped (see Chapter 7, Strategy A.13). As an example, in 2012, the Commission approved a Land Use Plan for the City of Solana Beach that includes many policies designed to address the existing residential development pattern along the high, eroding bluffs of the City. Although further elaboration is yet to come through the City's work on the Implementation Plan, the Solana Beach LUP is a good example of an effort to pragmatically address the need to mitigate the risks to residential development, provide for some redevelopment potential while moving the line of new development inland, avoid and minimize new bluff protection and seawalls, and perhaps remove protective devices in the future to

[70] Community-wide standard 15C.

minimize impacts to natural landforms and to protect the beach for long-term public use. In the case of the Morro Bay LCP (updated in 2021), policies prohibit both new development and redevelopment in areas other than along the Embarcadero waterfront from using or requiring shoreline protective devices at any point during the development's life, unless it is required to serve a coastal-dependent use. Further, as a condition of approval for any such development or redevelopment, any existing shoreline protective devices shall be removed and the underlying area restored.

Local governments and other shoreline managers should also take into account that although a public agency may not deny a CDP for a shoreline protective device that meets all of the tests under Section 30235 and equivalent LCP policies, this does not limit the authority of public agencies to refuse to allow construction of shoreline protective devices pursuant to some authority other than the Coastal Act. For example, if a private property owner requests permission from a public agency to build a structure on that agency's property (such as a local or State park or public beach) to protect adjacent private property, the public agency would generally have the authority as the landowner not to agree to the encroachment. Similarly, agencies that are trustees of public trust lands (such as the State Lands Commission and Port Districts) have the authority to prohibit structures that are not consistent with public trust uses and prioritized public trust needs, values, and principles. Public trust uses include maritime commerce, navigation, fishing, boating, water-oriented recreation, and environmental preservation and restoration, but do not typically include non-water dependent uses such as residential or general commercial and office uses. Thus, trustee agencies have the authority to refuse to allow, or to require removal of, shoreline armoring located on public trust lands, including if that armoring unreasonably interferes with public trust uses.

Approval of a CDP for shoreline armoring under Section 30235 may be unavoidable in certain circumstances. Nonetheless, the construction of shoreline armoring will often cause impacts inconsistent with other Coastal Act requirements, including Section 30235's requirement that a shoreline protective device be the least-environmentally damaging, feasible alternative for addressing shoreline hazards. For example, as discussed above, Section 30253(b) prohibits *new development* from in any way requiring the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs. Shoreline protective devices can also adversely affect a wide range of other coastal resources and uses that the Coastal Act protects. They often impede or degrade public access and recreation along the shoreline by occupying beach area or tidelands, by reducing shoreline sand supply, and by fixing the back of the beach, ultimately leading to the loss of the beach. Shoreline protection structures thus raise serious concerns regarding consistency with the public access and recreation policies of the Coastal Act. Such structures can fill coastal waters or tidelands and harm marine resources and biological productivity in conflict with Sections 30230, 30231, and 30233. They often degrade the scenic qualities of coastal areas and alter natural landforms in conflict with Section 30251. Finally, by halting shoreline erosion, they can prevent the inland migration of intertidal habitat, salt marshes, beaches, and other low-lying habitats that rising sea levels will inundate.

Even when an agency approves a CDP for shoreline armoring, the agency has the authority to impose conditions to mitigate impacts on shoreline sand supply and to minimize adverse impacts on other coastal resources. (See *Ocean Harbor House Homeowners Assn. v. California Coastal Comm.* (2008) 163 Cal.App.4th 215, 242; Public Resources Code, §30607.)[71] Any approved shoreline structure, therefore, must avoid or mitigate impacts that are inconsistent with Coastal Act policies.

Because of the wide range of adverse effects that shoreline protective devices typically have on coastal resources, this Guidance recommends avoidance of hard shoreline armoring whenever possible. This can entail denying development in hazardous locations, allowing only development that is easily removable as the shoreline erodes, or requiring new development to be set back far enough from wave runup zones or eroding bluff edges so that the development will not need shoreline armoring during its anticipated lifetime. The Commission's practice when reviewing proposed development in shoreline locations that are potentially vulnerable to shoreline erosion, wave runup, or inundation has been to require applicants to waive rights to shoreline protective devices in the future, and, more recently, to require relocation and/or removal should such development become endangered in the future. See Chapter 7: Adaptation Strategies for further details regarding alternatives to the use of hard armoring structures.

### PUBLIC TRUST BOUNDARY

The State of California acquired sovereign ownership most tidelands and submerged lands and beds of navigable waterways upon its admission to the United States in 1850. The State holds and manages these lands for the benefit of all people of the State for statewide purposes consistent with the common law Public Trust Doctrine ("public trust"). The public trust ensures that title to sovereign land is held by the State in trust for the people of the State. Public trust uses include maritime commerce, navigation, fishing, boating, water-oriented recreation, visitor-serving facilities and environmental preservation and restoration. Non-water dependent uses such as residential and general office or commercial uses are generally inconsistent with public trust protections and do not qualify as public trust uses.

In coastal areas, the landward location and extent of the State's sovereign fee ownership of these public trust lands are generally defined by reference to the ordinary high water mark (Civil Code §670), as measured by the mean high tide line (*Borax Consolidated v. City of Los Angeles* (1935) 210 U.S. 10); these boundaries remain ambulatory, except where there has been fill or artificial accretion. More specifically, in areas unaffected by fill or artificial accretion, the ordinary high water mark and the mean high tide line will generally be the same. In areas where there has been fill or artificial accretion, the ordinary high water mark (and the state's public trust ownership) is generally defined as the location of the mean high tide line just prior to the fill or artificial influence. It is important to note that such boundaries may not be readily

[71] Indeed, as noted above, 30235 itself clarifies that even when approvable, such structures should be designed to eliminate or mitigate any adverse impacts on local shoreline sand supply.

apparent from present day site inspections (*Carpenter v. City of Santa Monica* (1944) 63 C. A. 2nd 772, 787).

The mean high tide line is the intersection of the shoreline with the elevation of the average of all high tides calculated over an 18.6-year tidal epoch. This property line is referred to as "ambulatory" for two reasons: first, gradual changes to the shoreline due to factors such as variations in the height and width of sandy beaches, shoreline erosion or accretion, and uplift or subsidence of land can change the location of where the mean high tide line meets the shoreline. Second, the elevation of the mean high tide line itself changes over time and is likely to increase at an accelerating rate in the future due to sea level rise. Over time, sea level rise will continue to gradually cause the public trust boundary to move inland. Boundaries between publicly-owned waterways and adjoining private properties (referred to as *littoral* along lakes and seas and *riparian* along rivers and streams) have always been subject to the forces of nature and property boundary law reflects these realities.

Accelerating sea level rise will likely lead to more disputes regarding the location of property boundaries along the shoreline, since lands that were previously landward of the mean high tide line have become subject to the State's ownership and protections of the public trust. These disputes, in turn, will affect determinations regarding what kinds of structures and uses may be allowed or maintained in areas that, because of sea level rise, either are already seaward of the mean high tide line, are likely to become seaward of the mean high tide line in the future, or would be seaward of the mean high tide line if it were not for artificial alterations to the shoreline. This subject is discussed in the Coastal Commission Public Trust Guiding Principles and Action Plan.

California case law does not explicitly address how shoreline structures such as seawalls that artificially fix the shoreline temporarily and prevent inland movement of the mean high tide line affect property boundaries, if at all. The Ninth Circuit Court of Appeals, however, has interpreted federal common law as allowing the owner of tidelands to bring a trespass action against a neighboring upland property owner who built a revetment that prevented the natural inland movement of the mean high tide line. The court ruled that the actual property boundary was where the mean high tide line would have been if the revetment were not there and that the owner of the tidelands could require the upland owners to remove the portions of the revetment that were no longer located on the upland owners' properties. (*United States v. Milner* (9th Cir. 2009) 583 F.3d 1174, 1189-1190.)

### POTENTIAL PRIVATE PROPERTY TAKINGS ISSUES

The United States and California constitutions prohibit public agencies from taking private property for public use without just compensation. Section 30010 of the Coastal Act similarly prohibits public agencies implementing the Coastal Act from granting or denying a permit in a manner that takes or damages private property for public use without payment of just compensation. The classic "takings" scenario arises when a public agency acquires title to private property in order to build a public facility or otherwise devote the property to public

use. In 1922, however, the United States Supreme Court ruled that regulation of private property can constitute a taking even if the regulation does not involve acquisition of title to the property. As Justice Oliver Wendell Holmes stated, "while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking," (*Pennsylvania Coal Co. v. Mahon* (1922) 260 U.S. 393, 415.)

Courts have struggled in the 90 years since then to give agencies and property owners a more definite sense of exactly when a regulation "goes too far." The Supreme Court has identified three basic categories of takings that can occur in the context of land use regulation. Different legal standards apply depending on what kind of taking is at issue. (See, generally, *Lingle v. Chevron USA, Inc.* (2005) 544 U.S. 528).

The most straightforward test applies to what is variously called a categorical, total, *per se,* or *"Lucas"* takings, which occurs when a regulation deprives an owner of all economically beneficial use of the property. (See *Lucas v. South Carolina Coastal Council* (1992) 505 U.S. 1003). An agency that completely deprives a property owner of all economically beneficial use of the property will likely be found liable for a taking unless background principles of nuisance or property law independently restrict the owner's intended use of the property. Courts have generally been very strict about when they apply this test. If any economically beneficial use remains after application of the regulation, even if the value of that use is a very small percentage of the value of the property absent the regulatory restriction, a *Lucas* taking has not occurred.

Where a regulation significantly reduces the value of private property but does not completely deprive the owner of all economically beneficial use, the multi-factor "*Penn-Central"* test applies (*Penn Central Transportation Co. v. City of New York* (1978) 438 U.S. 104). This test has no set formula, but the primary factors include the economic impact of the regulation, the extent to which the regulation interferes with distinct, reasonable investment-backed expectations, and the character of the governmental action. When evaluating the character of the governmental action, courts consider whether the regulation amounts to a physical invasion or instead more generally affects property interests through a program that adjusts the burdens and benefits of economic life for the common good. Whether a regulation was in effect at the time an owner acquired title is also a relevant factor, but is not by itself dispositive. (See *Palazzolo v. Rhode Island* (2001) 533 U.S. 606, 632-633 (O'Connor, J., concurring)). Because this test takes such a wide range of factors into account, caselaw does not provide clear guidance about the situations in which a regulation is likely to qualify as a "*Penn-Central"* taking. A *Penn-Central* claim is unlikely to succeed, however, unless the plaintiff can establish that the regulation very substantially reduces the value of the property.

The third category of takings claims applies to "exactions," that is, government permitting decisions that require a property owner either to convey a property interest or to pay a mitigation fee as a condition of approval. (See *Nollan v. California Coastal Comm.* (1987) 483 U.S. 825; *Dolan v. City of Tigard* (1994) 512 U.S. 374; *Koontz v. St. Johns River Water Management Dist.* (2013) 133 S.Ct. 2586). Under the *Nollan/Dolan* line of cases, the agency

must establish a "nexus" between the condition requiring a property interest or payment and the effects of the project that that property interest or payment is mitigating. That property interest or payment must also be roughly proportional to the impact that it is intended to mitigate. In California, the *Ocean Harbor House* case is a good example of a shoreline structure impact mitigation requirement that was found by the courts to meet the relevant standards of nexus and proportionality.

Various recommendations of this Guidance may potentially give rise to takings concerns. Because the determination of whether a particular regulation may in some circumstances be applied in a way that constitutes a taking is so fact-intensive and context-specific, this Guidance cannot provide a simple set of parameters for when agencies should either allow exceptions to a land use regulation or consider purchasing a property interest. That said, land use restrictions that prevent all economically beneficial use of the entirety of a property[72] are vulnerable to *Lucas* takings claims unless those uses would qualify as a nuisance or are prohibited by property law principles such as the public trust doctrine. Agencies can minimize the risk of these claims by allowing economically beneficial uses on some of the property and by exploring whether legal doctrines regarding nuisance, changing shoreline property lines, or the public trust independently allow for significant limitations on the use of the property. Establishing a transferrable development rights program for properties that are subject to significant development restrictions may also minimize potential exposure to takings claims.

Where a proposed development would be safe from hazards related to sea level rise in the near future but cannot be sited so as to avoid those risks for the expected life of the structure, agencies may consider allowing the structure, but requiring removal once it is threatened. Property owners may argue that they have a right to protect threatened structures even if they have waived rights to shoreline protection under the Coastal Act, but a recent federal court of appeal ruling casts significant doubt on the existence of any common law right to attempt to fix an ambulatory shoreline boundary through artificial structures such as seawalls (see *United States v. Milner* (9th Cir. 2009) 583 F.3d 1174, 1189-1190).

If an agency is contemplating requiring property owners to dedicate open space easements or other property interests or requiring the payment of fees to mitigate project impacts, the agency should be careful to adopt findings explaining how requiring the property interest or payment is both logically related to mitigating an adverse impact of the project and roughly proportional to that impact. With respect to mitigation fees, California cities and counties should also comply with applicable requirements of the Mitigation Fee Act (Government Code, §66000 *et seq.*).

[72] What qualifies as the entirety of a property can also be the subject of dispute. The property will normally include all legal lots on which the proposed development would be located but can also include other lots that are in common ownership and adjacent to, or in close proximity with, the lots that would be developed. (See *Murr v. Wisconsin* (2017) 582 U.S. 383).

# Chapter 9. Additional Coastal Commission Efforts to Address Sea Level Rise

Since the original development of this policy guidance in draft form in 2013 and its adoption by the Commission in 2015, the Coastal Commission has made significant progress on its work on sea level rise and climate change. Among its many accomplishments over the past ten years were the adoption of Critical Infrastructure At Risk: Sea Level Rise Planning Guidance for California's Coastal Zone (2021) and the Public Trust Guiding Principles and Action Plan (2023), along with extensive interagency work and distribution of grant funding to local governments to support sea level rise adaptation planning. Despite this significant progress, more work is needed.

The Coastal Commission's Strategic Plan for 2021-2025 (CCC 2021) identifies many action items that the Commission or partner organizations plan to take to address the challenges of sea level rise and climate change. These include efforts related to the Commission's normal operating business, such as ongoing coordination with local government partners and other agencies, as well as specially funded projects designed to meet specific needs (see Box below). Coastal Commission staff also participated in the development of the State Agency Sea Level Rise Action Plan for California (2022), which contains nearly 80 trackable actions and serves as a five-year roadmap designed to help formalize and accelerate coordinated state agency efforts to prepare for the impacts of sea level rise.

These next steps, some of which are already underway, are listed below. The Commission anticipates that these items will be completed over the next two to five years, in coordination with other relevant partners and research institutions, as staff capacity and funding allows.

1. **Continue an active program of public outreach on sea level rise.** The Commission will strive to provide public information about sea level rise issues through public workshops, the Commission's website, meetings, outreach, and our public education program. The Commission will work to enhance efforts to coordinate with low-income and underserved populations and communities.

2. **Continue work on advancing environmental justice in sea level rise adaptation planning and LCPs.** Following adoption of this updated guidance, Coastal Commission staff will roll out a series of webinars for local governments and interested stakeholders that aim to further educate and instruct planners on how to integrate environmental justice and equity principles into sea level rise adaptation planning. Commission staff also plan to continue developing and formalizing a team of environmental justice and sea level rise subject matter experts who can be tapped to inform and guide development of future guidance materials.

3. **Develop guidance on nature-based shoreline adaptation measures to address sea level rise**. Coastal Commission staff are developing interpretive policy guidance that will help planners prioritize permitting and analysis of nature-based adaptation strategies such as shoreline restoration and living shorelines projects.

4. **Continue work to carry out the California Coastal Act and Public Trust Doctrine in an era of climate change and sea level rise**. In 2023, the Coastal Commission adopted the Public Trust Guiding Principles and Action Plan which describes how the public trust doctrine relates to the Coastal Commission's and local governments' work on sea level rise planning under the Coastal Act, presents a series of principles that guide the Commission's and local governments' work on this subject, and sets forth next steps and research priorities for the Commission. Coastal Commission staff will continue carrying out these next steps as resources and staff capacity allow.

5. **Develop guidance on maximizing public access and recreational resources, including the California Coastal Trail, in light of sea level rise**. Building on a statewide analysis of the vulnerability of the California Coastal Trail to sea level rise, Coastal Commission staff will develop policy guidance, new information, and a framework for maintaining public access in the future, with an additional focus on addressing the disproportionate impact of public access losses to socially vulnerable or environmental justice communities and promoting the removal of barriers to access.

6. **Explore the concept of neighborhood-scale adaptation**. Explore technical methods to analyze how natural backshore characteristics can help reveal which adaptation approaches are possible and most resource protective in both the short and long term. This information could elucidate which stretches of shorelines have characteristics conducive to inland migration of habitats such as beaches, which do not, and which could if certain adaptation measures are implemented. This information could help define areas, or "neighborhoods," potentially suitable for a cohesive adaptation approach.

7. **Continue robust interagency coordination on sea level rise**. Coastal Commission staff will continue working with its various partners at the federal, state, regional, Tribal, and local levels to address sea level rise. Specifically:
    - Continue coordination with the Local Government Working Group (LGWG). The LGWG (made up of local government representatives from the California Association of Counties and the League of California Cities, two Coastal Commissioners, and CCC staff) was formed in 2019 to advance coordination in support of LCP updates, particularly to address sea level rise. The group has co-developed a number of deliverables including a Joint Statement on Adaptation Planning and a framework for phased approaches to LCP updates, and remains actively committed to developing materials and recommendations to support SLR and LCP planning. Key ongoing work includes supporting phased LCP updates, proactive adaptation planning at neighborhood or other subarea levels, and regional coordination.
    - Continue participation in the State SLR Collaborative, convened by the Ocean Protection Council, and carry out the Principles for Aligned State Action on Sea Level Rise (2021) and the State Agency Sea Level Rise Action Plan for California (2022).

- Continue coordinating closely with Caltrans to address transportation issues. Planning efforts may include integrating LCP planning and regional transportation planning processes; coordinating and supporting phased approaches for realignment projects; and identifying priorities for adaptation response.
- Continue coordinating with State Lands Commission on aligning responses to sea level rise impacts in Coastal Commission permits and State Lands leases. Coordinate on the public trust implications of adaptation strategies reflected in Local Coastal Programs.
- Coordinating with port and harbor authorities and other relevant stakeholders to address vulnerabilities specific to ports, harbors, fisheries, and navigation, and to develop and enhance adaptation strategies that are particularly applicable for coastal-dependent infrastructure and other port needs.
- Coordinating with the State and Regional Water Quality Control Boards to consider vulnerability issues related to water supply, water quality, and wastewater capacity infrastructure in California.

8. **Produce additional guidance documents, including**:
   - Broader climate change guidance addressing other climate change impacts to the coastal zone and land use planning strategies to reduce greenhouse gas emissions in the coastal zone.
   - Additional guidance on how to analyze the impacts of sea level rise upon groundwater, the associated hazards, and potential adaptation strategies.

9. **Continue implementation of the LCP Local Assistance Grant Program.** The Coastal Commission remains committed to supporting LCP updates through its LCP Grant Program. Since 2013, the grant program has awarded approximately $20 million to local governments to support sea level rise and LCP planning efforts and currently has approximately $10 million remaining from a 2021 appropriation for the grant program. Funding has supported a variety of vulnerability assessments, technical studies, adaptation plans, public outreach, policy development, and LCP adoption and certification processes. These types of planning efforts are now required by SB 272, and the Commission will continue to support this work through provision of LCP grant program funds and coordination with other funding agencies such as OPC and the Coastal Conservancy.

10. **Implement the Coastal Commission's responsibilities under other state efforts and legislation.**
    - Governor Brown's April 2015 Executive Order B-30-15 states that state agencies shall take climate change into account in their planning and investment decisions, and employ full life-cycle cost accounting to evaluate and compare infrastructure investments and alternatives. The order requires agencies to ensure that priority is given to actions that build climate preparedness and reduce greenhouse gas

emissions, provide flexible and adaptive approaches, protect the state's most vulnerable populations, and promote natural infrastructure solutions. The Coastal Commission will continue to integrate these principles into its planning and regulatory work.

- AB 2516, authored by Assemblymember Gordon and approved in September 2014, established a Planning for Sea Level Rise Database, and SB 246, authored by Senator Gordon and approved in 2015, established the Adaptation Clearinghouse, the latter of which hosts the information collected through both bills. The database describes the actions taken by cities, counties, regions, and various public and private entities to address sea level rise. The Coastal Commission will continue contributing data to this effort, including information about grant-funded LCP updates.
- The Coastal Commission will also participate in the implementation of the California Climate Adaptation Strategy. Key principles are and will continue to be incorporated into Coastal Commission work, including protection of California's most vulnerable populations the integration of risk reduction with emissions reductions, and the development of metrics and indicators of progress on efforts to reduce climate risk.

## Coastal Commission Strategic Plan 2021-2025 Excerpts
## Actions Related to Sea Level Rise and Climate Change

**Goal 4: Support Resilient Coastal Communities in the Face of Climate Change and SLR**

**Objective 4.1** Address Risks Posed by Climate Change and Sea Level Rise in Local Coastal Programs (LCPs) and Coastal Development Permits (CDPs).

**Objective 4.2** Support Development and Implementation of Local Sea Level Rise Adaptation Projects.

**Objective 4.3** Build the Capacity of Commission and Local Government Staff to Better Address Climate Change and Sea Level Rise Vulnerabilities Through Technical Assistance, Guidance and Training.

**Objective 4.4** Protect Beaches, Wetlands and Other Coastal Resources, Including Public Access as Seas Rise. (See also Public Access Objective 2.6, Ensure Continued Public Access in Light of Changing Shoreline Conditions and Sea Level Rise)

**Objective 4.5** Facilitate Reduction of Greenhouse Gas (GHGs) in LCPs, CDPs and Other Efforts.

**Objective 4.6** Increase Public Awareness and Participation in Planning to Address Climate Change in Coastal Communities and Statewide.

**Goal 5: Advance Diversity, Equity, Environmental Justice, and Tribal Relations**

**Objective 5.1** Strengthen Coastal Protection through Consideration of Environmental Justice in Permit Decisions and Planning Documents.

Please consult the 2021-2025 Coastal Commission Strategic Plan to read the actions associated with each objective listed above.



# Glossary

The following terms were collected from the 2009 California Climate Change Adaptation Strategy[73], the Intergovernmental Panel on Climate Change Third Assessment Report[74] , the Coastal Commission's Beach Erosion and Response (BEAR) document,[75] the Commission's Environmental Justice Policy, and the California Coastal Act, unless otherwise noted. Some of these definitions are not used in the text of the report but are included as a resource on coastal-related adaptation issues.

**Adaptation:** Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which minimizes harm or takes advantage of beneficial opportunities.

**Adaptation Pathway**: A planning approach addressing the uncertainty and challenges of climate change decision-making. It enables consideration of multiple possible futures, and allows analysis/exploration of the robustness and flexibility of various options across those multiple futures.[76]

**Adaptive capacity:** The ability of a system to respond to climate change (including climate variability and extremes), to moderate potential damages, to take advantage of opportunities, and to cope with the consequences.[77]

**Adaptive management:** Involves monitoring the results of a management decision, and updating actions as needed and as based on new information and results from the monitoring.

**Ambulatory** (*as used in public trust boundaries*): Moveable, subject to change, or capable of alteration.[78]

**Aquifer**: An underground layer of porous rock, sand, or other earth material containing water, into which wells may be sunk.

**Armor**: To fortify a topographical feature to protect it from erosion (e.g., constructing a wall to armor the base of a sea cliff), or to construct a feature (e.g., a seawall, dike, or levee) to protect other resources (e.g., development or agricultural land) from flooding, erosion, or other hazards.

**Atmosphere-Ocean General Circulation Models (or Atmosphere-Ocean General Climate Models; ACGOM)**: Three-dimensional global models that dynamically link ocean density,

[73] CNRA 2009

[74] IPCC 2001

[75] Many of these definitions were extracted from: USACE 2002, Griggs and Savoy 1985 and Flick 1994.

[76] Ocean Protection Council 2018

[77] Willows and Connell 2003

[78] *West's Encyclopedia of American Law* 2008

circulation, and sea level using wind stress, heat transfer between air and sea, and freshwater fluxes as critical variables. (See also *General Circulation Models*)

**Baseline (or Reference)**: Any datum against which change is measured. It might be a "current baseline," in which case it represents observable, present-day conditions. It might also be a "future baseline", which is a projected future set of conditions excluding the driving factor of interest (e.g., how would a sector evolve without climate warming). It is critical to be aware of what change is measured against which baseline to ensure proper interpretation. Alternative interpretations of the reference conditions can give rise to multiple baselines.[79]

**Beach**: The expanse of sand, gravel, cobble or other loose material that extends landward from the low water line to the place where there is distinguishable change in physiographic form, or to the line of permanent vegetation. The seaward limit of a beach (unless specified otherwise) is the mean low water line.

**Beach nourishment**: Placement of sand and/or sediment (e.g., beneficial re-use of dredged sediment) on a beach to provide protection from storms and erosion, to create or maintain a wide(r) beach, and/or to aid shoreline dynamics throughout the littoral cell. The project may include dunes and/or hard structures as part of the design.

**Bluff (or Cliff)**: A scarp or steep face of rock, weathered rock, sediment and/or soil resulting from erosion, faulting, folding or excavation of the land mass. The cliff or bluff may be a simple planar or curved surface or it may be step-like in section. For purposes of (the Statewide Interpretive Guidelines), "cliff" or "bluff" is limited to those features having vertical relief of ten feet or more and "seacliff" is a cliff whose toe is or may be subject to marine erosion.

**Bluff top retreat (or Cliff top retreat)**: The landward migration of the bluff or cliff edge, caused by marine erosion of the bluff or cliff toe and subaerial erosion of the bluff or cliff face.

**Caisson:** A supporting piling constructed by drilling a casing hole into a geologic formation and filling it with reinforcing bar and concrete; used for foundations. (See also *Piling*)

**Climate change:** Any long-term change in average climate conditions in a place or region, whether due to natural causes or as a result of human activity.

**Climate variability:** Variations in the mean state of the climate and other statistics (e.g., standard deviations, the occurrence of extremes) on all temporal and spatial scales beyond that of individual weather events.

[79] Moser 2008

**Coastal-dependent development or use:** Any development or use which requires a site on, or adjacent to, the sea to be able to function at all.[80]

**Coastal Development Permit (CDP)**: Development in the coastal zone generally requires a Coastal Development Permit (CDP). In areas of retained jurisdiction and areas without a certified Local Coastal Program (LCP), the Commission is generally responsible for reviewing the consistency of CDP applications with the policies of Chapter 3 of the Coastal Act (Public Resources Code Sections 30200-30270). In areas with a certified LCP, the local government is responsible for reviewing the compliance of CDP applications with the requirements of the certified LCP and, where applicable, the public access and recreation policies of the Coastal Act. Certain local government actions on CDP applications are appealable to the Commission. On appeal, the Commission also applies the policies of the certified LCP and applicable public access and recreation policies of the Coastal Act.

**Coastal-related development:** Any use that is dependent on a coastal-dependent development or use.[81]

**Coastal resources:** A general term used throughout the Guidance to refer to those resources addressed in Chapter 3 of the California Coastal Act, including beaches, wetlands, agricultural lands, and other coastal habitats; coastal development; public access and recreation opportunities; cultural, archaeological, and paleontological resources; and scenic and visual qualities.

**Community Benefits Agreements: C**ommunity benefits agreements are legal contracts between a developer and the impacted community and/or its representatives (governmental and non-governmental). These strategic agreements are mutually beneficial, as governments need support from their constituencies, developers need government for permit approvals, and community interests can be funded or furnished by the developer for their support of a project. Benefits can include commitments to hire directly from a community, contributions to economic trust funds, local workforce training guarantees, mitigation of increased pollution exposure, and more.[82]

**CoSMoS:** The Coastal Storm Modeling System (CoSMoS) is a dynamic modeling approach that has been developed by the United States Geological Survey in order to allow more detailed predictions of coastal flooding due to both future sea-level rise and storms integrated with long-term coastal evolution (i.e., beach changes and cliff/bluff retreat) over large geographic areas (100s of kilometers).

[80] Public Resources Code § 30101

[81] Public Resources Code § 30101.3

[82] U.S. Department of Energy

**Development:** On land, in or under water, the placement or erection of any solid material or structure; discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not limited to, subdivision pursuant to the Subdivision Map Act (commencing with Section 66410 of the Government Code), and any other division of land, including lot splits, except where the land division is brought about in connection with the purchase of such land by a public agency for public recreational use; change in the intensity of use of water, or of access thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; and the removal or harvesting of major vegetation other than for agricultural purposes, kelp harvesting, and timber operations which are in accordance with a timber harvesting plan submitted pursuant to the provisions of the Z'berg-Nejedly Forest Practice of 1973 (commencing with Section 4511).[83]

**Disadvantaged, Marginalized, Underserved:** SB 1000 (Leyva) (Ch. 587, Stats. 2016) added Government Code Section 65302(h)(4)(A), expanding the definition of "disadvantaged communities" for the purpose of general plans to mean "an area identified by the California Environmental Protection Agency pursuant to Section 39711 of the Health and Safety Code or an area that is a low-income area that is disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation." This Guidance uses the terms "disadvantaged," "marginalized," and "underserved" interchangeably; it intends to encompass not only the definitions contemplated by SB 1000, but also to include other low-income and minority populations that are disproportionately burdened by or less able to prevent, respond, and recover from adverse environmental impacts.

**Ecosystem-Based Management (EBM):** An integrated approach to resource management that considers the entire ecosystem, including humans, and the elements that are integral to ecosystem functions.[84]

**Ecosystem services:** Benefits that nature provides to humans. For example, plants, animals, fungi and micro-organisms produce services or goods like food, wood and other raw materials, as well as provide essential regulating services such as pollination of crops, prevention of soil erosion and water purification, and a vast array of cultural services, like recreation and a sense of place.[85]

**El Niño Southern Oscillation:** The El Niño-Southern Oscillation (ENSO) is a recurring climate pattern involving changes in the temperature of waters in the central and eastern tropical Pacific Ocean. On periods ranging from about three to seven years, the surface waters across a

[83] Public Resources Code § 30106

[84] NOC 2011

[85] Hassan *et al.,* 2005

large swath of the tropical Pacific Ocean warm or cool by anywhere from 1°C to 3°C, compared to normal.[86]

**Emissions scenarios**: Scenarios representing alternative rates of global greenhouse gas emissions growth, which are dependent on rates of economic growth, the success of emission reduction strategies, and rates of clean technology development and diffusion, among other factors.[87]

**Environmental Justice:** The fair treatment and meaningful involvement of people of all races, cultures, incomes, and national origins, with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.[88]

**Environmentally Sensitive [Habitat] Area (ESHA):** Any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.[89]

**Equity**: This Guidance uses the term "equity" as defined in the context of social and racial equity, where "equity" refers to the fairness of achieving outcomes for all groups and no one factor, such as race, can be used to predict outcomes.[90]

**Erosion**: The wearing away of land by natural forces; on a beach, the carrying away of beach material by wave action, currents, or the wind. Development and other non-natural forces (e.g., water leaking from pipes or scour caused by wave action against a seawall) may create or worse erosion problems.

**Eustatic**: Refers to worldwide changes in sea level.

**Feasible** (*as used in "least environmentally damaging feasible alternative"*): Capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.[91]

[86] National Weather Service

[87] Bedsworth and Hanak 2008

[88] Public Resources Code § 30107.3(a)

[89] Public Resources Code § 30107.5

[90] The Local & Regional Government Alliance on Race and Equity. Advancing Racial Equity and Transforming Government: A Resource Guide to Put Ideas into Action (2015).

[91] Public Resources Code § 30108

**Flood (or Flooding)**: Refers to normally dry land becoming temporarily covered in water, either periodically (e.g., tidal flooding) or episodically (e.g., storm or tsunami flooding).[92]

**General Circulation Models (or General Climate Models; GCM)**: A global, three-dimensional computer model of the climate system which can be used to simulate human-induced climate change. GCMs are highly complex and they represent the effects of such factors as reflective and absorptive properties of atmospheric water vapor, greenhouse gas concentrations, clouds, annual and daily solar heating, ocean temperatures and ice boundaries. The most recent GCMs include global representations of the atmosphere, oceans, and land surface.[93] (See also *Atmospheric-Ocean General Circulation Models*)

**Green infrastructure**: Refers to the use of vegetative planting, dune management, beach nourishment or other methods that mimic natural systems to capitalize on the ability of these systems to provide flood and erosion protection, stormwater management, and other ecosystem services while also contributing to the enhancement or creation of natural habitat areas.

**Greenhouse gases (GHGs):** Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include, carbon dioxide, methane, nitrous oxide, ozone, chlorofluorocarbons, hydrochlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride.[94]

**Hard protection:** A broad term for most engineered features such as seawalls, revetments, cave fills, and bulkheads that block the landward retreat of the shoreline. (See also *Revetment, Seawall, Shoreline protective devices*)

**Hybrid Armoring:** Nature-based adaptation strategies that combines fixing the shoreline, such as with a buried revetment or other shoreline protective device, with a nature-based feature to provide ecological and other benefits. (See also *Nature-Based Adaptation Strategies* and *Soft Strategies*)

**Impact assessment:** The practice of identifying and evaluating the detrimental and beneficial consequences of climate change on natural and human systems.

**Inundation**: The process of dry land becoming permanently drowned or submerged, such as from dam construction or from sea level rise.[95]

**Implementation Plan (IP):** Measures to implement a Land Use Plan, such as zoning ordinances, zoning district maps, and other implementing actions.

[92] Flick *et al.,* 2012

[93] NASA Earth Observatory Glossary

[94] UNFCCC 2004

[95] Flick *et al.,* 2012

**Land Use Plan (LUP):** "Land use plan" means the relevant portions of a local government's general plan, or local coastal element which are sufficiently detailed to indicate the kinds, location, and intensity of land uses, the applicable resource protection and development policies and, where necessary, a listing of implementing actions.[96]

**Local Coastal Program (LCP):** A local government's (a) land use plans, (b) zoning ordinances, (c) zoning district maps, and (d) within sensitive coastal resources areas, other implementing actions, which, when taken together, meet the requirements of, and implement the provisions and policies of, this division at the local level.[97] Each LCP includes a **Land Use Plan (LUP)** which contains policies, and an **Implementation Plan (IP)** which includes accompanying measures to implement the plan (such as zoning ordinances, zoning district maps, and other implementing actions).

**Low-Income Household, Area, or Community:** There are several metrics available to identify households, areas or communities that make less income than the median or average area income. It is an indicator of vulnerability or less capacity since these individuals or communities have fewer resources to address environmental burdens. Below are several definitions and metrics that can be used to identify low-income households or communities.

- **Low-Income Household**: In California law, a low-income household is defined as "those with household incomes at or below 80% of the statewide median income or with household incomes at or below the threshold designated as low-income by the Department of Housing and Community Development." A "low-income area" means an area with household incomes at or below 80% of the statewide median income or with household incomes at or below the threshold designated as low income by the Department of Housing and Community Development's list of state income limits adopted pursuant to Section 50093. (Sources: AB 1550 and SB 1000 bill text)
- **Area Median Household Income (AMI):** The AMI is the median family income of a geographic area of the state. It provides a metric of household income that accounts for regional variation in income levels and cost of living. The AMI is calculated every year and used to determine income limits for "lower income households." In California, the Department of Housing and Community Development publishes state income limits annually. (Sources: California Department of Housing and Community development, CA Health and Safety Code Section 50093)
- **Federal Poverty Level (FPL):** A measure of income determined by federal poverty guidelines issued every year by the Department of Health and Human Services. FPLs are used to determine eligibility for federal and state assistance programs and benefits. Because the federal poverty level applies nation-wide, areas with a higher cost of living such as California, often use the number of households or individuals with incomes

[96] Public Resources Code § 30108.5

[97] Public Resources Code § 30108.6

below twice the federal poverty level (200% FPL) as an indicator of poverty. (Source: Healthcare.gov)

- **Housing Burdened Low-Income Households**: Percentage of households in a census tract that is both low income (making less than 80% of the HUD area median income) and paying greater than 50% of their income to housing costs. (Sources: CalEPA Office of Environmental Health and Hazard Assessment, Comprehensive Affordability Housing Strategy)

**Mean sea level:** The average relative sea level over a period, such as a month or a year, long enough to average out transients such as waves and tides. Relative sea level is sea level measured by a tide gauge with respect to the land upon which it is situated. (See also *Sea level change/sea level rise*)

**Meaningful Engagement:** The intentional outreach, inclusion, and consideration of the voices and perspectives from presently and historically underserved and marginalized communities in the design, development, implementation, and policies that may impact the health, environment, and livelihood of their communities.

**Mitigation** (*as used in climate science*): A set of policies and programs designed to reduce emissions of greenhouse gases.[98]

**Mitigation** (*as used in resource management*): Projects or programs intended to minimize or offset impacts to resources.

**Monitoring**: Systematic collection of physical, biological, chemical, or economic data, or a combination of these data on a project in order to make decisions regarding project operation or to evaluate project performance.

**Nature-Based Adaptation Strategies:** A coastal adaptation and/or erosion control method that is comprised of natural or mostly natural elements, which contributes to the persistence and enhancement of coastal processes and ecological benefits while also offering protection services to inshore areas. (See also *Soft Strategies* and *Hybrid Armoring*)

**Pacific Decadal Oscillation:** The Pacific Decadal Oscillation (PDO) is a long-term ocean fluctuation of the Pacific Ocean. The PDO waxes and wanes approximately every 20 to 30 years.

**Passive erosion**: The process whereby erosion causes the shoreline to retreat and migrate landward of any hardened structures that have fixed the location of the back beach therefore resulting in the gradual loss of beach in front of the hardened structure.

[98] Luers and Moser 2006

**Permit:** Any license, certificate, approval, or other entitlement for use granted or denied by any public agency which is subject to the provisions of this division.[99]

**Piling (or Pile):** A long, heavy timber or section of concrete or metal driven or drilled into the earth or seabed to serve as a support or protection. (See also *Caisson*)

**Potential impacts:** All impacts that may occur given a projected change in climate, including impacts that may result from adaptation measures.

**Public Trust Lands**: All lands subject to the Common Law Public Trust for commerce, navigation, fisheries, recreation, and other public purposes. Public Trust Lands include tidelands, submerged lands, the beds of navigable lakes and rivers, and historic tidelands and submerged lands that are presently filled or reclaimed and which were subject to the Public Trust at any time.[100] (See also *Tidelands, Submerged lands*)

**Radiative forcing:** Radiative forcing is a measure of the influence a factor has in altering the balance of incoming and outgoing energy in the Earth-atmosphere system and is an index of the importance of the factor as a potential climate change mechanism. In [the IPCC] report radiative forcing values are for changes relative to pre-industrial conditions defined at 1750 and are expressed in Watts per square meter ($W/m^2$).[101]

**Redevelopment:** At a minimum, replacement of 50% or more of an existing structure. LCPs may also consider including limits on the extent of replacement of major structural components such as the foundation or exterior walls, or improvements costing more than 50% of the assessed or appraised value of the existing structure**.**

**Revetment**: A sloped retaining wall; a facing of stone, concrete, blocks, rip-rap, *etc.* built to protect an embankment, bluff, or development against erosion by wave action and currents. (See also *Hard protection, Seawall, Shoreline protective devices*)

**Risk:** Commonly considered to be the combination of the likelihood of an event and its consequences – i.e., risk equals the probability of climate hazard occurring multiplied the consequences a given system may experience.[102]

---

[99] Public Resources Code § 30110

[100] 14 Cal. Code Regs § 13577(f). While most lands that are currently – or historically were – covered by the ebb and flow of the tides are public tidelands subject to the public trust doctrine and managed by the State Lands Commission, there are some additional land classifications that impact how tidelands are managed. These additional land types include recognized Rancho, Pueblo, and Presidio Lands that are not subject to State Lands Commission management or oversight; and lands that were sold off to private ownership. In other cases, some lands may be subject to boundary line agreements and other adjudications that "fixed" the location of the tidelands boundary but that may have associated ambulatory easements for public uses.

[101] IPCC 2007

[102] Burton *et al.,* 2004

**Scenario-based analysis:** A tool for developing a science-based decision-making framework to address environmental uncertainty. In general, a range of plausible impacts based on multiple time scales, emissions scenarios, or other factors is developed to inform further decision-making regarding the range of impacts and vulnerabilities.[103]

**Sea level**: The height of the ocean relative to land; tides, wind, atmospheric pressure changes, heating, cooling, and other factors cause sea level changes.

**Sea level change/sea level rise:** Sea level can change, both globally and locally, due to (a) changes in the shape of the ocean basins, (b) changes in the total mass of water and (c) changes in water density. Factors leading to sea level rise under global warming include both increases in the total mass of water from the melting of land-based snow and ice, and changes in water density from an increase in ocean water temperatures and salinity changes. Relative sea level rise occurs where there is a local increase in the level of the ocean relative to the land, which might be due to ocean rise and/or land level subsidence.[104] (See also *Mean sea level*, *Thermal expansion*)

**Sea level rise impact:** An effect of sea level rise on the structure or function of a system.[105]

**Sea level rise projection:** Projections are predictions of future sea level rise based on scientific information and models that relate climate and sea level, and they are based on assumed trajectories of future global emissions and warming. Kopp *et al*., 2014 and the 2018 State SLR Guidance are examples of a studies that provided probabilistic sea level rise projections, including a set of projections based on an optimistic emissions scenario that assumed net-negative emissions in the last decades of the 21st century (Representative Concentration Pathway 2.5, or RCP 2.5) and a set based on a high-end, fossil-fuel-intensive emission scenario (RCP 8.5). Since there is uncertainty inherent in climate models and other information sources used to project the various drivers of SLR, projections are presented in ranges that reflect that uncertainty. Particular sea level rise amounts may be predicted more or less frequently by these studies, so projections can be presented probabilistically. Therefore, projections are often called emission-dependent (or conditional) and probabilistic. The median (50$^{th}$ percentile) projection can be reported, along with the likely range (17$^{th}$ to 83$^{rd}$ percentiles) and so on.

**Sea level rise scenario:** Scenarios are sea level rise amounts or trajectories that span the plausible range of future sea level rise. They are usually presented as ranges and are not necessarily actual predictions of how much sea level rise is expected to occur by a certain time. Rather, they are hypothetical futures that span the range of what is considered possible according to the current best available science. Examples of reports that provided sea level rise

[103] NOAA 2010

[104] IPCC 2007

[105] PCGCC 2007

scenarios include Parris *et al*., 2012 – which provided global mean sea level rise scenarios for the year 2100 of 0.1, 0.5, 1.2, and 2.0 meters – and Hall *et al*., 2016 – which provided scenarios for 2100 including 0.2, 0.5, 1.0, 1.5 and 2.0 meters – with the intent that these roughly even increments of sea level rise span the plausible range of sea level rise that could occur in the year 2100. This report provides five sea level rise scenarios, each constructed from a subset of probabilistic AR6 projections. The information embedded in the projections are used to quantitatively and qualitatively characterize the likelihood that each scenario will occur.

**Seawall:** A structure separating land and water areas, primarily designed to prevent erosion and other damage due to wave action. It is usually a vertical wood or concrete wall as opposed to a sloped revetment. (See also *Hard protection, Revetment, Shoreline protective devices*)

**Sediment**: Grains of soil, sand, or rock that have been transported from one location and deposited at another.

**Sediment management:** The system-based approach to the management of coastal, nearshore and estuarine sediments through activities that affect the transport, removal and deposition of sediment to achieve balanced and sustainable solutions to sediment related needs.

**Sensitivity**: The degree to which a system is affected, either adversely or beneficially, by climate-related stimuli. The effect may be direct (e.g., a change in crop yield in response to a change in the mean, range, or variability of temperature) or indirect (e.g., climatic or non-climatic stressors may cause people to be more sensitive to additional extreme conditions from climate change than they would be in the absence of these stressors).

**Shore protection**: Structures or sand placed at or on the shore to reduce or eliminate upland damage from wave action or flooding during storms.

**Shared socioeconomic pathways (SSP)**: The set of conceivable global development, emissions, and warming futures defined by the IPCC in its Sixth Assessment Report. “SSP1, SSP2, …, SSP5” is used to denote the five socio-economic scenario families. SSP1-1.9, SSP1-2.6, …, SSP5-8.5 are used to denote various approximate radiative forcing levels of 1.9, 2.6, …, or 8.5 W $m^{-2}$ reached by the end of the century, respectively.

**Shoreline protective devices:** A broad term for constructed features such as seawalls, revetments, riprap, earthen berms, cave fills, and bulkheads that block the landward retreat of the shoreline and are used to protect structures or other features from erosion and other hazards. (See also *Hard protection, Revetment, Seawall*)

**Soft Strategies:** Nature-based adaptation strategies that avoid fixing the shoreline with hard structures and instead rely on the use of dynamic systems to attenuate coastal hazards, such as dune or wetland restoration, or sand replenishment. (See also *Nature-Based Adaptation Strategies* and *Hybrid Armoring*)

**Still water level**: The elevation that the surface of the water would assume if all wave action were absent.

**Storm surge**: A rise above normal water level on the open coast due to the action of wind stress on the water surface. Storm surge resulting from a hurricane also includes the rise in water level due to atmospheric pressure reduction as well as that due to wind stress.

**Submerged lands:** Lands which lie below the line of mean low tide.[106] (See also *Public Trust Lands*, *Tidelands*)

**Subsidence**: Sinking or down-warping of a part of the earth's surface; can result from seismic activity, changes in loadings on the earth's surface, fluid extraction, or soil settlement.

**Tectonic**: Of or relating to the structure of the earth's crust and the large-scale processes that take place within it.

**Thermal expansion**: An increase in water volume in response to an increase in temperature, through heat transfer.

**Tidal prism**: The total amount of water that flows into a harbor or estuary and out again with movement of the tide, excluding any freshwater flow.

**Tidal range**: The vertical difference between consecutive high and low waters. The Great Diurnal Range is the difference between mean higher high water and mean lower low water; the Mean Range of tide is the difference in height between mean high water and mean low water.[107]

**Tidelands**: Lands which are located between the lines of mean high tide and mean low tide.[108] (See also *Public Trust Lands*, *Submerged lands*)

**Traditional Ecological Knowledge:** Also called "indigenous knowledge" or "Native science," refers to the evolving knowledge acquired by indigenous and local peoples over hundreds or thousands of years through direct contact with the environment. This knowledge is specific to a location and includes the relationships between plants, animals, natural phenomena, landscapes, and timing of events that are used for lifeways, including but not limited to hunting, fishing, trapping, agriculture, and forestry. Traditional ecological knowledge is an accumulating body of knowledge, practice, and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationship of living beings (human and non-human) with one another and with the environment. It encompasses the world view

[106] 14 Cal. Code Regs § 13577(e)

[107] NOAA 2013

[108] 14 Cal. Code Regs § 13577(d)

of indigenous people which includes ecology, spirituality, human and animal relationships, and more.[109]

**Transfer of Development Rights (TDR)**: A device by which the development potential of a site is severed from its title and made available for transfer to another location. The owner of a site within a transfer area may retain property ownership, but not approval to develop. The owner of a site within a receiving area may purchase transferable development rights, allowing a receptor site to be developed at a greater density.[110]

**Tsunami**: A long period wave, or seismic sea wave, caused by an underwater disturbance such as an earthquake, submarine landslide, or subaerial landslide (slope failure from land into a water body). Tsunamis can cause significant flooding in low-lying coastal areas and strong currents in harbors. (Commonly misnamed a *Tidal wave*)

**Vulnerability**: The extent to which a species, habitat, ecosystem, or human system is susceptible to harm from climate change impacts. More specifically, the degree to which a system is exposed to, susceptible to, and unable to cope with, the adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, as well as of non-climatic characteristics of the system, including its sensitivity, and its coping and adaptive capacity.

**Vulnerability assessment**: A practice that identifies who and what is exposed and sensitive to change and how able a given system is to cope with extremes and change. It considers the factors that expose and make people or the environment susceptible to harm and access to natural and financial resources available to cope and adapt, including the ability to self-protect, external coping mechanisms, support networks, and so on.[111]

**Vulnerable Communities:** Climate vulnerability describes the degree to which natural, built, and human systems are at risk of exposure to climate change impacts. Vulnerable communities[112] experience heightened risk and increased sensitivity to climate change and have less capacity and fewer resources to cope with, adapt to, or recover from climate impacts. These disproportionate effects are caused by physical (built and environmental), social, political, and/ or economic factor(s), which are exacerbated by climate impacts. These factors include, but are not limited to, race, class, sexual orientation and identification, national origin, and income inequality.

[109] U.S. Fish and Wildlife Service: Traditional Ecological Knowledge for Application by Service Scientists. (https://www.fws.gov/nativeamerican/pdf/tek-fact-sheet.pdf).

[110] Cal OPR 1987

[111] Tompkins *et al.,* 2005

[112] Office of Planning and Research, 2018: Defining Vulnerable Communities in the Context of Climate Adaptation.

**Wave**: A ridge, deformation, or undulation of the surface of a liquid. On the ocean, most waves are generated by wind and are often referred to as wind waves.

**Wave height**: The vertical distance from a wave trough to crest.

**Wave length (or Wavelength):** The horizontal distance between successive wave crests or between successive troughs of waves.

**Wave period**: The time for a wave crest to traverse a distance equal to one wavelength, which is the time for two successive wave crests to pass a fixed point.

**Wave runup**: The distance or extent that water from a breaking wave will extend up the shoreline, including up a beach, bluff, or structure.

*This page intentionally left blank*

# References

Akins, Damon, B. and Bauer Jr., William, J. (2022). We Are the Land: A History of Native California. University of California Press. https://www.ucpress.edu/book/9780520280502/we-are-the-land.

Anderson, R., Griggs, G., Lester, C., Patsch, K. (2020). Adapting to shoreline retreat: Finding a path forward. Shore & Beach, 88(4), 1-21.

Anguelovski, I, Connolly, JTT, Pearsall, H, Shokry, G, Checker, M, Maantay, J, Gould, K, Lewis, T, Maroko, A, & J Timmons Roberts. (2019). Why green "climate gentrification" threatens poor and vulnerable populations. Proceedings of the National Academy of Sciences, Volume 116, Issue 52. https://www.pnas.org/doi/full/10.1073/pnas.1920490117.

Assembly Bill No. 2616, Burke. (2016). Chapter 578 An act to amend Sections 30301 and 30604 of, and to add Sections 30013 and 30107.3 to, the Public Resources Code, relating to coastal resources. http://www.leginfo.ca.gov/pub/15-16/bill/asm/ab_2601-2650/ab_2616_bill_20160924_chaptered.htm

Barlow TM, EG Reichard. 2010. Saltwater intrusion in coastal regions of North America. Hydrogeology Journal 18: 247-260. doi: 10.1007/s10040-009-0514-3

Barnard, P.L., Erikson, L.H., Foxgrover, A.C. et al. Dynamic flood modeling essential to assess the coastal impacts of climate change. Sci Rep 9, 4309 (2019). https://doi.org/10.1038/s41598-019-40742-z

Bay Conservation and Development Commission (BCDC). 1968. San Francisco Bay Plan. https://bcdc.ca.gov/pdf/bayplan/bayplan.pdf.

Bay Conservation and Development Commission (BCDC). 2011. Climate Change Bay Plan Amendment. Adopted October 6, 2011. https://bcdc.ca.gov/pdf/bayplan/bayplan.pdf

Bedsworth, L, D Cayan, G Franco, L Fisher, S Ziaja. (CA Governor's Office of Planning and Research, Scripps Institution of Oceanography, CA Energy Commission, CA Public Utilities Commission). 2018. Statewide Summary Report. California's Fourth Climate Change Assessment. http://www.climateassessment.ca.gov/state/index.html

Befus, K. M., Barnard, P. L., Hoover, D. J., Finzi Hart, J. A., & Voss, C. I. (2020). Increasing threat of coastal groundwater hazards from sea level rise in California. Nature Climate Change, 10(10), 946–952. https://doi.org/10.1038/s41558-020-0874-1

Berry-James, R.M., Gooden, S.T. and Johnson, R.G., III (2020), Civil Rights, Social Equity, and Census 2020. Public Admin Rev, 80: 1100-1108. https://doi.org/10.1111/puar.13285

Black, M., Chief, K., Jacobs, K; Schuyler, C., & Lynn, R. (2015). Tribal Leaders Summit on Climate Change: A Focus on Climate Adaptation Planning and Implementation. https://www.sciencebase.gov/catalog/item/57daca21e4b090824ffc3161.

Bromirski, P. D. (2023). Climate-Induced Decadal Ocean Wave Height Variability From Microseisms: 1931–2021. Journal of Geophysical Research: Oceans, 128(8), e2023JC019722. https://doi.org/10.1029/2023JC019722

Buma, B., Gordon, D.R., Kleisner, K.M. et al. 2024. Expert review of the science underlying nature-based climate solutions. Nature Climate Change. https://doi.org/10.1038/s41558-024-01960-0.

Caldwell MR, EH Hartge, LC Ewing, G Griggs, RP Kelly, SC Moser, SG Newkirk, RA Smyth, CB Woodson. 2013. Coastal Issues. In: Assessment of Climate Change in the Southwest United States: A Report Prepared for the National Climate Assessment, [G Garfin, A Jardine, R Merideth, M Black, S LeRoy (eds.)]. Pp. 168-196. A report by the Southwest Climate Alliance. Washington, DC: Island Press. http://www.swcarr.arizona.edu/.

California Air Resources Board. 2022. Scoping Plan for Achieving Carbon Neutrality https://ww2.arb.ca.gov/sites/default/files/2023-04/2022-sp.pdf

California Coastal Commission (CCC). 1989. Planning for an Accelerated Sea Level Along the California Coast. Staff report drafted by L Ewing, J Michaels and D McCarthy. 85 pp. http://www.coastal.ca.gov/climate/PlanningAccelSLR.pdf.

California Coastal Commission (CCC). 2001. Overview of Sea Level Rise and Some Implications for Coastal California. Report prepared by Staff, June 1, 2001. 58pp. http://www.coastal.ca.gov/climate/SeaLevelRise2001.pdf.

California Coastal Commission (CCC). 2006. Discussion Draft: Global Warming and the California Coastal Commission. Briefing prepared by Staff, December 12, 2006. 9 pp. http://documents.coastal.ca.gov/reports/2006/12/Th3-12-2006.pdf.

California Coastal Commission (CCC). 2008a. Climate Change and Research Considerations. White paper prepared by Staff, September 29, 2008. 6 pp. http://www.coastal.ca.gov/climate/ccc_whitepaper.pdf.

California Coastal Commission (CCC). 2008b. A Summary of the Coastal Commission's Involvement in Climate Change and Global Warming Issues for a Briefing to the Coastal Commission. Briefing prepared by Commission Staff Climate Change Task Force, December 12, 2008. 54 pp. http://documents.coastal.ca.gov/reports/2008/12/F3.5-12-2008.pdf.

California Coastal Commission (CCC). 2013b. Local Coastal Program (LCP) Update Guide. Updates to original 2007 document, revised July 2013.129 pp. https://www.coastal.ca.gov/rflg/lcp-planning.html

California Coastal Commission (CCC). 2013c. Tips/Best Practices for Processing LCP Amendments. Prepared November 12, 2013. 3 pp. https://documents.coastal.ca.gov/assets/la/TipsLCPAmend_Nov2013.pdf.

California Coastal Commission (CCC). 2019. Environmental Justice Policy. https://documents.coastal.ca.gov/assets/env-justice/CCC_EJ_Policy_FINAL.pdf

California Coastal Commission (CCC). 2019. Local Coastal Program (LCP): Local Assistance Grant Program https://www.coastal.ca.gov/lcp/grants/

California Coastal Commission (CCC). 2021. Sea Level Rise Coastal Adaptation Planning Guidance for Critical Infrastructure. https://www.coastal.ca.gov/climate/slr/vulnerability-adaptation/infrastructure/

California Coastal Commission (CCC). 2021. Strategic Plan 2021-2025. Approved November 2020. 45 pp. https://documents.coastal.ca.gov/assets/strategicplan/CCC_Strategic_Plan_Adopted_11.06.20_Rev.pdf

California Coastal Commission (CCC). 2023. Public Trust Guiding Principles and Action Plan: Carrying out the California Coastal Act and Public Trust Doctrine in an era of climate change and sea level rise. https://documents.coastal.ca.gov/assets/public-trust/Public%20Trust%20Guidance%20and%20Action%20Plan_Adopted.pdf

California Coastal Commission (CCC). 2024. Resources for Addressing Environmental Justice through Local Coastal Programs. 42 pp. https://documents.coastal.ca.gov/assets/lcp/LUPUpdate/EJandLCPResources_CoastalCommission.pdf

California Department of Parks and Recreation. 2015. Sea Level Rise Adaptation Strategy https://www.parks.ca.gov/pages/734/files/StateParks_SLR_Strategy.pdf

California Government. 2018. California Fourth Climate Change Assessment

California Governor's Office of Emergency Services (Cal OES). 2023. California State Hazard Plan. https://www.caloes.ca.gov/wp-content/uploads/Hazard-Mitigation/Documents/2023-California-SHMP_Volume-1_11.10.2023.pdf

California Native American Heritage Commission (NAHC). 2024. https://nahc.ca.gov/

California Natural Resources Agency (CNRA). 2009. California Climate Adaptation Strategy. 197pp.

California Natural Resources Agency (CNRA). 2010. State of the State's Wetlands: 10 Years of Challenges and Progress. 42pp. http://www.resources.ca.gov/docs/SOSW_report_with_cover_memo_10182010.pdf.

California Natural Resources Agency (CNRA). 2014. Safeguarding California: Reducing Climate Risk. An update to the 2009 California Climate Assessment. 343pp. http://resources.ca.gov/docs/climate/Final_Safeguarding_CA_Plan_July_31_2014.pdf.

California Natural Resources Agency (CNRA). 2021. California Climate Adaptation Strategy. https://climateresilience.ca.gov/

California Natural Resources Agency. (2020). Making California's Coast Resilient to Sea Level Rise: Principles for Aligned State Action. California Natural Resources Agency. Sacramento, California. http://www.opc.ca.gov/webmaster/_media_library/2020/05/State-SLR-Principles_FINAL_April-2020.pdf

California Natural Resources Agency. 2020. Environmental Justice Policy. https://www.conservation.ca.gov/Documents/Environmental%20Justice%20Policy%20-%20CNRA.pdf

California State Coastal Conservancy. 2009. 2011. Climate Change Policy. https://scc.ca.gov/climatechange/climatechangepolicy/#:~:text=The%20Conservancy%20will%20encourage%20use,Carbon%20Reduction%20and%20Offsets.

California State Lands Commission. 2022. AB 691: Local Trustees Prepare for Sea Level Rise. https://slc.ca.gov/ab691/.

California State Lands Commission. 2023. Shoreline Adaptation and the Public Trust: Protecting California's Public Trust Resources from Sea Level Rise. https://www.slc.ca.gov/sea-level-rise/shorelineadaptationreport/#:~:text=and%20Benchmark%20Information-,Shoreline%20Adaptation%20and%20the%20Public%20Trust%3A%20Protecting%20California's%20Public,Resources%20from%20Sea%20Level%20Rise&text=This%20report%20was%20developed%20to,structures%20on%20ungranted%20state%20tidelands.

Cayan D, M Tyree, M Dettinger, H Hidalgo, T Das, E Maurer, P Bromirski, N Graham, R Flick. 2009. Climate Change Scenarios and Sea Level Rise Estimates for the California 2009 Climate Change Scenarios Assessment. California Climate Change Center, CEC-500-2009-014-F. 50pp. https://www.researchgate.net/publication/231181370_Climate_change_scenarios_and_sea_level_rise_estimates_for_the_California_2009_climate_change_scenarios_assessment

Climate Justice Working Group. (2019). Advancing Climate Justice in California: Guiding Principles and Recommendations for Policy and Funding Decisions. https://climatechangepolicies.legislature.ca.gov/sites/climatechangepolicies.legislature.ca.gov/files/Advancing%20Climate%20Justice%20Report.pdf.

Cushing LJ, Y Ju, S Kulp, N Depsky, S Karasaki, J Jaeger, A Raval, B Strauss, R Morello-Frosch. 2023. Toxic Tides and Environmental Injustice: Social Vulnerability to Sea Level Rise and Flooding of Hazardous Sites in Coastal California. Environ. Sci. Technol. 2023, 57, 19, 7370–7381. https://doi.org/10.1021/acs.est.2c07481.

Cutler EM, MR Albert, CD White. 2020. Tradeoffs between beach nourishment and managed retreat: Insights from dynamic programming for climate adaptation decisions https://www.sciencedirect.com/science/article/pii/S1364815219303639

Cutter SL, BL Boruff, WL Shirley. 2003. Social vulnerability to environmental hazards. Social Science Quarterly, p. 243. https://doi.org/10.1111/1540-6237.8402002.

Cutter SL, CT Emrich, JJ Hanney (Webb), D Morath. 2009. Social Vulnerability to Climate Variability Hazards: A Review of Literature. Final Report to Oxfam America. 1-44.

Dangendorf, S., Hay, C., Calafat, F. M., Marcos, M., Piecuch, C. G., Berk, K., & Jensen, J. (2019). Persistent acceleration in global sea level rise since the 1960s. Nature Climate Change, 9(9), 705–710. https://doi.org/10.1038/s41558-019-0531-8

Dartt-Newton D, J Erlandson. 2006. “Little Choice for the Chumash: Colonialism, Cattle, and Coercion in Mission Period California.” The American Indian Quarterly 30. No. 3: 416–30. https://doi.org/10.1353/aiq.2006.0020.

DeConto RM, Pollard D. 2016. Contribution of Antarctica to past and future sea-level rise. Nature 531: 591-7

DeConto, R.M., Pollard, D., Alley, R.B. et al. The Paris Climate Agreement and future sea-level rise from Antarctica. Nature 593, 83–89 (2021). https://doi.org/10.1038/s41586-021-03427-0

Dettinger M. 2011. Climate change, atmospheric rivers, and floods in California – A multimodel analysis of storm frequency and magnitude changes. Journal of the American Water Resources Association 47(3): 514-523. doi: 10.1111/j.1752-1688.2011.00546.x.

Dunlop, T., Khojasteh, D., Cohen-Shacham, E. et al. 2024. The evolution and future of research on Nature-based Solutions to address societal challenges. Commun Earth Environ 5, 132. https://doi.org/10.1038/s43247-024-01308-8

Edwards BD, KR Evans. 2002. Saltwater Intrusion in Los Angeles Area Coastal Aquifers– the Marine Connection. U.S. Geological Survey Fact Sheet 030-02. http://geopubs.wr.usgs.gov/fact-sheet/fs030-02/.

Environmental Justice for All: A Fifty State Survey of Legislation, Policy and Cases, fourth edition (2010).

Fazey, I. R. A., Wise, R. M., Lyon, C., Campeanu, C., Moug, P., & Davies, T. E. (2015). Past and future adaptation pathways. Climate and Development. https://doi.org/10.1080/17565529.2014.989192

Flick RE, DB Chadwick, J Briscoe, KC Harper. 2012. "Flooding" versus "Inundation", Eos 93(38): 365-366. doi: 10.1029/2012EO380009.

Fox-Kemper, B., H.T. Hewitt, C. Xiao, G. Aðalgeirsdóttir, S.S. Drijfhout, T.L. Edwards, N.R. Golledge, M. Hemer, R.E. Kopp, G. Krinner, A. Mix, D. Notz, S. Nowicki, I.S. Nurhati, L. Ruiz, J.-B. Sallée, A.B.A. Slangen, and Y. Yu, 2021: Ocean, Cryosphere and Sea Level Change. In Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1211–1362, doi:10.1017/9781009157896.011. https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter09.pdf

Frederikse, T., Landerer, F., Caron, L., Adhikari, S., Parkes, D., Humphrey, V. W., Dangendorf, S., Hogarth, P., Zanna, L., Cheng, L., & Wu, Y.-H. (2020). The causes of sea level rise since 1900. Nature, 584(7821), 393–397. https://doi.org/10.1038/s41586-020-2591-3

Funayama K, E Hines, J Davis, S Allen. 2012. Effects of sea-level rise on northern elephant seals at Point Reyes peninsula, California. Aquatic Conservation: Marine and Freshwater Ecosystems 23(2): 233-245. doi: 10.1002/aqc.2318.

Garcia, R., & Flores Baltodano, E. (2005). Free the Beach! Public Access, Equal Justice, and the California Coast. Stanford Journal of Civil Rights and Civil Liberties. 143. https://www.coastal.ca.gov/coastalvoices/resources/StanfordFreetheBeach.pdf.

Gould, K & T Lewis. (2018). From Green Gentrification to Resilience Gentrification: An Example from Brooklyn. City & Community. 17:12-15. https://www.researchgate.net/publication/324160811_From_Green_Gentrification_to_Resilience_Gentrification_An_Example_from_Brooklyn1.

Governor's Office of Planning and Research. (OPR). 2024. Vulnerable Communities Definition Modification. https://opr.ca.gov/climate/icarp/tac/meetings/2024-03-29/docs/20240329-Item6_Vulnerable_Communities_Definition_Update_Memo.pdf.

Griggs GB. 2010. Introduction to California's Beaches and Coast. University of California Press. 311 pp.

Griggs, G, Árvai, J, Cayan, D, DeConto, R, Fox, J, Fricker, HA, Kopp, RE, Tebaldi, C, Whiteman, EA (California Ocean Protection Council Science Advisory Team Working Group). Rising Seas in

California: An Update on Sea-Level Rise Science. California Ocean Science Trust, April 2017. https://www.opc.ca.gov/webmaster/ftp/pdf/docs/rising-seas-in-california-an-update-on-sea-level-rise-science.pdf

Griggs, G. and K. Patsch, 2019. “The protection/hardening of California’s coast -- Times are changing.” J. Coastal Research, 35(5), 1051-1061.

Hall, J.A., S. Gill, J. Obeysekera, W. Sweet, K. Knuuti, and J. Marburger, 2016: Regional Sea Level Scenarios for Coastal Risk Management: Managing the Uncertainty of Future Sea Level Change and Extreme Water Levels for Department of Defense Coastal Sites Worldwide. U.S. Department of Defense, Strategic Environmental Research and Development Program, Alexandria, VA, 224 pp. https://climateandsecurity.files.wordpress.com/2014/01/regional-sea-level-scenarios-for-coastal-risk-management_managing-uncertainty-of-future-sea-level-change-and-extreme-water-levels-fordepartment-of-defense.pdf

Hanson RT, P Martin, KM Koczot. 2002b. Simulation of Ground-Water/Surface-Water Flow in the Santa Clara–Calleguas Ground-Water Basin, Ventura County, California. US Geological Survey Water Resources Investigations Report 02-4136. 157 pp. http://pubs.usgs.gov/wri/wri024136/wrir024136.pdf.

Hanson RT, RR Everett, MW Newhouse, SM Crawford, MI Pimental, GA Smith. 2002a. Geohydrology of a Deep-Aquifer System Monitoring-Well Site at Marina, Monterey County, California. US Geological Survey Water-Resources Investigations Report 02-4003. 36pp. http://pubs.usgs.gov/wri/wri024003/pdf/text.pdf.

Harvard Ash Center. (2022). "Returning Land to Native Nations is about Righting Historical Wrongs—and Also Stemming Future Environmental Disaster." *Ash Center for Democratic Governance and Innovation*. https://ash.harvard.edu/articles/returning-land-to-native-nations-is-about-righting-historical-wrongs-and-also-stemming-future-environmental-disaster

Heberger M, H Cooley, P Herrera, PH Gleick, E Moore. 2009. The Impacts of Sea-Level Rise on the California Coast. Prepared by the Pacific Institute for the California Climate Change Center. https://pacinst.org/wp-content/uploads/2014/04/sea-level-rise.pdf.

Hill, K., Hirschfeld, D., Lindquist, C., Cook, F., & Warner, S. (2023). Rising Coastal Groundwater as a Result of Sea-Level Rise Will Influence Contaminated Coastal Sites and Underground Infrastructure. Earth’s Future, 11(9), e2023EF003825. https://doi.org/10.1029/2023EF003825

Hoffman, J.S., Shandas, V., & Pendleton, N. (2020). The Effects of Historical Housing Policies on Resident Exposure to Intra-Urban Heat: A Study of 108 US Urban Areas. Climate, 8(1), 12, https://doi.org/10.3390/cli8010012.

Hoover DJ, KO Odigie, PW Swarzenski, P Barnard. 2016. Sea-level rise and coastal groundwater inundation and shoaling at select sites in California, USA. Journal of Hydrology: Regional Studies

11 (2017) 234–249. http://www.leginfo.ca.gov/pub/15-16/bill/asm/ab_2601-2650/ab_2616_bill_20160924_chaptered.htm

Intergovernmental Panel on Climate Change (IPCC). 2021: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 2391 pp. doi:10.1017/9781009157896.

Izbicki JA. 1996. Seawater Intrusion in a Coastal California Aquifer. USGS Fact Sheet 96-125. http://pubs.usgs.gov/fs/1996/0125/report.pdf.

Jacquelynne R. King, Vera N. Agostini, Christopher J. Harvey, Gordon A. McFarlane, Michael G. G. Foreman, James E. Overland, Emanuele Di Lorenzo, Nicholas A. Bond, Kerim Y. Aydin, Climate forcing and the California Current ecosystem, ICES Journal of Marine Science, Volume 68, Issue 6, July 2011, Pages 1199–1216, https://doi.org/10.1093/icesjms/fsr009

Judicial Council of California, 2022

Kato-Huerta, Jarumi, Geneletti, Davide. 2022. Environmental justice implications of nature-based solutions in urban areas: A systematic review of approaches, indicators, and outcomes. Environmental Science and Policy. Volume 138. Pg. 122-133. https://doi.org/10.1016/j.envsci.2022.07.034

Kopp RE, RM Horton, CM Little, JX Mitrovica, M Oppenheimer, DJ Rassussen, BH Strauss, C Tebaldi. 2014. Probabilistic 21st and 22nd century sea-level projections at a global network of tide-gauge sites. Earth's Future 2(8): 383-406. doi:10.1002/2014EF000239.

Kornell S. 2012. Will Climate Change Wipe Out Surfing? Pacific Standard. https://psmag.com/social-justice/will-climate-change-wipe-out-surfing-44209.

Kudela RM, S Seeyave, WP Cochlan. 2010. The role of nutrients in regulation and promotion of harmful algal blooms in upwelling systems. Progress in Oceanography 85: 122-135. doi: 10.1016/j.pocean.2010.02.008.

Leonard, K. 2021. WAMPUM Adaptation framework: eastern coastal Tribal Nations and sea level rise impacts on water security. Climate and Development, 13:9, 842-851, 10.1080/17565529.2020.1862739.

LeRoy, S. and R. Wiles. 2019. "High tide tax", Center for Climate Integrity, 27 pp. https://www.climatecosts2040.org/files/ClimateCosts2040_Report.pdf

Lester C, M Matella. 2016. Managing the Coastal Squeeze: Resilience Planning for Shoreline Residential Development. Stanford Environmental Law, Journal 23, Vol 36. https://law.stanford.edu/wp-content/uploads/2017/11/lester.pdf.

Lester, C.; Griggs, G.; Patsch, K., and Anderson, R., 0000. Shoreline retreat in California: Taking a step back. Journal of Coastal Research, 00(0), 000–000. Coconut Creek (Florida), ISSN 0749-0208.

Limber PW, PL Barnard, S Vitousek, LH Erickson. 2018. A model ensemble for projecting multi-decadal coastal cliff retreat during the 21st century. Journal of Geophysical Research Earth Surface. https://doi.org/10.1029/2017JF004401

Little Hoover Commission (LHC). 2014. Governing California Through Climate Change. Report #221, July 2014. 98pp. https://lhc.ca.gov/report/governing-california-through-climate-change/.

Lowe JA, PL Woodworth, T Knutson, RE McDonald, KI McInnes, K Woth, H von Storch, J Wolf, V Swail, NB Berier, S Gulev, KJ Horsburgh, AS Unnikrishnan, JR Hunter, R Weisse. 2010. Past and future changes in extreme sea levels and waves. In: Understanding Sea-Level Rise and Variability, [JA Church, PL Woodworth, T Aarup, WS Wilson (eds.)]. Wiley-Blackwell, UK, pp. 326-375.

Lynn, Austin, and Tracy Elsey-Quirk. 2024. "Salt Water Exposure Exacerbates the Negative Response of Phragmites australis Haplotypes to Sea-Level Rise" Plants 13, no. 6: 906. https://doi.org/10.3390/plants13060906

May, C. 2020. "Rising groundwater and sea-level rise," Nature Climate Change, Nature, vol. 10(10), pages 889-890, October.

Melillo JM, TC Richmond, GW Yohe (eds). 2014. Climate Change Impacts in the United States: The Third National Climate Assessment. Report for the US Global Change Research Program, 841 pp. doi:10.7930/J0Z31WJ2.

Monterey County Water Resources Agency (MCWRA). 2012. Historic Seawater Intrusion Maps. Last accessed: 9 March 2015. http://www.mcwra.co.monterey.ca.us/seawater_intrusion_monitoring/seawater_intrusion_maps.php.

Moser SC, MA Davidson, P Kirshen, P Mulvaney, JF Murley, JE Neumann, L Petes, D Reed. 2014. Chapter 25: Coastal Zone Development and Ecosystems. In: Climate Change Impacts in the United States: The Third National Climate As-sessment, [JM Melillo, TC Richmond, GW Yohe (eds.)], US Global Change Research Program, pp. 579-618. doi:10.7930/J0MS3QNW.

National Oceanic and Atmospheric Administration (NOAA). 2023. 2020 Marine Economy Report: California. Office for Coastal Management. Accessed 27 March 2024. https://coast.noaa.gov/data/digitalcoast/pdf/marine-economy-california.pdf

National Research Council (NRC). 2012. Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future. Report by the Committee on Sea Level Rise in California, Oregon, and Washington. National Academies Press, Washington, DC. 250 pp. https://nap.nationalacademies.org/catalog/13389/sea-level-rise-for-the-coasts-of-california-oregon-and-washington.

Nerem, R. S., Beckley, B. D., Fasullo, J. T., Hamlington, B. D., Masters, D., & Mitchum, G. T. (2018). Climate-change–driven accelerated sea level rise detected in the altimeter era. Proceedings of the National Academy of Sciences, 115(9), 2022–2025. https://doi.org/10.1073/pnas.1717312115

Nishikawa T, AJ Siade, EG Reichard, DJ Ponti, AG Canales, TA Johnson. 2009. Stratigraphic controls on seawater intrusion and implications for groundwater management, Dominguez Gap area of Los Angeles, California, USA. Hydrogeology Journal 17(7): 1699-1725. https://doi.org/10.1007/s10040-009-0481-8.

Ocean Protection Council (OPC). 2010. Interim Guidance: Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT). http://opc.ca.gov/webmaster/ftp/pdf/agenda_items/20110311/12.SLR_Resolution/SLR-Guidance-Document.pdf.

Ocean Protection Council (OPC). 2013. State of California Sea-Level Rise Guidance Document. http://www.opc.ca.gov/webmaster/ftp/pdf/docs/2013_SLR_Guidance_Update_FINAL1.pdf.

Ocean Protection Council (OPC). 2017. Rising Seas in California: An Update on Sea-Level Rise Science. https://www.opc.ca.gov/webmaster/ftp/pdf/docs/rising-seas-in-california-an-update-on-sea-level-rise-science.pdf

Ocean Protection Council (OPC). 2018. State of California Sea-Level Rise Guidance: 2018 Update. http://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf

Ocean Protection Guidance (OPC). 2024. State of California Sea Level Rise Guidance: 2024 Science & Policy Update https://opc.ca.gov/wp-content/uploads/2024/05/Item-4-Exhibit-A-Final-Draft-Sea-Level-Rise-Guidance-Update-2024-508.pdf

Parris A, P Bromirski, V Burkett, D Cayan, M Culver, J Hall, R Horton, K Knuuti, R Moss, J Obeysekera, A Sallenger, J Weiss. 2012. Global Sea Level Rise Scenarios for the US National Climate Assessment. NOAA Tech Memo OAR CPO-1. 37 pp. http://scenarios.globalchange.gov/sites/default/files/NOAA_SLR_r3_0.pdf.

Pellow, D. N. (2000). Environmental Inequality Formation: Toward a Theory of Environmental Injustice. American Behavioral Scientist, 43(4), 581-601. https://doi.org/10.1177/0002764200043004004

Ponti DJ, KD Ehman, BD Edwards, JC Tinsley III, T Hildenbrand, JW Hillhouse, RT Hanson, K McDougall, CL Powell II, E Wan, M Land, S Mahan, AM Sarna-Wojcicki. 2007. A 3-Dimensional Model of Water-Bearing Sequences in the Dominguez Gap Region, Long Beach, California. US Geological Survey Open-File Report 2007-1013. http://pubs.usgs.gov/of/2007/1013/.

Radke, J.D, G.S. Biging, K. Roberts, M. Schmidt-Poolman, H. Foster, E. Roe, Y. Ju, S. Lindbergh, T. Beach, L. Maier, Y. He, M. Ashenfarb, P. Norton, M. Wray, A. Alruheili, S. Yi, R. Rau, J. Collins, D. Radke, M. Coufal, S. Marx, A. Gohar, D. Moanga, V. Ulyashin, A. Dalal. (University of California, Berkeley) 2018. Assessing Extreme Weather-Related Vulnerability and Identifying Resilience Options for California's Interdependent Transportation Fuel Sector. California's Fourth Climate Change Assessment, California Energy Commission. Publication Number: CCCA4-CEC-2018-012.

Ranasinghe R, TM Duong, S Uhlenbrook, D Roelvink, M Stive. 2012. Climate-change impact assessment for inlet-interrupted coastlines. Nature Climate Change 3(1): 83-87. doi:10.1038/nclimate1664.

Reeder LA, TC Rick, JM Erlandson. 2010. Our disappearing past: a GIS analysis of the vulnerability of coastal archaeological resources in California's Santa Barbara Channel region. Journal of Coastal Conservation 16(2): 187-197. doi: 10.1007/s11852-010-0131-2.

Reineman, D. R., Thomas, L. N., & Caldwell, M. R. (2017). Using local knowledge to project sea level rise impacts on wave resources in California. Ocean & Coastal Management, 138, 181–191. https://doi.org/10.1016/j.ocecoaman.2017.01.020

Reineman, D.R., Wedding, L.M., Hartge, E.H., McEnery W., & Reiblich, J. (2016). Coastal Access Equity and the Implementation of the California Coastal Act. Stanford Environmental Journal of Law, Vol. 36:89, pp 89-108. https://law.stanford.edu/wpcontent/uploads/2017/11/reineman.pdf.

Revell DL, R Battalio, B Spear, P Ruggiero, J Vandever. 2011. A methodology for predicting future coastal hazards due to sea-level rise on the California coast. Climatic Change 109(Suppl 1): 251-276. doi:10.1007/s10584-011-0315-2.

Roos, M. (2018). Climate Justice Summary Report. California's Fourth Climate Change Assessment. Publication number: SUM-CCCA4-2018-012. (E4 Strategic Solutions). https://resourceslegacyfund.org/wp-content/uploads/2018/09/Climate-Justice-Report-4CCCAv.4-00455673xA1C15.pdf

Rowland-Shea, J, S Doshi, S Edberg, R Fanger. 2020. The Nature Gap: Confronting Racial and Economic Disparities in the Destruction and Protection of Nature in America. Center for American Progress. https://www.americanprogress.org/wpcontent/uploads/sites/2/2020/07/The-Nature-Gap4.pdf.

Ryan JP, MA McManus, JM Sullivan. 2010. Interacting physical, chemical and biological forcing of phytoplankton thin-layer variability in Monterey Bay, California. Continental Shelf Research 30(1): 7-16. doi:10.1016/j.csr.2009.10.017.

Sadrpour, N., & Reineman, D. R. (2023). The impacts of climate change on surfing resources. Shore & Beach, 91(1), 32-48. https://doi.org/10.34237/1009113

San Francisco Bay Conservation and Development Commission. 2024. Regional Shoreline Adaptation Plan. Bay Adapt. https://www.bayadapt.org/regional-shoreline-adaptation-plan/

Sea-Level Rise Leadership Team. (January 2022). State Agency Sea-Level Rise Action Plan for California. https://www.opc.ca.gov/webmaster/_media_library/2022/02/Item-7_Exhibit-A_SLR-Action-Plan-Final.pdf

Senate Bill No. 1, Atkins. Coastal resources: sea level rise. 2021. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=202120220SB1

Senate Bill No. 272, Laird. Sea level rise: planning and adaptation. 2023. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160SB272

Siders, A.R., Ajibade, I. 2021. Introduction: Managed retreat and environmental justice in a changing climate. J Environ Stud Sci 11, 287–293. https://doi.org/10.1007/s13412-021-00700-6.

State of California: Governor's Office of Planning and Research, Baca, E., McCormick, M., Litchney, S., & Shirazi, S. (n.d.). 2023. General Plan Guidelines. https://opr.ca.gov/docs/OPR_COMPLETE_7.31.17.pdf

Sweet, W. V., Kopp, R. E., Weaver, C. P., Obeysekera, J., Horton, R. M., Thieler, E. R., & Zervas, C. (2022). Global and regional sea level rise scenarios for the United ... GLOBAL AND REGIONAL SEA LEVEL RISE SCENARIOS FOR THE UNITED STATES. https://tidesandcurrents.noaa.gov/publications/techrpt83_Global_and_Regional_SLR_Scenarios_for_the_US_final.pdf

Sweet, W.V., B.D. Hamlington, R.E. Kopp, C.P. Weaver, P.L. Barnard, D. Bekaert, W. Brooks, M. Craghan, G. Dusek, T. Frederikse, G. Garner, A.S. Genz, J.P. Krasting, E. Larour, D. Marcy, J.J. Marra, J. Obeysekera, M. Osler, M. Pendleton, D. Roman, L. Schmied, W. Veatch, K.D. White, and C. Zuzak, 2022: Global and Regional Sea Level Rise Scenarios for the United States: Updated

Mean Projections and Extreme Water Level Probabilities Along U.S. Coastlines. NOAA Technical Report NOS 01. National Oceanic and Atmospheric Administration, National Ocean Service, Silver Spring, MD, 111 pp. https://oceanservice.noaa.gov/hazards/sealevelrise/noaa-nostechrpt01-global-regional-SLR-scenarios-US.pdf

Taylor, D.E. (2000). The Rise of the Environmental Justice Paradigm: Injustice Framing and the Social Construction of Environmental Discourses. American Behavioral Scientist, 43(4), 508-580. https://doi.org/10.1177/0002764200043004003.

The California Department of Transportation (Caltrans). 2019. Climate Change Vulnerability Assessments. https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/air-quality-and-climate-change/2019-climate-change-vulnerability-assessments

The California Department of Transportation (Caltrans). 2020. Adaptation Priorities Reports. https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/air-quality-and-climate-change/2020-adaptation-priorities-reports

The California Department of Transportation (Caltrans). 2021. Caltrans Climate Change Vulnerability Assessment Statewide Summary Report. 28 pp. https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/office-of-smart-mobility-and-climate-change/caltrans-climate-change-vulnerability-assessment-statewide-summary-feb2021-a11y.pdf

The California Department of Transportation (Caltrans). 2021. Climate Action Plan for Transportation Infrastructure (CAPTI). 47 pp. https://calsta.ca.gov/-/media/calsta-media/documents/capti-july-2021-a11y.pdf

The California Department of Transportation (Caltrans). 2022. Climate Change Emphasis Area Guidance for Corridor Planning. 58 pp. https://dot.ca.gov/-/media/dotmedia/programs/transportation-planning/documents/cc-ea-guide-for-corridor-planning-march2022-a11y.pdf

The California Department of Transportation (Caltrans). 2023. Adaptation Strategies for Transportation Infrastructure. 21 pp. https://dot.ca.gov/-/media/dotmedia/programs/transportation-planning/documents/adaptation-strategies-transportation-infrastructure-a11y.pdf

The California Department of Transportation (Caltrans). 2024. State Climate Resilience Improvement Plan for Transportation. 47pp. https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/division-transportation-planning/2023-script-final-with-letters-a11y.pdf

The San Francisco Bay Conservation and Development Commission (BCDC). 2021. San Francisco Bay Plan Climate Change Policy Guidance.

https://bcdc.ca.gov/bpacc/San-Francisco-Bay-Plan-Climate-Change-Policy-Guidance.pdf

The White House. (2021). Executive Order 14008 on Tackling the Climate Crisis at Home and Abroad. https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/

The White House. (2023). Executive Order 14096 Revitalizing Our Nation's Commitment to Environmental Justice for All. https://www.whitehouse.gov/briefing-room/presidential-actions/2023/04/21/executive-order-on-revitalizing-our-nations-commitment-to-environmental-justice-for-all/

The White House. 2022. Government-Wide Environmental Justice Initiative Called Justice40. https://www.whitehouse.gov/environmentaljustice/justice40/

Thompson, P. R., Widlansky, M. J., Hamlington, B. D., Merrifield, M. A., Marra, J. J., Mitchum, G. T., & Sweet, W. (2021). Rapid increases and extreme months in projections of United States high-tide flooding. Nature Climate Change, 11(7), 584–590. https://doi.org/10.1038/s41558-021-01077-8

Titus JG (ed.). 1988. Greenhouse Effect, Sea Level Rise, and Coastal Wetlands. US Environmental Protection Agency, Office of Wetland Protection. EPA-230-05-86-013. 156 pp. http://papers.risingsea.net/Sea-level-rise-and-coastal-wetlands.html.

Turner BL, EF Lambin, A Reenberg. 2007. The emergence of land change science for global environmental change and sustainability.

Uhler, B., & Chu, C. (2019). California's Geography of Wealth. California Legislative Analyst's Office. https://lao.ca.gov/reports/2019/4093/ca-geography-wealth-090519.pdf.

United States Environmental Protection Agency. (2021). Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts. U.S. Environmental Protection Agency. EPA 430-R-21-003. www.epa.gov/cira/social-vulnerability-report.

United States Environmental Protection Agency. (2022). Environmental Justice Timeline. https://www.epa.gov/environmentaljustice/environmental-justice-timeline.

United States Environmental Protection Agency. (2024). "Learn about Environmental Justice." https://www.epa.gov/environmentaljustice/learn-about-environmental-justice

United States Geological Survey. (2022). "Climate Change, Coastal Tribes, and Indigenous Communities." https://www.usgs.gov/news/featured-story/climate-change-coastal-tribes-and-indigenous-communities

Van Dyke E. 2012. Water levels, wetland elevations, and marsh loss. Elkhorn Slough Technical Report Series 2012: 2. 20pp.

http://library.elkhornslough.org/research/bibliography/VanDyke_2012_Water_Levels_Wetland_Elevations.pdf.

Vitousek S, PL Barnard, CH Fletcher, N Frazer, L Erickson, CD Storlazzi. 2017. Doubling of coastal flooding frequency within decades due to sea-level rise. Scientific Reports 7(1399). DOI:10.1038/s41598-017-01362-7

Vitousek, S., Cagigal, L., Montaño, J., Rueda, A., Mendez, F., Coco, G., & Barnard, P. L. (2021). The Application of Ensemble Wave Forcing to Quantify Uncertainty of Shoreline Change Predictions. Journal of Geophysical Research: Earth Surface, 126(7), e2019JF005506. https://doi.org/10.1029/2019JF005506

Vitousek, S., Vos, K., Splinter, K. D., Erikson, L., & Barnard, P. L. (2023). A Model Integrating Satellite-Derived Shoreline Observations for Predicting Fine-Scale Shoreline Response to Waves and Sea-Level Rise Across Large Coastal Regions. Journal of Geophysical Research: Earth Surface, 128(7), e2022JF006936. https://doi.org/10.1029/2022JF006936

Willis, J., Hamlington, B., & Fournier, S. (2023). Global Mean Sea Level, Trajectory and Extrapolation (Version 101) [dataset]. Zenodo. https://doi.org/10.5281/zenodo.7702315

Wood, N., Jones, J.M., Henry K., Ng, P., Hou, C.Y., 2020, Hazard Exposure Reporting and Analytics, U.S.Geological Survey web application, https://www.usgs.gov/apps/hera



# Appendices

# Appendices: Table of Contents

**APPENDICES** **277**

Appendix A. Sea Level Rise Science and Scenarios of Future Change 279
- Drivers of Sea Level Rise 280
- Approaches for Projecting Future Global Sea Level Rise 280
- Best Available Science on Sea Level Rise 284

Appendix B. Developing Local Hazard Conditions Based on Regional or Local Sea Level Rise Using Best Available Science 299
- Coastal Erosion 301
- Coastal Wetland Change 305
- Coastal Flooding 307
- Fluvial/Riverine Flooding 312
- Pluvial/Stormwater Flooding 313
- Groundwater Rise 314
- Tsunamis 316
- Summary 317

Appendix C. Resources for Addressing Sea Level Rise 325

Appendix D. General LCP Amendment Processing Steps and Best Practices 333

Appendix E. Primary Coastal Act Policies Related to Sea Level Rise and Coastal Hazards 337
- Legislative Findings Relating to Sea Level Rise 338
- Environmental Justice 338
- Public Access and Recreation 338
- Wetlands and Environmentally Sensitive Resources 340
- Agricultural and Timber Lands 342
- Archaeological and Paleontological Resources 342
- Marine Resources 342
- Coastal Development 343
- Ports 345
- Public Works Facilities 346
- Greenhouse Gas Emissions Reduction 347

Appendix F. Sea Level Rise Projections for 14 California Tide Gauges 349

Appendix G. Coastal Commission Contact Information 365

# Appendix A. Sea Level Rise Science and Scenarios of Future Change

## DRIVERS OF SEA LEVEL RISE

The main mechanisms driving increases in *global* sea level are: 1) expansion of sea water as it gets warmer (thermal expansion) and, 2) increases in the amount of water in the ocean from melting of land-based ice sheets and glaciers. Less significant contributors include human-induced changes in water storage and groundwater pumping.[113]

Sea level at the *regional and local levels* often differs from the average global sea level.[114] Regional variability in sea level results from large-scale tectonics and ocean and atmospheric circulation patterns. The primary factors influencing local sea level include tides, waves, atmospheric pressure, winds, vertical land motion and short duration changes from seismic events, storms, and tsunamis. Other determinants of local sea level include changes in the ocean floor (Smith and Sandwell 1997), confluence of fresh and saltwater, and proximity to major ice sheets (Clark *et al.* 1978; Perette *et al.* 2013; Fox-Kemper *et al*., 2021). Table 9.7 in the IPCC Sixth Assessment Report summarizes all global, regional, and local processes driving sea level rise. In California, long tide gauge records together with recent observations suggest that the long term sea level rise trend in California will track the global average (Hamlington *et al*., 2021).

Several other factors can influence local water levels in California, and these influences should be analyzed along with local sea level rise when examining local hazard conditions. For example, California's water levels are influenced by large-scale oceanographic phenomena such as the El Niño Southern Oscillation (ENSO) and the Pacific Decadal Oscillation (PDO), which can increase or decrease coastal water levels for extended periods of time. For example, strong El Niño events can temporarily elevate local sea levels by six to twelve inches over several months, while more sustained changes in ocean temperature and atmospheric circulation patterns can affect sea level on the order of decades. Over the past 30 years, for example, sea level rise was essentially absent during the first 15 years and then substantially accelerated during the second half due to the combined effects of ENSO and PDO (Hamlington *et al*., 2021) Please see Appendix B for more detail on how to incorporate both sea level rise and seasonal and temporary influences on water levels into local hazards analyses.

## APPROACHES FOR PROJECTING FUTURE GLOBAL SEA LEVEL RISE

As summarized above, there are several different drivers of sea level rise, and scientists are using a variety of methods to research each one and project their future contributions to sea level rise (see box below). For some, like thermal expansion, there is thorough research and fairly high agreement about how it may respond to different levels of warming and contribute

[113] Large movements of the tectonic plates have been a third major mechanism for changes in global sea level. The time periods for plate movements to significantly influence global sea level are beyond the time horizons used for even the most far-reaching land-use decisions. Plate dynamics will not be included in these discussions of changes to future sea level.

to global sea level rise in the future; whereas others, like certain ice sheet melt processes, are areas of developing research where more work is needed.

Many reports, including the IPCC Assessment Reports, build global mean sea level rise projections by totaling the contributions of each major driver of sea level rise under certain assumptions about what the global climate will look like in the future. Because each driver has its own degree of scientific uncertainty,[115] total sea level rise reflects the various uncertainties associated with each contributor. Total sea level rise projections are then presented as means (or averages) with uncertainty bands around them, and users often look at the mean, the likely range (i.e., the middle 66% of the uncertainty range, or 17$^{th}$ to 83$^{rd}$ percentiles), and the very likely range (i.e., the middle 90% of the uncertainty range, or the 5$^{th}$ to 95$^{th}$ percentiles) to understand how much sea level rise could potentially occur under the given assumptions about emissions and warming. Estimates of sea level rise produced in this manner are known as "probabilistic projections." In addition to the IPCC Assessment Reports, other studies that produced projections include Kopp *et al*., 2014, the Fourth California Climate Assessment, and *Rising Seas in California* (Griggs *et al*., 2017). Each produced projections for various Representative Concentration Pathways (RCPs), the emissions scenarios defined by the IPCC.

Besides probabilistic projections, another way that researchers often present potential future sea level rise is in the form of "scenarios." Unlike projections, which are based on pre-defined assumptions about future greenhouse gas emissions and global warming, scenarios are instead hypothetical futures that span the range of what is considered plausible sea level rise according to the best available science. They often span several sets of projections that cover multiple potential emissions futures, and they can be compared to probabilistic projections to describe their likelihoods under various emissions futures. Examples of reports that provide scenarios include Parris *et al*., 2012, Hall *et al*., 2016, Sweet *et al*., 2017, Sweet *et al*., 2022, and the State Sea Level Rise Guidance (OPC 2024).

[115] To describe the varying statuses of scientific research on different research topics, the IPCC established a common approach for evaluating and communicating the degree of certainty in findings. It defined a range of "confidence levels" to describe the level of evidence and degree of agreement in the body of scientific literature on a particular subject (very low, low, medium, high, and very high). Table 9.7 in the IPCC Sixth Assessment report summarizes the methods used to generate the projections of SLR resulting from each physical driver of SLR as well as the degree of confidence in each.

**Categories of methods for projecting future change**

Scientists have employed a variety of techniques to model the various mechanisms that contribute to sea level rise, including:

1. **Physical Models**. Physical climate models use mathematical equations that integrate the basic laws of physics, thermodynamics, and fluid dynamics with chemical reactions to represent physical processes such as atmospheric circulation, transfers of heat (thermodynamics), development of precipitation patterns, ocean warming, and other aspects of climate. Some models represent only a few processes, such as the dynamics of ice sheets. Other models represent larger scale atmospheric or oceanic circulation, and some of the more complex General Climate Models (GCMs) include atmospheric and oceanic interactions. AR6 sea level rise projections drew from the sixth Coupled Model Intercomparison Project (CMIP6) climate models, particularly to inform sea level rise contributions based on medium confidence processes (i.e., processes of sea level rise for which the AR6 scientists had medium or higher confidence) from thermal expansion and ice sheets.
2. **Empirical or semi-empirical methods**. The semi-empirical method for projecting sea level rise is based on developing a relationship between sea level and some factor (a proxy) – often atmospheric temperature or radiative forcing – and using this relationship to project changes to sea level. An important aspect for the proxy is that there is fairly high confidence in models of its future changes; a key assumption that is made by this method is that the historical relationship between sea level and the proxy will continue into the future. For example, Rahmstorf 2007 projected future sea levels based on the historical relationship between global temperature changes and sea level changes.
3. **Expert elicitations**. Expert elicitation is a formalized use of experts in climate science and sea level change to help either narrow uncertainty for sea level projections, or to help with specifying extremes of a range. For example, Bamber and Aspinall (2013) used a statistical analysis of a large number of expert estimates to develop their projected range of future sea level, projecting sea level rise by 2100 ranging from 1–4.3 ft (0.33–1.32 m). Bamber *et al*., 2019 used structured expert judgement to quantify contributions to total sea level rise from Greenland and Antarctica ice sheets, and these estimates were incorporated into AR6 sea level rise projections.
4. **Extrapolations of historical trends**. Using extrapolation of historical trends in sea level to project future changes in sea level assumes that there will be no abrupt changes in the processes that drive the long-term trend, and that the driving forces will not change, which is not the case. An alternative approach is to estimate rates of sea level rise during the peak of the last interglacial (LIG) period (~125,000 years before present, when some drivers of sea level rise were similar to those today)[116] and use these as proxy records to project sea level rise rates to the 21st Century. For example, Kopp *et al.* (2009) used sea level rise rates inferred from the LIG to estimate a range of sea level rise for Year 2100 between 1-3 ft (0.3-1 m).

[116] During the last interglacial, global mean temperature was 1-2ºC warmer than the pre-industrial era (Levermann *et al.* 2013), while global mean sea level was likely 16.4-29.5 ft (5-9 m) above present mean sea level (Kopp *et al.* 2009; Dutton and Lambeck 2012; Levermann *et al.* 2013).

The State Sea Level Rise Guidance (OPC 2024) drew from the sea level rise scenarios in a federal report, *Global and Regional Sea Level Rise Scenarios for the United States* (Sweet *et al*., 2022). This report updated a set of global mean sea level rise scenarios that had been included in the previous iteration of the report which was published in 2017. These 2017 scenarios included 0.3, 0.5, 1.0, 1.5, 2.0, and 2.5 meters in 2100, also called Low, Intermediate-Low, Intermediate, Intermediate-High, High, and Extreme. The 2.5-meter-in-2100 scenario was included in this 2017 set of scenarios to capture the amount of sea level rise that could occur due to possible extreme Antarctic ice sheet and ice cliff instability as described in the then-recently released 2016 report by DeConto & Pollard.

However, a subsequent report, DeConto *et al*., 2021, looked at updated regional climate model forcing and found that air temperatures are not expected to rise as quickly in Antarctica as presumed in DeConto & Pollard 2016; rather, warming may take about 25 years longer to rise enough to potentially trigger the mechanisms of rapid retreat of the Antarctic Ice Sheet[117] that were described in DeConto & Pollard 2016 – i.e., by about the year 2125. Due to this change, Sweet *et al*., 2022 did not include the 2.5-meters-in-2100 (or Extreme) sea level rise scenario, leaving 0.3, 0.5, 1.0, 1.5, and 2.0 meter-in-2100 scenarios, which were called the Low, Intermediate-Low, Intermediate, Intermediate-High and High scenarios.

In effect, this action backtracked on the reasoning that led to the inclusion of 2.5 meters-in-2100 (which was regionalized to 10.2 feet-in-2100 in California) in Sweet et al., 2017, Rising Seas in California, and the 2018 version of the State Sea Level Rise Guidance. This change caused Sweet et al., 2022 to state, "the 'Extreme' scenario from the 2017 report (2.5 m global mean sea level rise by 2100) is now viewed as less plausible and has been removed." In other words, while 2.5 meters of sea level rise could occur a few decades after the year 2100 in the worst-case scenario, updated research has generally concluded that there is little to no possibility of that amount of sea level rise occurring as early as the year 2100 (DeConto *et al*., 2021).

Similar to Sweet *et al*., 2017, which overlaid its sea level rise scenarios with probabilistic sea level rise projections based on a group of papers, Sweet *et al*., 2022 overlaid its scenarios with the probabilistic projections from AR6. An associated FAQ describing the methods used in Sweet *et al*., 2022 states,

> "To generate the scenarios used in this report, the ensemble – or set – of projections in the AR6 that are tied to specific shared societal pathways (SSPs) are filtered to identify subsets of pathways that are consistent with the scenario target values in 2100 (i.e., 0.3 m, 0.5 m, 1 m, 1.5 m and 2 m). As in the AR6, these scenarios are regionalized and then

[117] DeConto *et al*., 2021 states, "With more extreme RCP8.5 warming, thinning and hydrofracturing of buttressing ice shelves becomes widespread, triggering marine ice instabilities in both West and East Antarctica. The RCP8.5 median contribution to GMSL is 34 cm by 2100. This is substantially less than reported by ref. 8 [DeConto & Pollard 2016] (64–105 cm), owing to a combination of improved model physics and revised atmospheric forcing (Methods) that delays the onset of surface melt by about 25 years. Nonetheless, the median contribution to GMSL reaches 1 m by 2125 and rates exceed 6 cm yr−1 by 2150 (Extended Data Figs. 6, 7). By 2300, Antarctica contributes 9.6 m of GMSL rise under RCP8.5, almost 10 times more than simulations limiting warming to +1.5 °C."

provided at individual tide gauge locations. The median, 17th and 83rd percentile values are provided for each scenario at each region and location."

In other words, a subset of sea level rise curves from the sets of AR6 projections that go through 0.3, 0.5, 1.0, 1.5 and 2.0 meters in the year 2100 were identified, thus informing each Sweet *et al*., 2022 scenario. This exercise was also summarized in Chapter 2 of the State Sea Level Rise Guidance (2024).

The information pulled through from AR6 also yielded a "storyline" for each scenario, which is summarized in Figure 4 of the report and copied below. For example, the Intermediate, Intermediate-High and High scenarios correspond to projections in AR6 that assume high emissions and warming and various levels of contribution from low confidence ice sheet processes (see below). The information from AR6 also allowed Sweet *et al*., 2022 to provide exceedance probabilities for various sea level rise amounts at various times in the future and under different amounts of global warming.

## BEST AVAILABLE SCIENCE ON SEA LEVEL RISE

In the past century, global mean sea level (GMSL) has increased by nearly 8 inches (20 cm; Fox-Kemper *et al*., 2021 ). Observations of sea level rise rates have also shown that sea level rise has been accelerating in recent decades. While tide gauge measurements show roughly 5 inches of sea level rise during the entirety of the 20th century (Frederikse *et al*., 2020), satellite altimeters have measured an additional 4 inches of sea level rise since 1993, a period of only 30 years (Willis, Hamlington, Fournier, 2023). The current rate of GMSL rise (1.7 inches/decade) is triple the 20th century rate (Dangendorf *et al*., 2019; Nerem *et al*., 2018). The best available science on projected future sea level rise is summarized here and in the Ocean Protection Council's State Sea Level Rise Guidance (OPC 2024).

### Global Projections of Sea Level Rise

**IPCC AR6:** The best available science on global sea level rise projections is currently the IPCC Sixth Assessment Report: Climate Change 2013 (AR6) released in 2021 (IPCC, 2021). AR6 projects slightly more rapid sea level rise compared to the Fifth Assessment (AR5) released in 2013. By Year 2100, the AR6 projects likely global sea level rise in the year 2100 to be 0.63–1.01 m whereas AR5 projected 0.49–0.95 m (AR5) when comparing similar, high emission scenarios.

Like AR5, AR6 produced projections of sea level rise by compiling the latest research on the various drivers of sea level rise, including thermal expansion of seawater, melting of land-based ice in Antarctica and Greenland, and other processes. Some drivers of sea level rise were well studied and there was strong agreement about their potential future contributions to sea level rise, whereas others were less studied and not as well understood. The AR6 authors distinguished between drivers of sea level rise in which there was at least medium confidence and drivers in which there was low confidence. Projections based on medium-confidence

processes were computed for the emissions and global development futures called SSP1-1.9, SSP1-2.6, SSP2-4.5, SSP3-7.0, and SSP5-8.5[118]. For two of these five emissions scenarios, SSP1-2.6 and SSP5-8.5, additional work was done to also incorporate low confidence processes of extreme ice melt in Antarctica, including those described in DeConto *et al*., 2021[119], creating two additional sets of projections for a total of seven different sets of sea level rise projections. Figure A-1 is a graph generated by NASA and the IPCC's Sea Level Projection Tool that depicts the global mean sea level rise projections under all seven SSPs. Together, these seven sets of projections describe the IPCC's full plausible range of future sea level rise, reflecting how sea level rise would vary under the IPCC's range of conceivable global development, emissions, and warming futures as well as the possibility of rapid ice sheet disintegration.

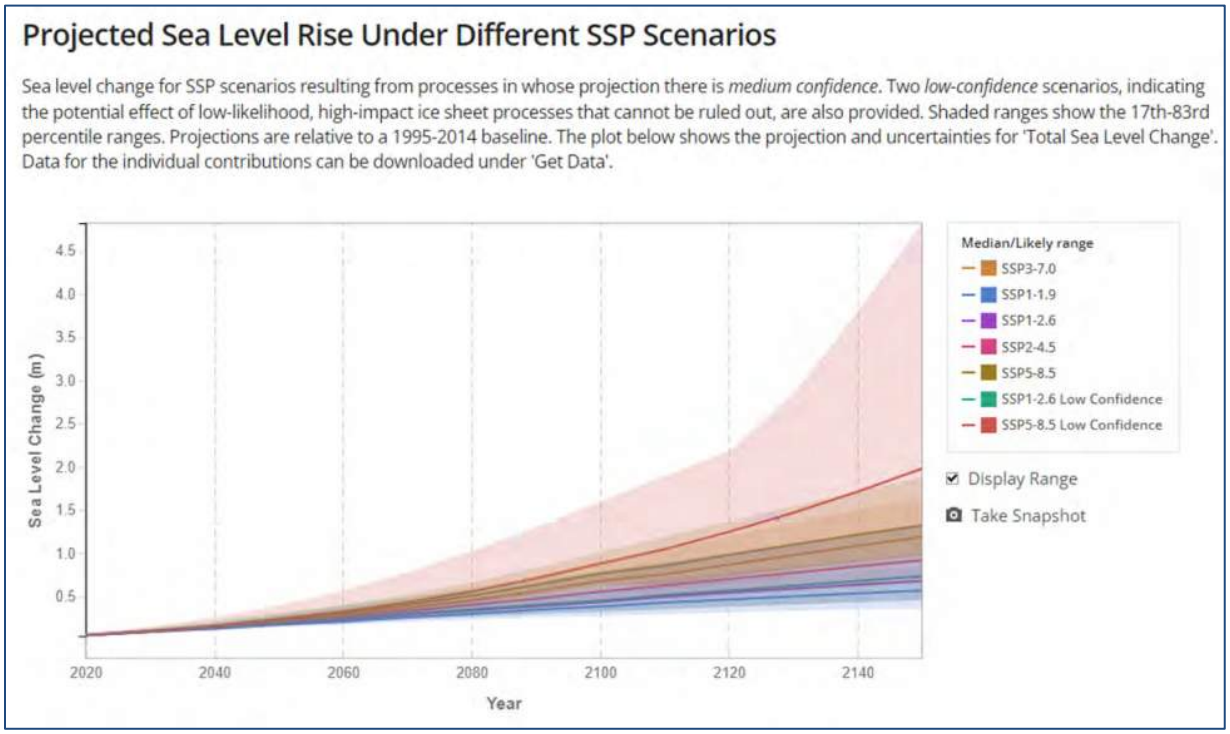



Figure A-1. IPCC AR6 plausible range of future SLR. A graph generated by NASA and the IPCC's Sea Level Projection Tool that depicts the global mean SLR projections under all five SSPs, plus the two additional scenarios that incorporate additional low confidence ice sheet processes.

[118] The Scenario Model Intercomparison Project (ScenarioMIP) for the Coupled Model Intercomparison Project Phase 6 (CMIP6) developed five different Shared Socioeconomic Pathways (SSP1 through SSP5) (O'Neill *et al*., 2016). These SSPs capture different ways the world could evolve in terms of population, economic growth, education, urbanization, and technological development, which, without additional new efforts to curb climate change. Each would result in various amounts of radiative forcing, which is expressed in the second half of the SSP name. For example, SSP3-7.0 comes from SSP3 and results in 7.0 Watts/m$^2$ of radiative forcing.

[119] Low confidence processes include earlier-than-projected disintegration of marine ice shelves and the abrupt, widespread onset of Marine Ice Sheet Instability (MISI) and Marine Ice Cliff Instability (MICI) around Antarctica, as well as faster-than-projected changes in the surface mass balance and dynamical ice loss from Greenland. AR6's low confidence SLR projections stemmed from a structured expert-judgement study (Bamber *et al*., 2019) and a single Antarctic ice-sheet modeling study (DeConto *et al*., 2021). See §9.6.3.2, §9.6.3.3, and Box 9.4 of Fox-Kemper *et al*., 2021, for further discussion. Box 9.4 of AR6's Chapter 9, in particular, discusses AR6's separation of medium-confidence sea level rise SLR projections from low-confidence sea level rise projections.

**NOAA technical report:** In 2017, NOAA released a report entitled Global and Regional Sea Level Rise Scenarios for the United States (Sweet et al., 2017) which provided global sea level rise scenarios and projections[120]. It provided scenarios of 0.3, 0.5, 1.0, 1.5, 2.0, and 2.5 meters in 2100 (also called Low, Intermediate-Low, Intermediate, Intermediate-High, High, and Extreme), and overlaid them with emissions-based, probabilistic sea level rise projections compiled from Church *et al*., 2013a (which is IPCC's Fifth Assessment Report, or AR5), Miller *et al*., 2013; Kopp *et al*., 2014, 2016a; Slangen *et al*., 2014; and Mengel *et al*., 2016, which produced probabilistic projections under assumed climate trajectories of RCPs 2.6, 4.5, and 8.5.

When discussing how to apply the scenarios, Sweet *et al* 2017 suggested a potential strategy as follows: "Define a scientifically plausible upper-bound (which might be thought of as a worst-case or extreme scenario) as the amount of sea level rise that, while low probability, cannot be ruled out over the time horizon being considered. Use this upper-bound scenario as a guide for overall system risk and long-term adaptation strategies. Define a central estimate or mid-range scenario (given assumptions about greenhouse gas emissions and other major drivers). Use this scenario as baseline for shorter-term planning, such as setting initial adaptation plans for the next two decades."

In 2022, an update to Sweet et al., 2017 titled, Global and Regional Sea Level Rise Scenarios for the United States (Sweet et al., 2022) was released, which incorporated new research that occurred between 2017 and 2022. Of the many papers published in that time period was DeConto et al., 2021, which built on the DeConto & Pollard 2016 paper that was key in justifying the inclusion of 2.5 meters-in-2100 as a sea level rise scenario in Sweet et al., 2017. DeConto et al., 2021 looked at updated regional climate model forcing and found that air temperatures are not expected to rise as quickly in Antarctica as presumed in DeConto & Pollard 2016; rather, warming may take about 25 years longer to rise enough to potentially trigger the mechanisms of rapid retreat of the Antarctic Ice Sheet[121] that were described in DeConto & Pollard 2016 – i.e., by about the year 2125. Due to this change, Sweet et al., 2022 removed 2.5-meters-in-2100 (or Extreme) sea level rise scenario, leaving 0.3, 0.5, 1.0, 1.5, and 2.0 meter-in-2100 global mean scenarios, which were called the Low, Intermediate-Low, Intermediate, Intermediate-High and High scenarios. Figure A-2 is a graph generated by NASA Interagency Sea Level Rise Scenario Tool that depicts Sweet *et al*., 2022's five sea level rise scenarios.

[120] Note that The Fourth National Climate Assessment (USGCRP, 2018) points to the scenarios of Sweet et al., 2017 and includes a discussion of other studies that provide sea level rise estimates as well as a discussion of overall uncertainty (see pages 106-109).

[121] DeConto et al., 2021 states, "With more extreme RCP8.5 warming, thinning and hydrofracturing of buttressing ice shelves becomes widespread, triggering marine ice instabilities in both West and East Antarctica. The RCP8.5 median contribution to GMSL is 34 cm by 2100. This is substantially less than reported by ref. 8 [DeConto & Pollard 2016] (64–105 cm), owing to a combination of improved model physics and revised atmospheric forcing (Methods) that delays the onset of surface melt by about 25 years. Nonetheless, the median contribution to GMSL reaches 1 m by 2125 and rates exceed 6 cm yr−1 by 2150 (Extended Data Figs. 6, 7). By 2300, Antarctica contributes 9.6 m of GMSL rise under RCP8.5, almost 10 times more than simulations limiting warming to +1.5 °C."

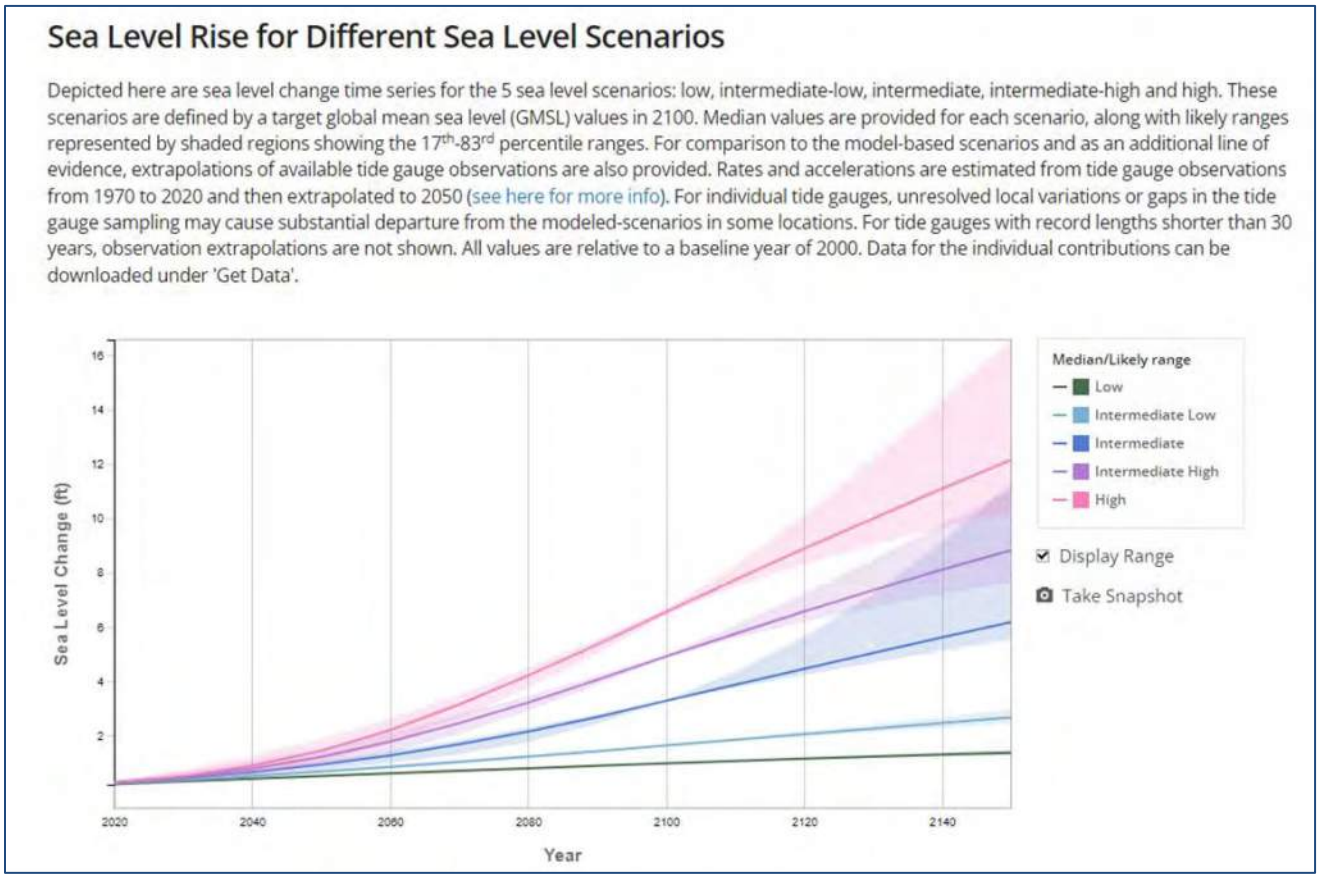



Figure A-2. Global SLR Scenarios from Sweet *et al*., 2022. This graph was generated by NASA Interagency Sea Level Rise Scenario Tool and depicts Sweet *et al*., 2022's five global mean sea level rise scenarios.

### National Projections of Sea Level Rise

**NOAA technical report:** In addition to providing global mean sea level rise scenarios, Global and Regional Sea Level Rise Scenarios for the United States (Sweet *et al*., 2022) provided scenarios for the contiguous United States by regionalizing the global scenarios. This process reflects how sea level rise around the United States may differ from the global average due to ocean dynamics (i.e., changes to the ocean's currents and density due to climate change), large scale vertical land motion (i.e., glacial isostatic adjustment (GIA), tectonics, sediment compaction, and/or groundwater and fossil fuel withdrawals), and the impacts of gravitational, rotational, and deformational changes (i.e., GRD, or ice sheet fingerprinting). In general, sea level rise scenarios for the United States are at or higher than global mean sea level rise due to effects from vertical land motion, GRD, and ocean circulation changes (Sweet *et al*., 2022). Figure A-3 is a graph generated by NASA Interagency Sea Level Rise Scenario Tool that depicts the five sea level rise scenarios regionalized for the contiguous United States.

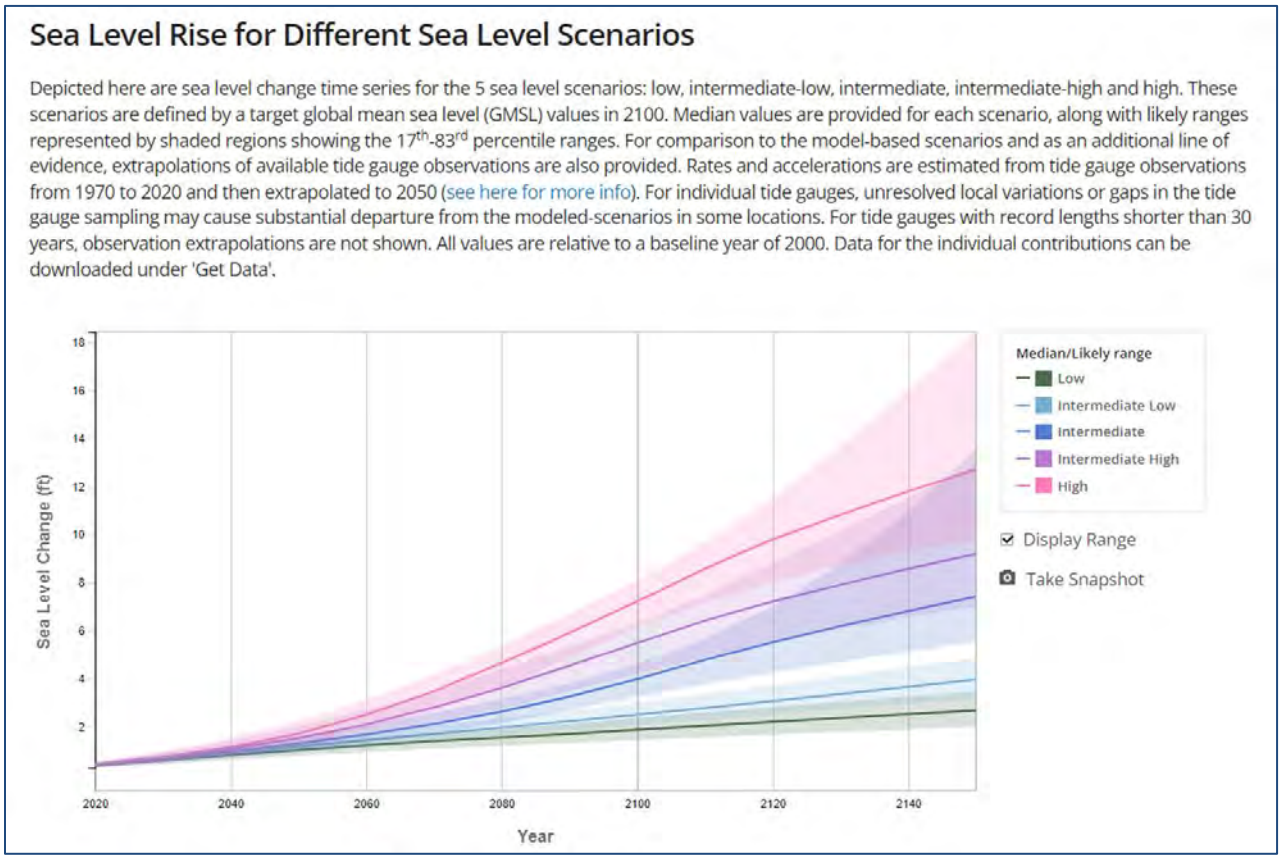



Figure A-3. SLR Scenarios for the contiguous United States from Sweet *et al.*, 2022. This graph was generated by NASA Interagency Sea Level Rise Scenario Tool and depicts Sweet *et al.*, 2022's five sea level rise scenarios for the contiguous United States.

### California-Specific Sea Level Rise Scenarios and Best Available Science

The State of California has long supported the development of scientific information on climate change and sea level rise to help guide planning and decision-making. Several iterations of the *State Sea Level Rise Guidance* have been informed by key research that, at the time, provided the best available science on sea level rise projections:

- The 2013 State Sea-Level Rise Guidance (OPC 2013) was informed by the 2012 National Research Council (NRC) report, Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future.
- The 2018 State Sea Level Rise Guidance (OPC 2018) was informed by Rising Seas in California: An Update on Sea-Level Rise Science (Griggs et al., 2017).
- The 2024 State Sea Level Rise Guidance (OPC 2024) was informed by Global and Regional Sea Level Rise Scenarios for the United States (Sweet et al., 2022).

The 2024 State Sea Level Rise Guidance provides sea level rise scenarios based on Sweet et al., 2022.[122] Like Sweet et al., 2022, the State Guidance establishes the plausible range of global mean sea level rise in 2100 to be between 0.3 and 2.0 m and identifies roughly even increments of sea level rise to span that range: 0.3-, 0.5-, 1.0-, 1.5-, and 2.0 m-in-2100. These five scenarios are named Low, Intermediate-Low, Intermediate, Intermediate-High, and High.

Next, these sea level rise amounts were compared to the thousands of sea level rise projections within the seven sea level rise projections the provided in AR6. A +/- 2 cm "gate" around each scenario was created (i.e., 0.3m +/- 2cm in 2100, 0.5m +/- 2cm in 2100, 1.0m +/- 2cm in 2100, etc.) and the samples of AR6 projections that go through each gate were extracted, creating five sample sets, as shown in Figure A-4.

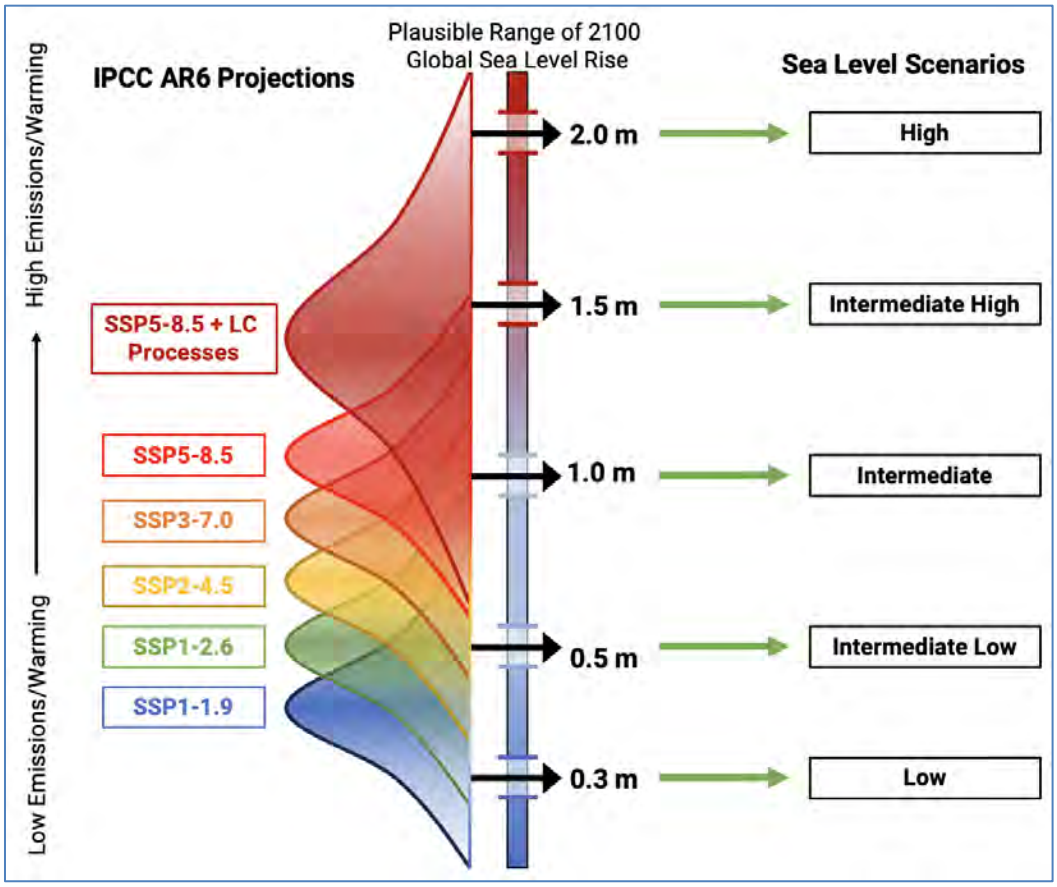



Figure A-4. Schematic showing that the construction of the sea level scenarios is based on SSPs, which inform a range of plausible future sea level rise. Provided as Figure 2.2 in the *California State Sea Level Rise Guidance* (OPC 2024)

The composition of these sample sets informed both the trajectory of each sea level rise scenario over time and a "storyline" for each scenario. In other words, the sample set for each scenario was used to describe the climate conditions under which each may occur. The State

[122] Please see Chapter 2 of the 2024 State Sea Level Rise Guidance to read the report's full summary of how the sea level rise scenarios were generated.

Sea Level Rise Guidance provides these storylines in Section 2.4 and summarizes them in its Executive Summary as follows:

- **"Low Scenario**: The target of 1 foot of increase in global sea level rise by 2100 is set under the assumption of the current rate of sea level rise continuing on into the future. This assumption is inconsistent with current observations of an acceleration in sea level rise, but could still be considered plausible under the most aggressive emission reduction scenarios. As a result, the Low Scenario provides the lower bound for plausible sea level rise in 2100 and sits below the median value for all AR6 scenarios at all times between 2020 to 2150. The likelihood of exceeding this Sea Level Scenario is greater than 90% at all warming levels.
    - SUMMARY: Aggressive emissions reductions leading to very low future emissions; the scenario is on the lower bounding edge of plausibility given current warming and sea level trajectories, and current societal and policy momentum.

- **Intermediate-Low Scenario:** This scenario arises under a range of both future warming levels and possible SSPs, spanning low, intermediate and high emissions pathways, and integrates many of the AR6 SSP pathways as a result (see Figure 2.2) This scenario is consistent with the median projected sea level rise in a 2°C world, which means there is a 50% probability of exceeding this scenario with 2°C of additional warming by 2100. At a warming level of 3°C in 2100, the probability of exceeding this scenario is 82%. Given the extrapolation of GMSL to 2100 (approximately 2.2 feet36), the current projection of future warming of 3°C, and the range of sea level rise across the IPCC AR6 scenarios (Figure 2.4), the Intermediate Low Scenario provides a reasonable lower bound for the most likely range of sea level rise by 2100. Since the low confidence processes are not important to this scenario, the range of possible sea level rise after 2100 does not expand significantly.
    - SUMMARY: A range of future emissions pathways; a reasonable estimate of the lower bound of most likely sea level rise in 2100 based on support from sea level observations and current estimates of future warming.

- **Intermediate Scenario**: The Intermediate Scenario is driven dominantly by high emissions scenarios, and thus higher warming levels. For the first time in the scenarios, the low confidence projections from the IPCC AR6 contribute significantly and provide about 25% of the pathways for reaching the Intermediate Scenario target by 2100. Given the extrapolation of GMSL to 2100 and the range of sea level rise across the IPCC AR6 scenarios (Figure 2.4), the Intermediate Scenario provides a reasonable upper bound for the most likely range of sea level rise by 2100. At a warming level of 3°C in 2100, the probability of exceeding this scenario is 5%. In a very-high emissions future with low confidence processes, there is about a 50% chance of exceeding the Intermediate scenario in 2100.

  - SUMMARY: A range of future emissions pathways; could include contribution from low confidence processes. Based on sea level observations and current estimates of future warming, a reasonable estimate of the upper bound of most likely sea level rise in 2100.

- **Intermediate-High Scenario**: Pathways combining both higher emissions and low confidence processes become the majority, with over 50% of the samples used to construct this scenario coming from the SSP5-8.5 scenario. At all times from 2020 to 2150, the Intermediate High Scenario exceeds the median value of the AR6 scenarios. This scenario is similar to the high-end estimate from van de Wal et al. (2022) under the assumption of high levels of warming in 2100. At a warming level of 3°C in 2100, the probability of exceeding this scenario is 0.1% when not considering the low confidence processes, emphasizing the degree to which these processes are needed to get to this scenario. With the low confidence processes, the probability of exceeding this scenario is approximately 20% for very high warming levels.
  - SUMMARY: Intermediate-to-high future emissions and high warming; this scenario is heavily reflective of a world where rapid ice sheet loss processes are contributing to sea level rise.

- **High Scenario:** Pathways combining both high emissions and low confidence processes are dominant, providing over 80% of the samples to construct the scenario. Low emissions pathways are not plausible under this scenario, and intermediate emissions pathways require a significant contribution from rapid ice sheet loss processes. Before 2100, the High Scenario is significantly above the range of SSP AR6 scenarios, although the range of plausible sea level expands beyond 2150. The probability of exceeding the High Scenario in 2100 is less than 0.1% for all warming levels without considering low confidence processes. With very high emissions and warming and contributions from the low confidence processes, this probability increases to 8%.
  - SUMMARY: High future emissions and high warming with large potential contributions from rapid ice-sheet loss processes; given the reliance on sea level contributions for processes in which there is currently low confidence in their understanding, a statement on the likelihood of reaching this scenario is not possible."

These five trajectories of sea level rise were then regionalized to California, and the California State Sea Level Rise Guidance presented a single set of scenarios representing the median sea level rise scenarios for California that reflect an average statewide value of vertical land motion, which is a negligible rate of 0.1 mm (0.0003 ft) per year uplift. These median statewide values are presented below in Table A-1.

Table A-1. Sea Level Rise Scenarios for California [123]

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 |
| **2040** | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
| **2050** | 0.5 | 0.6 | 0.8 | 1.0 | 1.2 |
| **2060** | 0.6 | 0.8 | 1.1 | 1.5 | 2.0 |
| **2070** | 0.7 | 1.0 | 1.4 | 2.2 | 3.0 |
| **2080** | 0.8 | 1.2 | 1.8 | 3.0 | 4.1 |
| **2090** | 0.9 | 1.4 | 2.4 | 3.9 | 5.4 |
| **2100** | 1.0 | 1.6 | 3.1 | 4.9 | 6.6 |
| **2110** | 1.1 | 1.8 | 3.8 | 5.7 | 8.0 |
| **2120** | 1.1 | 2.0 | 4.5 | 6.4 | 9.1 |
| **2130** | 1.2 | 2.2 | 5.0 | 7.1 | 10.0 |
| **2140** | 1.3 | 2.4 | 5.6 | 7.7 | 11.0 |
| **2150** | 1.3 | 2.6 | 6.1 | 8.3 | 11.9 |

These average statewide scenarios were also further regionalized to reflect the observed rates of vertical land motion at each of California's 14 coastal tide gauges. These tide gauge-specific scenarios are provided in in Appendix 2 of the State Sea Level Rise Guidance (OPC 2024) and in Appendix G of this document.

The State Sea Level Rise Guidance also provided information about how likely each scenario is to occur in the year 2100 under various amounts of plausible future warming (Table A-2). Likelihoods were also provided assuming rapid ice sheet disintegration processes come into play in the 2100s. These likelihoods were derived from the sample sets of projections from AR6 on which each scenario was based, and they provide valuable information to shape our understanding of the likelihood that each scenario will or will not come to pass, and the risks the higher or lower scenarios may occur. As explained in the State Guidance, this table can be

[123] This table provides median values for sea level scenarios for California, in feet, relative to a year 2000 baseline. These statewide values all incorporate an average statewide value of vertical land motion – a negligible rate of 0.1 mm (0.0003 ft) per year uplift (OPC 2024). The red box highlights the three scenarios that the *State Sea Level Rise Guidance* and this guidance recommend for use in various planning and project contexts.

read as saying, "assuming 3°C of warming in 2100 and no influence from low-confidence ice sheet processes, there is a 5% chance of exceeding the Intermediate scenario in 2100" or "assuming high levels of warming in 2100 and contributions from the low confidence processes, there is a 49% chance of exceeding the Intermediate Scenario in 2100" and so on. The State Guidance also explains that global surface temperatures are currently on track to reach 3.0°C above pre-industrial levels by 2100, assuming current rates of emissions-driven warming.

Table A-2. Exceedance probabilities for the sea level scenarios based on IPCC warming level–based global mean sea level projections[124]

| Global Mean Surface Air Temperature 2081-2100 | 1.5°C | 2.0°C | 3.0°C | 4.0°C | 5.0°C | Low Confidence Processes, Low Warming | Low Confidence Processes, High Warming |
|---|---|---|---|---|---|---|---|
| **Low Scenario** | 92% | 98% | 99.5% | 99.9% | >99.9% | 90% | 99.5% |
| **Intermediate-Low Scenario** | 37% | 50% | 82% | 97% | 99.5% | 49% | 96% |
| **Intermediate Scenario** | 0.5% | 2% | 5% | 10% | 23% | 7% | 49% |
| **Intermediate-High Scenario** | 0.1% | 0.1% | 0.1% | 1% | 2% | 1% | 20% |
| **High Scenario** | <0.1% | <0.1% | <0.1% | <0.1% | 0.1% | <0.1% | 8% |

The State Sea Level Rise Guidance (OPC 2024) offers the following Key Takeaways about the best available science on sea level rise:

- **"The California Sea Level Scenarios show greater certainty in the amount of sea level rise expected in the next 30 years** than previous reports and demonstrate a narrow range across all possible emissions scenarios. Statewide, sea levels are most likely to rise 0.8 ft (Intermediate Scenario) by 2050.
- **In the mid-term (2050-2100), the range of possible sea level rise expands** due to more uncertainty in projected future warming from different emissions pathways and certain physical processes (i.e. rapid ice sheet melt). By 2100, statewide averaged sea levels are expected to rise between 1.6 ft and 3.1 ft (Intermediate-Low to Intermediate Scenarios), although higher amounts are possible.

[124] The *California State Sea Level Rise Guidance* provides the following explanatory information for this table: "Global mean surface air temperature anomalies are projected for years 2081–2100 relative to the 1850–1900 climatology. Global surface temperatures are currently on track to reach 3.0°C above pre-industrial levels by 2100, assuming current rates of emissions-driven warming…The probabilities shown here are imprecise probabilities, representing a consensus among all projection methods applied by the IPCC AR6."

- **Over the long-term (towards 2100 and beyond), the range of sea level rise becomes increasingly large** due to uncertainties associated with physical processes, such as earlier-than-expected ice sheet loss and resulting future sea level rise. Sea levels may rise from 2.6 ft to 11.9 ft (Intermediate-Low to High Scenarios) by 2150, and even higher amounts cannot be ruled out.

- **Vertical land motion is the primary driver of local variations in sea level rise across the state**, driven by a combination of tectonics, sediment compaction, and groundwater and hydrocarbon withdrawal. Vertical land motion is incorporated into the sea level scenarios for each National Oceanic and Atmospheric Administration (NOAA) tide gauge and illuminates locations experiencing subsidence or uplift. The pathway associated with the extreme sea level rise scenario (i.e. H++) from Rising Seas 2017 is higher than the best available science now supports. The key lines of evidence that resulted in the extreme sea level rise scenario (i.e. H++) from Rising Seas 2017 have been updated and are now reflected in the Intermediate-High and High Scenarios.

- **Today's coastal storms provide a glimpse into our future** in which storm events will become more damaging and dangerous as climate change and sea level rise continue. Coastal storms under future sea level scenarios will cause accelerated cliff and bluff erosion, coastal flooding and beach loss, and mobilization of subsurface contaminants. Sea level rise will increase the exposure of communities, assets, services and culturally important areas to significant impacts from coastal storms.

- **Sea level rise will increase the frequency of coastal flooding events**, which occur when sea level rise amplifies short-term elevated water levels associated with higher tides, large storms, El Niño events, or when large waves coincide with high tides. California communities need to be aware of and prepared for a likely rapid increase in the frequency of coastal flooding in the 2030s, even beyond the increases in coastal flood frequency already occurring as a result of extreme storms.

- **Groundwater rise poses a threat to below-ground infrastructure and freshwater aquifers under future Sea Level Scenarios**. In areas with shallow unconfined groundwater, the water table will generally rise with sea level, depending on local geomorphology. Rising groundwater may mobilize subsurface contaminants in soils, expose underground infrastructure to corrosive saltwater, and put freshwater aquifers at risk of saltwater intrusion. The low-lying Sacramento-San Joaquin Delta, which supplies fresh water to two-thirds of the state's population and millions of acres of farmland, is particularly vulnerable to saltwater intrusion into freshwater aquifers."

**The table of median sea level rise scenarios for California is provided above (Table A-1), and tables for each California tide gauges are presented in Appendix F. The State Sea Level Rise Guidance (OPC 2024) is currently considered best available science on sea level rise for the State of California.**

**REFERENCES: APPENDIX A**

Bamber JL, WP Aspinall. 2013. An expert judgment assessment of future sea level rise from the ice sheets. *Nature Climate Change* 3: 424-427. doi:10.1038/nclimate1778.

Bamber, J.L., M. Oppenheimer, R.E. Kopp, W.P. Aspinall, and R.M. Cooke, 2019: Ice sheet contributions to future sea-level rise from structured expert judgment. Proceedings of the National Academy of Sciences of the United States of America, 116 (23), 11195–11200. https://doi.org/10.1073/pnas.1817205116

California Sea Level Rise Guidance: 2024 Science and Policy Update. 2024. California Sea Level Rise Science Task Force, California Ocean Protection Council, California Ocean Science Trust.

Clark JA, WE Farrell, WR Peltier. 1978. Global changes in postglacial sea level: a numerical calculation. *Quaternary Research* 9(3): 265-287. doi:10.1016/0033-5894(78)90033-9.

Dangendorf, S., Hay, C., Calafat, F. M., Marcos, M., Piecuch, C. G., Berk, K., & Jensen, J. (2019). Persistent acceleration in global sea level rise since the 1960s. *Nature* Climate Change, 9(9), 705–710. https://doi.org/10.1038/s41558-019-0531-8

DeConto RM, Pollard D. 2016. Contribution of Antarctica to past and future sea-level rise. Nature 531: 591-7

DeConto, R.M., Pollard, D., Alley, R.B. et al. The Paris Climate Agreement and future sea-level rise from Antarctica. *Nature* **593**, 83–89 (2021). https://doi.org/10.1038/s41586-021-03427-0

Dutton A, K Lambeck. 2012. Ice volume and sea level during the last interglacial. *Science* 337(6091): 216–219. doi: 10.1126/science.1205749.

Frederikse, T., Landerer, F., Caron, L., Adhikari, S., Parkes, D., Humphrey, V. W., Dangendorf, S., Hogarth, P., Zanna, L., Cheng, L., & Wu, Y.-H. (2020). The causes of sea level rise since 1900. Nature, 584(7821), 393–397. https://doi.org/10.1038/s41586-020-2591-3

Fox-Kemper, B., H.T. Hewitt, C. Xiao, G. Aðalgeirsdóttir, S.S. Drijfhout, T.L. Edwards, N.R. Golledge, M. Hemer, R.E. Kopp, G. Krinner, A. Mix, D. Notz, S. Nowicki, I.S. Nurhati, L. Ruiz, J.-B. Sallée, A.B.A. Slangen, and Y. Yu, 2021: Ocean, Cryosphere and Sea Level Change. In Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 1211–1362, doi:10.1017/9781009157896.011. https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter09.pdf

Griggs, G, Árvai, J, Cayan, D, DeConto, R, Fox, J, Fricker, HA, Kopp, RE, Tebaldi, C, Whiteman, EA

(California Ocean Protection Council Science Advisory Team Working Group). Rising Seas in California: An Update on Sea-Level Rise Science. California Ocean Science Trust, April 2017.

Hall, J.A., S. Gill, J. Obeysekera, W. Sweet, K. Knuuti, and J. Marburger, 2016: Regional Sea Level Scenarios for Coastal Risk Management: Managing the Uncertainty of Future Sea Level Change and Extreme Water Levels for Department of Defense Coastal Sites Worldwide. U.S. Department of Defense, Strategic Environmental Research and Development Program, Alexandria, VA, 224 pp. https://climateandsecurity.files.wordpress.com/2014/01/regional-sea-level-scenarios-for-coastal-risk-management_managing-uncertainty-of-future-sea-level-change-and-extreme-water-levels-fordepartment-of-defense.pdf

Hamlington, B. D., Frederikse, T., Thompson, P. R., Willis, J. K., Nerem, R. S., & Fasullo, J. T. (2021). Past, Present, and Future Pacific Sea-Level Change. Earth's Future, 9(4), e2020EF001839. https://doi.org/10.1029/2020EF001839

Intergovernmental Panel on Climate Change (IPCC). 2013. *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report (AR5) of the Intergovernmental Panel on Climate Change.* [TF Stocker, D Qin, G Plattner, MMB Tignor, SK Allen, J Boschung, A Nauels, Y Xia, V Bex, PM Midgley (eds.)], Cambridge University Press: Cambridge, UK and New York, NY, USA. 1535pp. https://www.ipcc.ch/report/ar5/.

Intergovernmental Panel on Climate Change (IPCC). 2022. Annex II: Glossary [Möller, V., R. van Diemen, J.B.R. Matthews, C. Méndez, S. Semenov, J.S. Fuglestvedt, A. Reisinger (eds.)]. In: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. *Cambridge University Press*, Cambridge, UK and New York, NY, USA, pp. 2897–2930, doi:10.1017/9781009325844.029.

Intergovernmental Panel on Climate Change (IPCC). 2021: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 2391 pp. doi:10.1017/9781009157896.

Kopp RE, RM Horton, CM Little, JX Mitrovica, M Oppenheimer, DJ Rassussen, BH Strauss, C Tebaldi. 2014. Probabilistic 21st and 22nd century sea-level projections at a global network of tide-gauge sites. *Earth's Future* 2(8): 383-406. doi:10.1002/2014EF000239.

Kopp R, F Simons, J Mitrovica, A Maloof, M Oppenheimer. 2009. Probabilistic assessment of sea level during the last interglacial stage. *Nature* 462: 863-867. doi:10.1038/nature08686.

Levermann A, P Clark, B Marzeion, G Milne, D Pollard, V Radic, A Robinson. 2013. The

multimillennial sea-level commitment of global warming. *Proceedings of the National Academy of Sciences* 110(34): 13745-13750. doi: 10.1073/pnas.1219414110.

Mengel M, Levermann A, Frieler K, Robinson A, Marzeion B, Winkelmann R. 2016. Future sea level rise constrained by observations and long-term commitment. *PNAS* 113(10): 2597-2602. doi.org/10.1073/pnas.1500515113

Miller, K. G., R. E. Kopp, B. P. Horton, J. V. Browning, and A. C. Kemp (2013), A geological perspective on sea-level rise and its impacts along the U.S. mid-Atlantic coast, Earth's Future, doi:10.1002/2013EF000135.

National Research Council (NRC). 2012. *Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*. Report by the Committee on Sea Level Rise in California, Oregon, and Washington. National Academies Press, Washington, DC. 250 pp. http://www.nap.edu/catalog/13389/sea-level-rise-for-the-coasts-of-california-oregon-and-washington.

Nerem, R. S., Beckley, B. D., Fasullo, J. T., Hamlington, B. D., Masters, D., & Mitchum, G. T. (2018). Climate-change–driven accelerated sea level rise detected in the altimeter era. Proceedings of the National Academy of Sciences, 115(9), 2022–2025. https://doi.org/10.1073/pnas.1717312115

O'Neill, B. C., Tebaldi, C., van Vuuren, D. P., Eyring, V., Friedlingstein, P., Hurtt, G., Knutti, R., Kriegler, E., Lamarque, J.-F., Lowe, J., Meehl, G. A., Moss, R., Riahi, K., and Sanderson, B. M.: The Scenario Model Intercomparison Project (ScenarioMIP) for CMIP6, Geosci. Model Dev., 9, 3461–3482, https://doi.org/10.5194/gmd-9-3461-2016, 2016. https://gmd.copernicus.org/articles/9/3461/2016/

Perrette M, F Landerer, R Riva, K Frieler, M Meinshausen. 2013. A scaling approach to project regional sea level rise and its uncertainties. *Earth System Dynamics* 4(1): 11-29. doi:10.5194/esd-4-11-2013.

Rahmstorf S. 2007. A semi-empirical approach to projecting future sea-level rise. *Science* 315(5810): 368-370. doi:10.1126/science.1135456.

Slangen, A.B.A., Carson, M., Katsman, C.A. *et al.* Projecting twenty-first century regional sea-level changes. *Climatic Change* **124**, 317–332 (2014). https://doi.org/10.1007/s10584-014-1080-9

Slangen, A., Palmer, M., Camargo, C., Church, J., Edwards, T., Hermans, T. Hewitt, G., Gregory, J., Kopp, R., Santos, V., Van de Wal, R. (2023). The evolution of 21st century sea-level projections from IPCC AR5 to AR6 and beyond. *Cambridge Prisms: Coastal Futures, 1*, E7. doi:10.1017/cft.2022.8

Smith WH, DT Sandwell. 1997. Global sea floor topography from satellite altimetry and ship

depth soundings. *Science* 277(5334): 1956-1962. doi: 10.1126/science.277.5334.1956.

Smith, W.H. and Sandwell, D.T. (1997) Global Sea Floor Topography from Satellite Altimetry and Ship Depth Soundings. Science, 277, 1956-1962. http://dx.doi.org/10.1126/science.277.5334.1956

Sweet, W.V., R.E. Kopp, C.P. Weaver, J. Obeysekera, R.M. Horton, E.R. Thieler and CZ. Global and Regional Sea Level Rise Scenarios for the United States. 2017.

Sweet, W.V., B.D. Hamlington, R.E. Kopp, C.P. Weaver, P.L. Barnard, D. Bekaert, W. Brooks, M. Craghan, G. Dusek, T. Frederikse, G. Garner, A.S. Genz, J.P. Krasting, E. Larour, D. Marcy, J.J. Marra, J. Obeysekera, M. Osler, M. Pendleton, D. Roman, L. Schmied, W. Veatch, K.D. White, and C. Zuzak, 2022: Global and Regional Sea Level Rise Scenarios for the United States: Updated Mean Projections and Extreme Water Level Probabilities Along U.S. Coastlines. NOAA Technical Report NOS 01. National Oceanic and Atmospheric Administration, National Ocean Service, Silver Spring, MD, 111 pp. https://aambpublicoceanservice.blob.core.windows.net/oceanserviceprod/hazards/sealevelrise/noaa-nos-techrpt01-global-regional-SLR-scenarios-US.pdf

USGCRP, 2018: Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II: [Reidmiller, D.R., C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.)]. U.S. Global Change Research Program, Washington, DC, USA, 1515 pp. doi: 10.7930/NCA4.2018. https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf

Willis, J., Hamlington, B., & Fournier, S. (2023). Global Mean Sea Level, Trajectory and Extrapolation (Version 101) [dataset]. Zenodo. https://doi.org/10.5281/zenodo.7702315

# Appendix B. Developing Local Hazard Conditions Based on Regional or Local Sea Level Rise Using Best Available Science

This Appendix provides technical information addressing how to determine local hazard conditions for sea level rise planning efforts. This process is described more broadly as Steps 1-4 in Chapters 5 and 6 in this document and includes determining a range of sea level rise scenarios and analyzing the physical effects and possible resource impacts of sea level rise hazards.

This appendix provides an overview of the physical effects of sea level rise on coastal hazards and other physical processes. The appendix is organized by the most commonly considered coastal hazards and physical processes and will describe how sea level rise is expected to influence them into the future. Similarly, each section will describe how sea level can be considered in assessments for each coastal hazard or physical process.

It can be challenging to "right size" analyses that look to identify the physical effects of sea level rise. Screening level analyses can be useful to identify the types of hazards that may need to be more closely evaluated, for example with more detailed modeling or analysis, in certain areas. As discussed in more detail in Chapters 5 and 6, it is a good idea to reach out to Coastal Commission Staff early in the process to advise on what level of hazards analyses may be recommended for different planning or permitting processes.

Water level varies locally, so these analyses must be performed on a regional or site-specific basis, and applicants and planners should prioritize obtaining data or conducting research at the correct geographical scale. The 2024 State Sea Level Rise Guidance (OPC 2024) is considered the best available science on California's regional sea level rise, and the Commission recommends using it when sea level rise projections are needed. Equivalent resources may be used by local governments and applicants provided that the resource is peer-reviewed, widely accepted within the scientific community, and locally relevant.

Sea level rise raises the background water level from which many more dynamic changes start. Sea level rise will have many physical effects, some of which will increase non-linearly, such as the amount of wave energy that reaches California's coastlines. The following box identifies some of the key situations in which it is important for coastal managers and applicants to consider sea level rise during planning or project reviews.

**General situations needing sea level rise analysis include when the project site or planning area is:**

- Currently in or adjacent to an identified floodplain
- Currently or has been exposed to flooding or erosion from waves or tides
- Currently in a location protected from flooding by constructed dikes, levees, bulkheads, or other flood-control or protective structures
- On or close to a beach, estuary, lagoon, or wetland
- On a coastal bluff with historic evidence of erosion
- Reliant upon shallow wells for water supply
- Shown as exposed to hazards on a SLR viewer such as COSMOS under the 2.0m SLR scenario

The following coastal hazards and other physical processes are some of the more commonly considered hazards for planning and development in coastal areas in the State. These are described in more detail in the following sections.

- Coastal erosion
- Wetland change
- Coastal flooding
- Fluvial/riverine flooding
- Pluvial/stormwater flooding
- Groundwater rise
- Tsunamis

## COASTAL EROSION

The coast is shaped by the powerful forces from waves, currents, rainfall, and wind. This section will describe the effects of sea level rise on beach change and bluff erosion.

### Beach Change

Beaches are highly dynamic and respond to changes in sediment inputs and wave conditions. Beaches change on a variety of timescales. It can be useful to think about the timescales of this change as long-term, decadal, seasonal, and storm event-driven.

Beaches can be understood generally to be in equilibrium with sea level. As sea level rises, beaches will generally shift upward (vertically) and recede landward (horizontally), proportional to the slope of the beach. This concept is generally known as the Bruun Rule. It involves several key assumptions, including that, at equilibrium, the shape of the beach profile is maintained

through time, that sand transport into and out of the area of interest is constant, that the upper beach is eroded as the shore profile moves landward, and that the eroded material is deposited offshore to reestablish the equilibrium profile – meaning that the Bruun Rule assumes an erodible backshore as opposed to, for example, a seawall. As sea level rise accelerates, the retreat of beaches due to the Bruun Rule is expected to become an increasingly large factor in beach change.

There are several approaches to evaluating the potential for beach erosion for the purposes of planning and development. The level of complexity in terms of the processes considered as well as the data and skill needed for analysis varies greatly.

One of the simplest approaches to estimating beach change is to examine long-term shoreline trends. This can be done by looking at historical imagery. Recent advances in the processing of satellite data have opened up large datasets of historic shoreline change, such as CoastSat, that can also be useful for identifying long-term trends. Similarly, looking at historic observed seasonal or event-driven changes can be useful for estimating the potential range of shoreline positions that might be observed beyond long-term shifts in mean shoreline position. Notably, just evaluating historic trends alone will not adequately account for the effects of future sea level rise. Observed trends can be combined with the retreat estimated by the Bruun Rule or other similar equilibrium models.

One of the more comprehensive tools for looking at long-term beach change is the CoSMoS Coastal One-line Assimilated Simulation Tool (CoSMoS-COAST). The CoSMoS-COAST tool uses historic shoreline change data to calibrate a shoreline change model that takes into account many of the easier-to-measure factors that contribute to beach change. These include Bruun Rule recession, longshore drift, and cross-shore beach change. Sand supply, a major factor in beach change, is not explicitly considered due to the difficulty in projecting changes to sand supply; however, observed long-term erosional or accretional trends not explained by the more easily forecastable factors are assumed to continue in the future. While CoSMoS-COAST includes considerable uncertainty, this uncertainty is quantified. CoSMoS-COAST is also available at a 100-meter resolution for all open coast beaches statewide which makes it a powerful tool for evaluating future beach change.

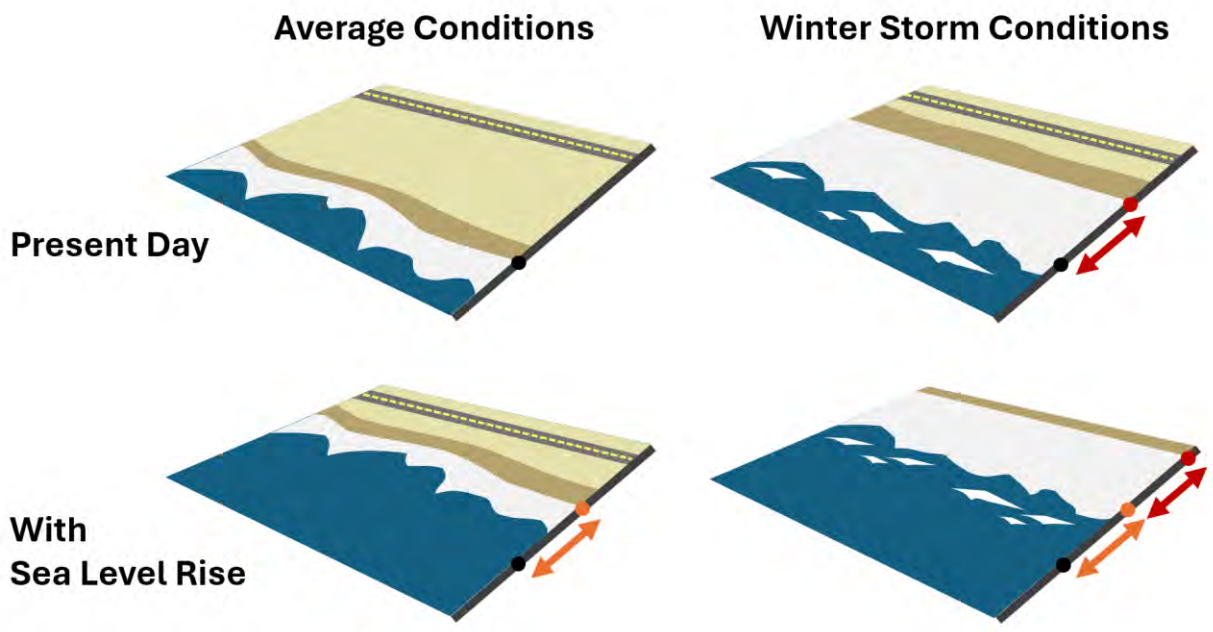



Figure B-1. Diagram showing beach erosion from both sea level rise and winter storm conditions (Source: J. Smith, 2024)

**Bluff Erosion**

California has a diversity of coastal bluffs which will, in general, continue to erode over time. The rate of a retreat of a coastal bluff is closely related to its geologic composition and the erosional processes at work in a given location. Bluffs composed of hard, resistant bedrock will erode slowly compared to bluffs with a base of relatively weak and poorly cemented terrace deposits. Coastal bluff erosion is also driven by a variety of factors including both marine (e.g., wave attack and wave spray) and subaerial processes (e.g., intense rainfall and runoff). In general, sea level rise will intensify marine erosion by increasing the frequency and force and wave attack at the base of coastal bluffs. For example, with sea level rise, some bluffs that are currently protected by wide sandy beaches and seldom experience significant wave attack may start to erode more quickly when higher water levels or beach erosion causes the frequency and intensity of wave attack to increase.

Long-term historical trends in bluff retreat provide an important indicator of the potential for future bluff erosion with sea level rise. Similar to beach change, past bluff retreat can be estimated through the use of historical aerial imagery. However, bluff retreat is often episodic. In other words, bluffs can remain unchanged for sustained periods then fail and erode relatively rapidly. As a result, a significant amount of time (ideally as long as possible) is often needed to be able to determine long-term average erosional trends for coastal bluffs. There have been several efforts to develop statewide retreat rates for coastal bluffs with varying levels of associated uncertainty and spatial resolution. Some of the most commonly referenced datasets

include Hapke & Reid, 2007, which uses georeferenced historical maps and aerial imagery, and Swirad and Young, 2022, which uses airborne LiDAR.

There are several approaches available to estimate how bluff retreat would be accelerated by sea level rise. As part of the work done by USGS for their CoSMoS Cliff Retreat tool, Limber *et al*., 2018, summarize several modeling approaches. One model bluff retreat, an extension of the Bruun Rule discussed above, assumes coastal bluffs are in equilibrium with their fronting beaches and that, with sea level rise, bluff erosion will accelerate in relation to both the shape of the beach profile and amount of beach-quality sediment the bluffs would provide to the beach profile as they erode. Another model assumes that the bluff retreat rate will increase in proportion to the frequency with which waves are able to runup and reach the toe of the bluff with sea level rise. Other models accelerate cliff erosion in proportion to increases in the rate of sea level rise, with options to select the relationship (linear or exponential) between the rate of sea level rise and the bluff erosion response. Still other models relate bluff erosion rates to sea level driven changes in wave energy, the force delivered at the bluff toe, and fronting beach widths. While no single modeling approach can capture all the factors governing how coastal bluffs will respond to sea level rise, these modeling approaches can provide insight into the range of potential outcomes under different sea level rise scenarios.

USGS developed bluff retreat projections statewide using an ensemble of multiple bluff retreat models (some of which are outlined above) for four sea level rise scenarios (CoSMoS-Cliff). The calibrated, but unvalidated, ensemble includes five simple models that project bluff retreat from historical bluff retreat, wave impacts, sea level rise, and the geometry of the shore profile. The projections are available at a spatial resolution of 100 meters, though projections are meant to project time-averaged, multidecadal bluff retreat over large spatial scales. These projections are valuable for community-scale hazards analyses and land use planning, though more detailed analyses are often needed for site-specific analyses, including those used for siting and design of individual development projects.

Most models and tools used for bluff retreat project the long-term time-averaged retreat of a bluff's edge. However, as mentioned previously, bluff retreat typically occurs episodically, with retreat sometimes occurring on the order of tens of feet in a single event, followed by extended periods with little retreat. For this reason, it is critical that development setbacks from bluff edges consider the potential magnitudes of episodic erosion or failure events in addition to long-term, average retreat rates. This can be done through looking at past bluff failure events or analyzing slope stability (e.g., determining the failure plane of a slope with a 1.5 factor of safety).

**Additional Considerations**

Additionally, there are several important considerations when evaluating the potential for coastal erosion as influenced by sea level rise. Sandy beaches may have significant deposits of coarser material, such as cobble, which may change both their response to seasonal erosion

and long-term responses to sea level rise. Beaches may also exist as a relatively thin layer of sand above high bedrock platforms which may influence both their ability to persist in the future (if these platforms form a steep and erosion resistant backshore) as well as how the beaches respond to seasonal forcing from waves. Also, developed backshores can sometimes be made of highly erodible fill material with high percentages of fines which may lead to accelerated erosion, particularly as shorelines retreat and expose these backshores to more frequent storm wave activity.

Sand dunes are also an important part of many beach systems. Dunes can vary greatly in both size and dynamics. Natural dunes in addition to engineered dune or dune-like systems can provide significant flood reduction benefits in addition to being an important source of sand to beaches during erosive events. Portions of dune systems can also be highly dynamic, like beaches, and are also expected to shift upward and inland with sea level rise under equilibrium conditions. Where dunes are a significant part of the shore or where they are being proposed as strategies to address hazards, particular care should be taken to incorporate dune change as part of estimates of coastal erosion.

### COASTAL WETLAND CHANGE

Coastal wetlands such as mudflats and saltmarshes are affected by the way sediment moves in and through estuarine systems. Intertidal features and habitats are very sensitive to water levels and will change with sea level rise (Spencer *et al.*, 2016).

Different levels of analysis for evaluating coastal wetland change vary in the amount of data and skill required. Much of this variation comes from how or if changes to landforms are considered. Figure B-2 illustrates how sea level rise will shift the tidal range vertically and vegetated areas may shift in response to both future water levels and changes in landforms.

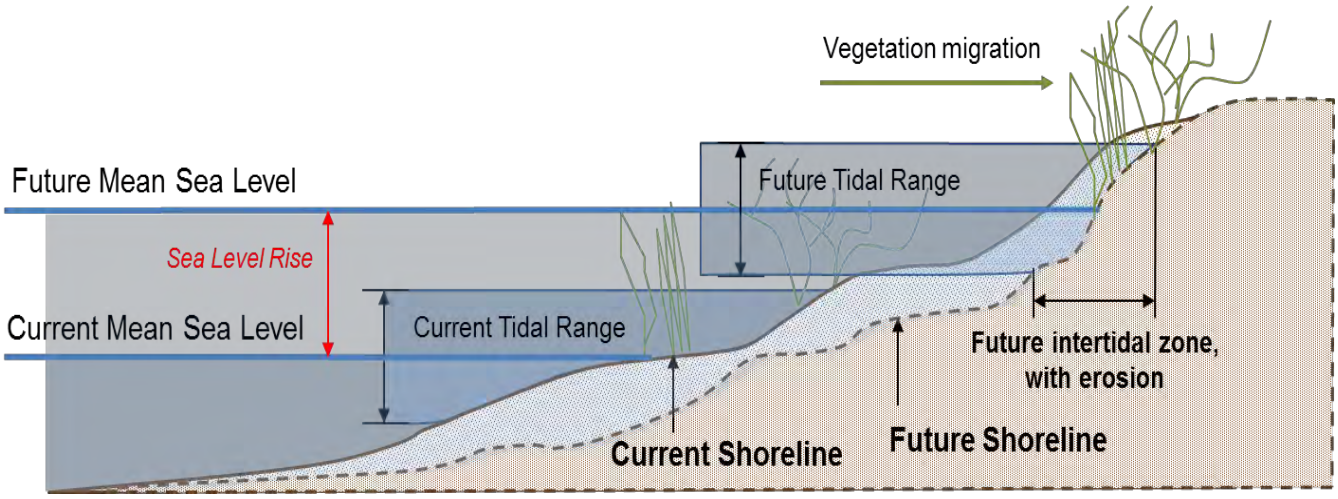



Figure B-2. Changes to the intertidal zone with sea level rise and erosion, without wave impacts. (Source: L. Ewing, 2013).

The simplest approach to evaluating coastal wetland change is to assume landforms remain the same and habitats will re-equilibrate to changing sea levels. In some wetlands, landform change can be dramatic even over short time periods (**Fig.** B-3). As mentioned previously, coastal wetlands are very sensitive to water levels and their distribution is largely controlled by the elevation of land relative to the local tide range. While sea level rise may change the range of the tides in certain areas, it is often simpler and sufficiently accurate to assume this change will not be significant and simply shift the existing tide range vertically by the amount of sea level rise being analyzed.




Figure B-3. Photo series documenting rapid bank and wetland erosion in Elkhorn Slough (adapted from California Department of Fish and Wildlife, 2021 with additional photo from B. Ammen, 2023)

More complex approaches would include creating a hydrodynamic model that simulates the water levels and currents that can then be used to model the movement of sediment and vertical erosion or accretion that may change landforms in an estuarine system. These kinds of models often require significant effort to develop, calibrate, and validate but can be used to answer specific management questions such as which coastal wetland areas may have sufficient natural sediment supplies to be able to keep pace with sea level rise and which areas may need more significant management actions to preserve ecosystem functions.

When deciding how to estimate coastal wetland change considering sea level rise, an initial assessment should consider how stable landforms have been within recent history, why landforms have or have not changed (for example, considering if existing marshes are in equilibrium with current sediment supply or tidal currents), and then evaluate whether it is reasonable to assume those factors would continue unchanged into the future with sea level rise.

## COASTAL FLOODING

Extreme water levels are caused by a combination of high tides, storm surge, oceanographic forcing, and waves. Along the open coast of California, waves are typically, if not always, a major factor in driving extreme water levels and coastal flooding. The biggest storm waves often come from "swell" which originates far out in the Pacific Ocean. In sheltered areas where there is sufficient "fetch," wind waves can become sizeable enough to warrant consideration in analyses.

The deeper the water close to shore, the larger the size of waves that can reach the shore becomes. Waves will eventually break when the depth is shallow enough and runup on or over land. When analyzing wave hazards along beaches, an eroded beach condition should be evaluated as this often results in the most hazardous conditions. Furthermore, large waves also occur during large coastal storms which tend to occur most frequently in winter months, when beaches are typically at their narrowest.

There are multiple ways to evaluate coastal flooding that consider sea level rise with ranging levels of complexity as well as data, effort, and skill required. Another important factor when analyzing flooding is the resolution and accuracy of available topographic data. Small changes in topography can result in vastly different results.

Certain low-lying coastal areas may not be exposed to either swell or significant wind waves and, in these areas, coastal flooding is likely dominated by extremely high ocean water levels that can occur during a combination of high tides, atmospheric influences like storm surge, and oceanographic influences like El Niño. This section will generally progress through methods for evaluating coastal flooding where increasing attention is given to the influence of wave hazards starting with a discussion on "bathtub" approaches and moving to site specific wave hazard analyses.

### "Bathtub" Approach

One of the simplest approaches to analyzing flood risk is to compare ground elevations to current or future flood levels. A "bathtub" approach, as it's commonly called, takes a flood elevation, e.g., 10 ft above mean sea level, and then assumes all elevations in the area of interest below that flood elevation will be flooded. This approach can easily consider sea level rise by simply increasing the flood elevation by the amount of sea level rise being analyzed e.g., 10 ft + 1 ft of sea level rise = 11 ft. The most important factors for this kind of analysis are determining the appropriate flood elevations and finding appropriate topographic data.

Bathtub approaches are extremely simplistic, which makes them very easy to implement. However, they may not be appropriate in some cases. Bathtub approaches can make sense for areas where flooding is expected to increase linearly with sea level rise; this is often the case for low-lying areas along partially enclosed bays or inlets that experience flooding as result of extreme still water levels and where significant erosion and shoreline change is not expected. It is not appropriate for areas where water is expected to be dynamic such as areas exposed to

large waves or fast-moving flow down rivers or creeks. Bathtub approaches to projecting future flooding also rely on estimates for existing floodwater elevations which could come from previous studies such as FEMA studies or estimates of extreme coastal water levels for NOAA tide stations.

**Hydrodynamic Models**

Another approach for evaluating coastal flood risk is through the development or use of hydrodynamic models. Hydrodynamic models simulate the water levels and currents that occur during storm conditions and can take considerable effort to develop, calibrate, and validate. Hydrodynamic models can also simulate waves, including wave runup and overtopping, in great detail. Generally, it only makes sense to develop site-specific hydrodynamic models for a larger areas on the order of miles since the models need to consider appropriate boundaries that capture relevant features, such as the entirety of a coastal lagoon, to avoid undue modeling errors. To consider sea level rise, hydrodynamic models are essentially re-run with the sea level rise incorporated in the input conditions.




Figure B-4. Illustration of differences between a hydrodynamic model (CoSMoS; 100-year flooding 0 ft SLR) and a "bathtub" model (all areas below 8 feet, NAVD88 shaded blue)

The USGS has developed flood models and published hydrodynamic flood modeling results statewide for increments of sea level rise ranging from 0.25 meters to 5 meters, providing a useful tool for evaluating both existing coastal flood risk and future flood risk as worsened by sea level rise. Importantly, CoSMoS models were developed on large scales and, while a great tool for screening and high-level planning analysis, require sound technical judgement when interpreting results for uses that might require higher levels of detail. When evaluating the

results from any model, it is generally good practice to examine the results for similar conditions from separate models or, if possible, validate with observations (e.g., flooded areas) for real events with similar storm conditions. When a higher degree of confidence and resolution might be desired such as for evaluating the potential performance of a proposed tide gate or pump system, developing a site-specific model would provide results more appropriate for use in design.

**FEMA Flood Zones**

FEMA develops and maps flood zones including for areas subject to coastal flooding from both waves and extreme static water levels. These flood zones do not consider future sea level rise and generally represent areas that could be impacted by flooding from events with a 1% probability of occurring in a year. In coastal areas, "VE" Zones generally represent areas of high wave hazards, while "A" and "AE" Zones generally represent areas of moderate to minimal wave hazards. Zones VE and AE will specify a base flood elevation (BFE) which is meant to represent the elevation of the 1% annual exceedance probability total water level. Total water level combines all contributions to the water level at a given time, including mean sea level, tides, seasonal and storm effects, wave runup and other factors (**Fig.** B-5).

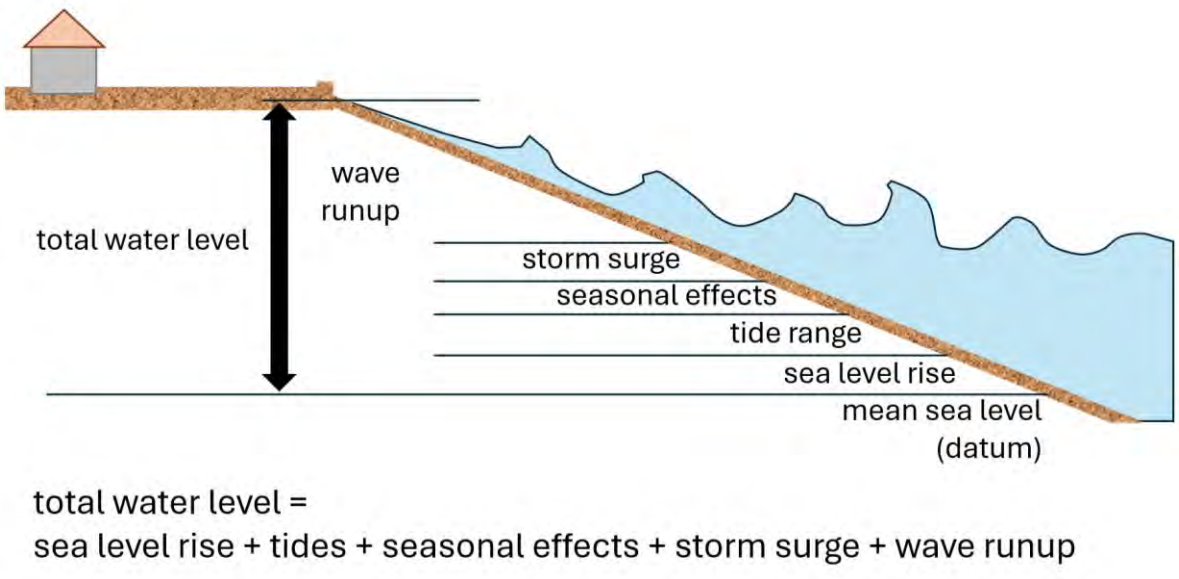



Figure B-5. Illustration of components of coastal total water levels (adapted and simplified figure 1 of Barnard *et al.*, 2019)

There are several relatively simple analytical approaches that relate current FEMA flood zones to future coastal conditions considering sea level rise. These approaches often don't require the level of data and effort as developing new hydrodynamic models and can provide reasonable, rough estimates for future flood risk that leverage the detailed studies conducted by FEMA. One example of this kind of an approach is detailed in a Technical Methods Manual by Battalio *et al*., 2016 and involves determining the portion of the total water level (or Base Flood

Elevation) due to wave runup, increasing the wave runup based on a "morphology function" determined by the erodibility of the backshore, and calculating a new total water level by adding both sea level rise and the increase in wave runup. This method is relatively simple when the information on the wave runup estimates used to determine the FEMA total water levels is available and accounts for the compounding effects of sea level rise on total water levels illustrated in Figure B-6 below. Translating current FEMA flood zones to future coastal conditions may make sense for jurisdictions looking to create hazard maps that consider sea level rise but are also familiar in form to existing flood zones, which may aid with the application of existing flood ordinances.

**Site Specific Wave Hazard Analyses**

In some cases, site-specific wave hazards analyses that consider the effects of sea level rise may be needed to adequately assess risks to new development along the coastline. This often requires consideration of the potential wave runup elevations that consider higher static water levels, sea level rise induced beach change, and expected 100-year storm conditions. There is a diversity of methods for estimating wave runup and overtopping. Because of the dynamic nature of extreme wave events, empirical equations can be an important tool for simplifying analyses while maintaining appropriate consideration of engineering uncertainty. These empirical equations typically relate inputs such as wave conditions (wave height and period), beach slope, a structure's (such as a revetment's or seawall's) roughness, and a structure's slope.

In general, hazards analyses should consider risk from extreme conditions (often the 1% annual exceedance probability or "100-year" event). Because coastal flood events typically involve a combination of several partially related factors such as storm surge, wave conditions, and acute erosion, it can be challenging to determine exact probabilities. To address this complexity, deterministic approaches attempt to estimate the conditions of a 100-year event, generally assuming reasonable conservative estimates for things like wave height, period, and event-based beach erosion often through professional experience or judgment. Other more probabilistic approaches leverage existing datasets for things like observed water levels and wave conditions to create a hindcast of wave runup elevations that can inform a statistical analysis to estimate a range of extreme events.

Notably, while the field of coastal engineering has developed a range of methods for predicting wave hazards across the globe, different methods have been shown to be more or less appropriate for California's (and the Pacific North American coast more broadly) oceanographic context. In California, much of coastal wave hazard is influenced by the large swell which creates large fluctuations in water levels at the shore through what are called infragravity waves. This dynamic setup, as it is also called, can create deeper waters long enough for larger waves to break closer to shore where there is less space for their energy to be dissipated. This dynamic is notably different than the Gulf and Atlantic coasts where extreme wave hazard is typically dominated by large storm surge from strong storm systems like hurricanes. FEMA, as

part of its update for coastal hazard mapping on California's open coast, developed guidelines to this end that can be found here.[125]

Proper consideration should be given to selecting an appropriate method for estimating wave hazards including how sea level rise will be included in the inputs used for such an analysis. Most notably, sea level rise will increase static water elevations which not only increases the baseline from which wave runup is calculated but also increases the size of waves able to reach the shore. Similarly, where wave hazards are being analyzed on coastal structures, sea level rise induced beach retreat should be considered such that the depth of water at the toe of structures will increase. In shorelines where the backshore is armored or otherwise resistant to erosion, this leads to a compounding effect from sea level rise where one foot of sea level rise could lead to a two to four foot increase in total water level (Battalio *et al.*, 2016). These compounding effects are illustrated below (**Fig.** B-6).

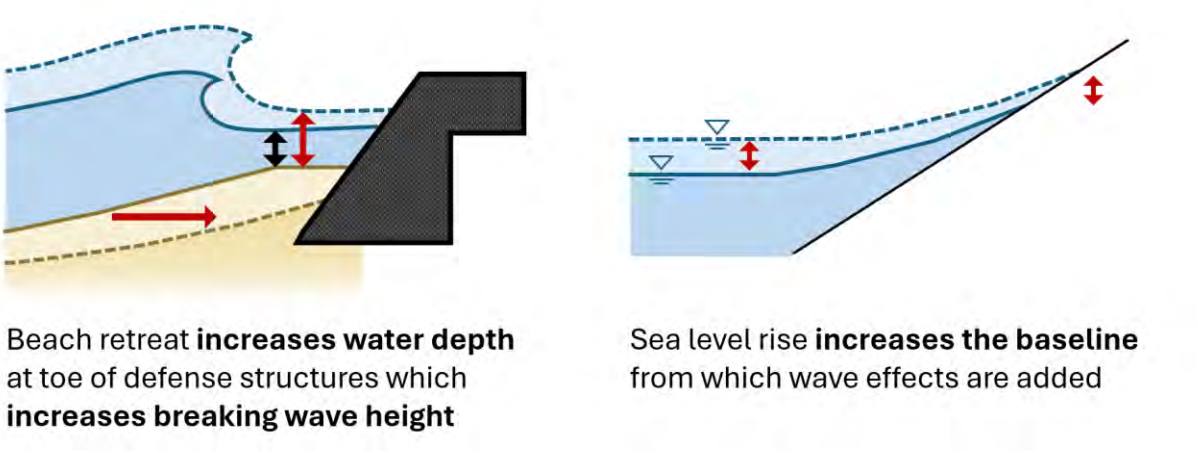



Figure B-6. Diagram illustrating the compounding effects of sea level rise on coastal wave hazards (Source: J. Smith, 2024)

**Summary**

In summary, coastal flooding events can be influenced by a variety of factors but in simple terms can be grouped in two categories: flooding strongly influenced by waves and coastal flooding not-strongly influenced by waves. While there is a variety of approaches to estimating future coastal flood risk as worsened by sea level rise, selecting the appropriate approach should be based on the levels of uncertainty and precaution desired by the relevant decision makers.

[125] Note that while the document linked here has been superseded by the FEMA Policy for Flood Risk Analysis and Mapping, the document contains useful guidance to support implementation of the new standards

### FLUVIAL/RIVERINE FLOODING

Where rivers, creeks, and drainage channels meet the ocean, high water levels can "back up" upstream. Sea level rise will increase water levels at the downstream end of watersheds and so can increase fluvial flood risk even on days when coastal flooding may not be a concern (**Fig.** B-7). Most fluvial flood risk in the State has been assessed as part of FEMA flood insurance rate maps which generally map flood zones for the 100-year recurrence interval or 1% annual exceedance probability event, which reflect historical observations and do not capture the effects of future sea level rise. These zones have been developed over decades from a multitude of FEMA-commissioned studies.

Fluvial flood risk is generally reassessed when there are proposed changes to topography within or near floodplains, when bridges are being constructed, retrofitted, or replaced, and as part of flood control improvement projects. Generally, fluvial flood risk is assessed through the use of hydraulic models of varying levels of complexity.

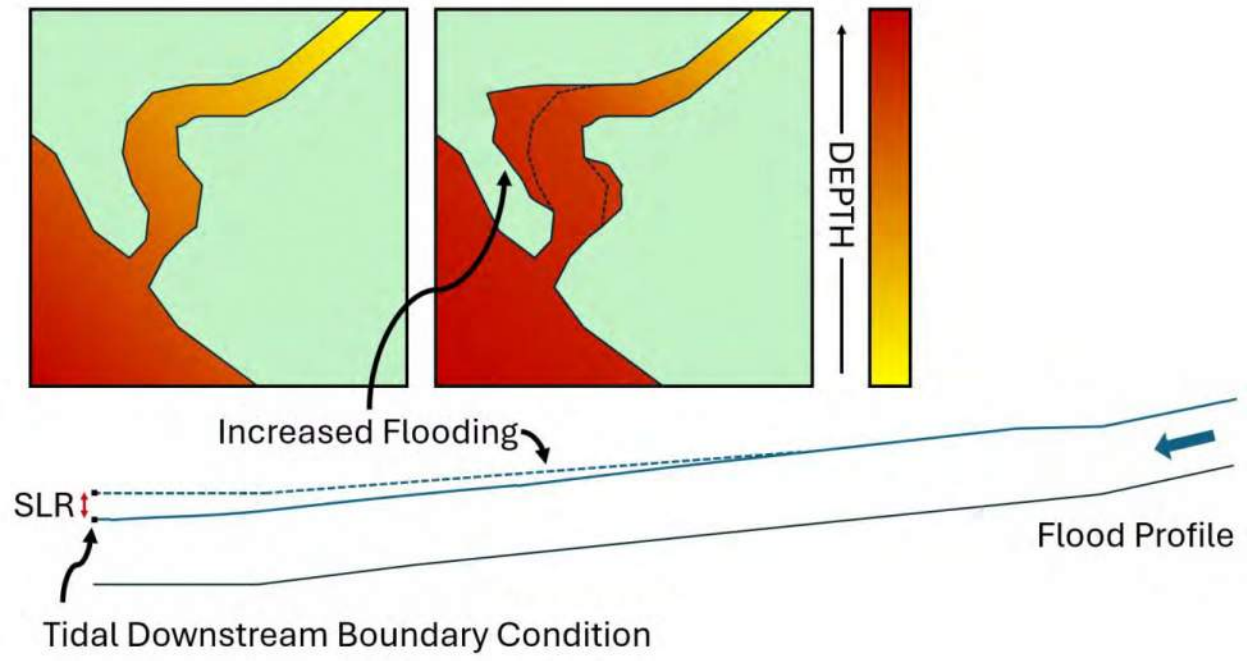



Figure B-7. Diagram illustrating how sea level rise can influence fluvial flooding upstream (Source: J. Smith, 2024).

The inland geographic extent of where sea level rise is expected to affect fluvial flooding levels varies. Generally, channels with flatter slopes will see a greater extent where higher sea levels affect fluvial flood levels. Channels where flow is constricted due to a narrowing in the channel or a flow control structure will generally not see effects from higher sea levels upstream of those constricted areas because the flow is controlled by that constriction rather than downstream water levels.

To evaluate the effects of sea level rise on fluvial flood risk, hydraulic models should use conservative downstream boundary conditions increased with the amount of sea level rise being analyzed.

For most situations, the 100-year event should be used as the design event for hazards like coastal or fluvial flooding. The term "100-year" is equivalent to saying a storm or flow event has a 1% annual probability of exceedance. There is a 22% probability that a 100-year storm event or greater will occur during a 25-year period and over 53% probability that a 100-year storm or greater will occur at least once during a 75-year period. Even so, the 100-year event, like the 100-year flood event, is often used as a design standard for development. However, for structures with a very long projected life or for which storm protection is very critical, a larger, 200-year or 500-year event might be appropriate.

### PLUVIAL/STORMWATER FLOODING

Pluvial flooding (also called "urban" flooding) is flooding that occurs as a result of runoff from rainstorms. While pluvial flooding can happen in natural watersheds its often most severe in altered watersheds. Examples include ponding in depressions, along the edges of topographic barriers, or around constrained stormwater infrastructure. Ponding can occur in depressions when runoff exceeds the capacity of stormwater infrastructure like drains or pumps such as underpasses (see an example in **Fig.** B-8 below). Any areas where stormwater is controlled and drained to coastal waters could potentially see worsened flooding as a result of sea level rise. This is because stormwater drainage capacity can be reduced by higher coastal water levels (including as increased by sea level rise) causing a "backing up" of stormwater drainage systems.

It can be difficult to initially identify areas where stormwater drainage systems could be significantly impacted by higher sea levels. Generally, the areas with the greatest potential vulnerability are areas that are close to or below the elevation of daily highest tides (mean higher high water). Some drainage systems already require special infrastructure for their drainage to coastal areas, such as drainage systems that rely on pumps or tide gates. These areas are an example where the effects of sea level rise on the function of the stormwater systems should be assessed.

Stormwater systems are often evaluated through hydrology and hydraulics (or H+H) modeling which can have varying levels of complexity but which ultimately simplifies drainage systems as a network of drainage infrastructure (stormwater pipes, inlets, pumps, etc.) and drainage areas (e.g., small watersheds) which, with rainfall estimates and information about the drainage area such as the slopes, surface types, etc., are used to determine the flow of water into the drainage system.

Sea level rise can be considered in these modeling efforts by increasing downstream water level conditions, altering pump capacities by evaluating the effects of higher water levels on pump

curves, and increasing assumed baseloads to the drainage system from increased groundwater inputs from groundwater rise.

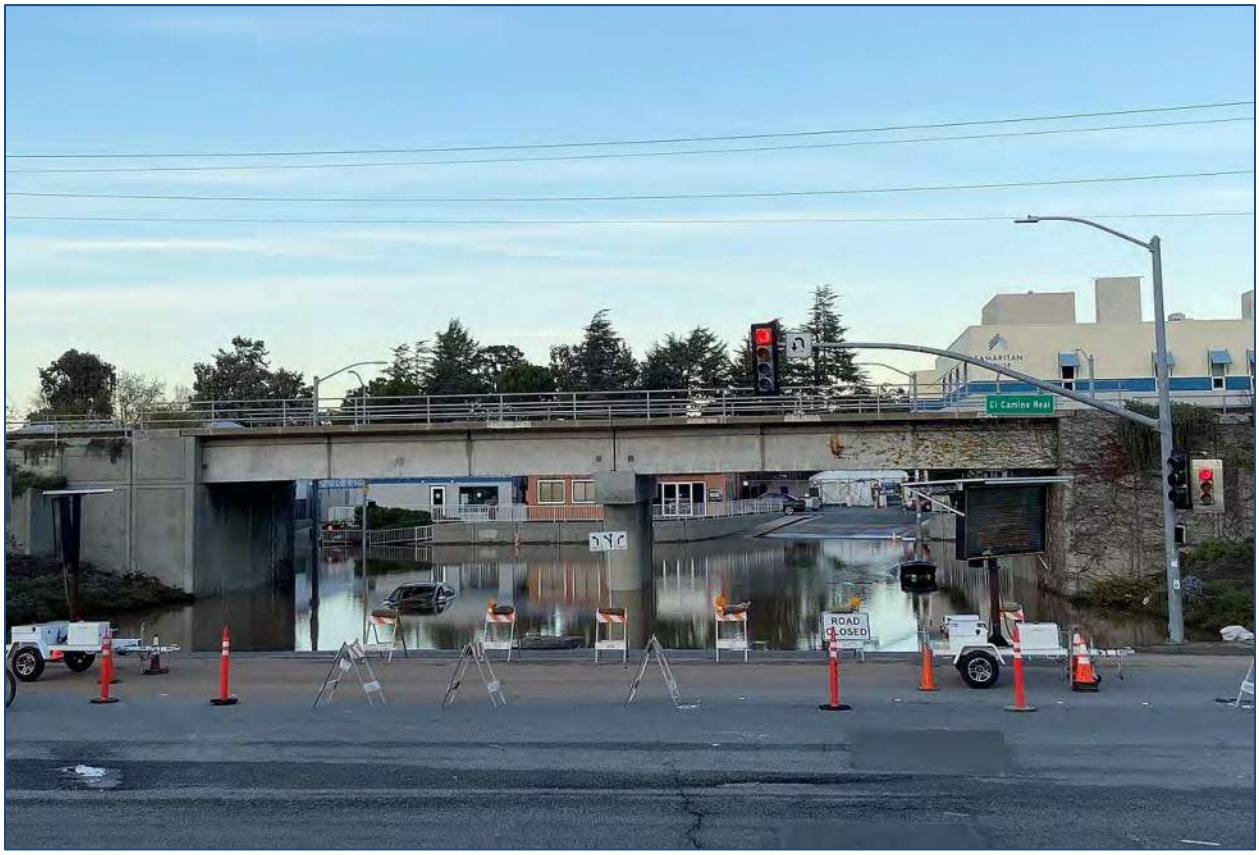



Figure B-8. Photo of pluvial flooding at an undercrossing in San Mateo, CA (Source: B. Washburn, www.flicker.com/btwashburn; CCA 2.0)

### GROUNDWATER RISE

Where surficial groundwater is hydraulically connected to the ocean, sea level rise can cause an increase in groundwater tables (decreasing depths from surface to groundwater), increased salinity of groundwater, and/or increased groundwater flow (Rotzoll & Fletcher, 2013).

Higher groundwater elevations can cause a variety of problems ranging from increased liquefaction risk, damage to roads and buried structures (e.g., basements, pipes, and utilities), decreased capacity for infiltration of rainfall, mobilization of contaminants in soil, and in some cases, temporary or permanent emergence of groundwater onto the surface (Hill *et al.*, 2023).

Saline intrusion into groundwater used for irrigation or potable water uses can be a major issue where such groundwater is the only or a major source of fresh water. When saline ocean water interacts with fresh water in the ground, it typically forms what is referred to as a saline groundwater wedge with boundary between fresh and saline groundwater decreasing in elevation with distance away from coastal waterbodies. This wedge is expected to move inland

with sea level rise (Glover, 1959) which will increase the geographic extent of saline intrusion into shallow groundwater wells landward. This concept is illustrated in Figure B-9 below.

In some areas, groundwater infiltrates buried stormwater or wastewater pipes which can both influence groundwater elevations around them. The leaking of groundwater into pipes can increase "baseloads" at stormwater or wastewater treatment facilities, limiting capacity and increasing operating costs (May *et al.,* 2022).

Changes to groundwater as a result of sea level rise can be modeled but are often limited in the availability of critical information such as existing or historic groundwater levels and local geology, which are needed for calibration and validation. There are several approaches where groundwater change could be considered in analyses using more conceptual or qualitative approaches as well.

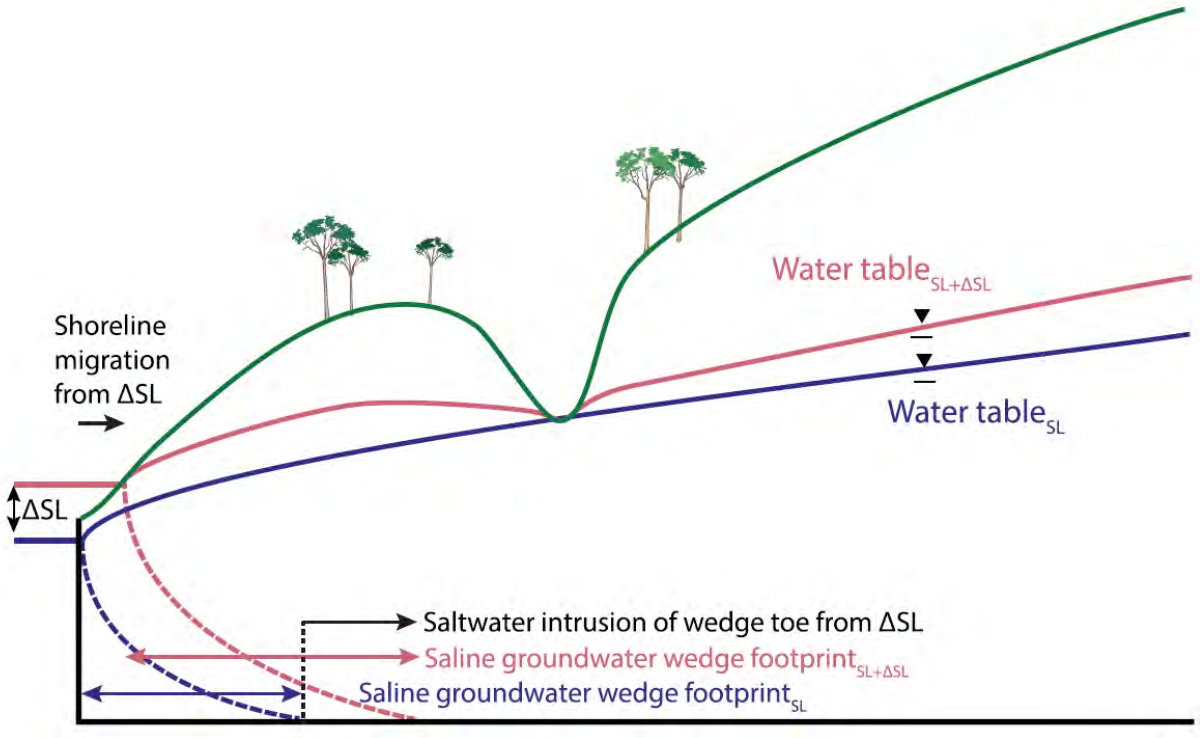



Figure B-9. Diagram from Befus *et al.* 2020 illustrating current groundwater table and saline groundwater wedge in blue and future groundwater table and saline groundwater wedge in pink. Note groundwater table is limited controlled by local topography in this example.

As part of CoSMoS, USGS partnered with groundwater modeling experts to create a statewide dataset of modeled equilibrium groundwater depths for both present sea level and increments of sea level rise (Befus *et al*., 2020, **Fig.** B-9). The modeled equilibrium groundwater surface represents the long-term average elevation of groundwater flowing along the coast for the tidal datums considered (local mean sea level and mean high water) and can be viewed as a baseline

that seasonal, tidal or shorter-term influences such as storms would start from. The model results are largely a function of topography, distance from coastal water bodies, and how readily water moves through the ground (via pore spaces, fracture networks, etc.), a property known as hydraulic conductivity. The USGS model produced projections for three different hydraulic conductivity values ranging across three orders of magnitude due to a lack of detailed information on hydraulic conductivity at both fine scales and available statewide. These three hydraulic conductivity results help demonstrate the range in uncertainty, and users can focus on the dataset associated with the hydraulic connectivity value they know to be representative of their local geology. While the CoSMoS-GW results are helpful for high level analyses and screening for where groundwater rise may be an issue in local hazard planning, site-specific groundwater models developed with higher resolution topographic and geologic data would provide results appropriate for use in planning stormwater and flood control systems, or in designing individual projects.

### TSUNAMIS

Tsunamis are large, long-period waves that can be generated by submarine landslides, subaerial landslides (slope failures from land into a water body), large submarine earthquakes, meteors, or volcanic eruptions. They are rare events but can be extremely destructive when they occur. The extent of tsunami damage will increase as rising water levels allow tsunami waves to extend farther inland. Thus, the tsunami inundation zone will expand inland with rising sea level. There has been no research that suggests that climate change will increase the intensity or frequency of seismically-generated tsunamis. However, the number and size of coastal subaerial landslides may increase because of increased coastal erosion due to sea level rise, which in turn may increase the potential for tsunamigenic landslides along the California coast (Highland 2004; Walder *et al*. 2003).




Figure B-10. Screenshot of ASCE Tsunami Hazard Tool showing results for the Venice-Marina del Rey area for the 2,475-year probabilistic tsunami hazard analysis

Recent advancements by the California Geological Survey (CGS) have significantly improved the availability of high quality tsunami data statewide for use in hazard analyses and planning. These data including the maps of California Tsunami Hazard Area (which was created for use in disaster preparedness and evacuation planning) are available on the CGS website. Several third party websites are also available as tools or viewers to access products that utilize the statewide probabilistic tsunami hazard analysis results such as the American Society of Civil Engineers (ASCE) Tsunami Design Geodatabase which is used to determine tsunami loads for critical facilities as part of the building code (Fig. B-10). There are currently no statewide datasets for tsunami inundation areas that consider sea level rise, though these are in progress. A rough estimate of how to adjust existing available tsunami inundation data to consider sea level rise is by assuming a 1:1 increase in tsunami flow depths with sea level rise i.e., if any area is shown to have a 4 ft tsunami flow depth, with 1 ft of sea level rise, it could have 5 ft of tsunami flow depth.

## SUMMARY

Sea level rise will worsen many of today's hazards. Incorporating the effects of sea level rise into estimates of hazard conditions is not always simple. This appendix can serve as a resource that outlines the variety of ways sea level rise can be considered for different hazards as well as some of the tradeoffs in difficulty or level of detail that come from the diversity of methods.

As this appendix has outlined, sea level rise will be a persistent increase to baseline sea levels from which a variety of more dynamic factors such as storm surge and coastal wave storms will be increase, sometimes non-linearly with each foot of additional sea level rise. The approximate magnitudes and timescales of these factors are outlined in Table B-1 below.

When developing local hazard conditions for use in coastal planning and analyzing coastal development, there is a wide array of available tools, some of which have already been mentioned, available to aid in analysis of future hazards. These range from viewers of detailed modeling efforts to technical datasets and guidance that will aid in the development of localized or site-specific hazard analyses. These tools and resources are outlined in Table B-2 below.

Table B-1. Factors that Influence Local Water Level Conditions

| Factors Affecting Water Level | Typical Range for CA Coast (ft) | Typical Range for CA Coast (m) | Period of Influence | Frequency |
|---|---|---|---|---|
| Tides | 3 – 10 | 1 – 3 | Hours | Twice daily |
| Low pressure | 1.5 | 0.5 | Days | Many times a year |
| Storm Surge | 2 – 3 | 0.6 – 1.0 | Days | Several times a year |
| Storm Waves | 3 – 15 | 1 – 5 | Hours | Several times a year |
| El Niño events (within the ENSO cycle) | <1.5 | < 0.5 | Months - Years | 2 – 7 years |
| Tsunami waves | 20 – 50 (max)<br>3 – 10 (typical) | 6 – 15 (max)<br>1 – 3 (typical) | Minutes, Hours, Days | Infrequent but unpredictable |
| Historical Sea Level, over 100 years | 0.7 | 0.2 | Ongoing | Persistent |
| OPC Sea Level Projections 2000 – 2050 (SF tide gauge; see also App. F) | 0.5 – 1.3 | 0.15 – 0.4 | Ongoing | Persistent |
| OPC Sea Level Projections 2000 – 2100 (SF tide gauge; see also App. F) | 1.0 – 6.5 | 0.3 – 2.0 | Ongoing | Persistent |

Note that all values are approximations. The conversions between feet and meters have been rounded to maintain the general ranges and they are not exact conversions. *Sources*: Flick 1998; OPC 2018; Personal communications from Dr. Robert Guza (Scripps Institution of Oceanography), Dr. William O'Reilly (Scripps Institution of Oceanography and University of California, Berkeley), and Rick Wilson, California Geological Survey; and professional judgment of staff.

Table B-2. General Resources for Developing Local Hazard Conditions

| Resource | Description | Link |
|---|---|---|
| **California Coastal Records Project** | Oblique photograph time series; useful for general information on shore type, trends in beach or bluff retreat. | www.californiacoastline.org |
| **UCSB FrameFinder** | Historic aerial imagery spanning 20th and 21st centuries. | https://mil.library.ucsb.edu/ap_indexes/FrameFinder/ |
| **U.S. Coast Survey Maps "T-Sheets" (Southern California)** | Historic surveys from mid-19th century; detail geomorphic and shoreline features; have been adapted to identify historic habitats. | https://www.caltsheets.org/socal/index.html<br>https://scwrp.databasin.org/maps/new/#datasets=159884c34c9848949d76ef1f72d468b4 |

| | | |
|---|---|---|
| **NOAA Data Access Viewer** | Land cover, elevation (LiDAR datasets and digital elevation models), aerial imagery (including pre- and post-storm events). | https://coast.noaa.gov/dataviewer/#/ |
| **Regional Sediment Management Studies** | Range of studies covering oceanographic conditions, beach and bluff change data, flooding and wave impacts, and historic conditions. | https://dbw.parks.ca.gov/?page_id=29239 |
| **CoastSat** | Viewer to explore global shoreline change trends and information on the open-source CoastSat tool for extracting shoreline data from satellite imagery. | http://coastsat.wrl.unsw.edu.au/ |
| **USGS Coastal Change Hazards Portal** | Viewer to explore a range of USGS datasets on extreme storms, shoreline change, historical shoreline positions. | https://marine.usgs.gov/coastalchangehazardsportal/ |
| **California Coastal Cliff Erosion Viewer** | Viewer to explore cliff erosion rates observed from 1998 to 2011 and 2009 to 2016. | https://siocpg.ucsd.edu/data-products/ca-cliff-viewer/ |
| **Coastal Storm Modeling System (CoSMoS)** | Detailed predictions of storm-induced coastal flooding, erosion, and groundwater rise over large geographic scales. | https://www.usgs.gov/centers/pcmsc/science/coastal-storm-modeling-system-cosmos#overview |
| **Our Coast Our Future (OCOF)** | Viewer with hazard map to explore range of data from USGS CoSMoS. | https://ourcoastourfuture.org/ |
| **FEMA California Coastal Analysis and Mapping Project \| Open Pacific Coast Study** | Statewide effort commissioned by FEMA to update open Pacific Coast coastal hazard maps for Flood Rate Insurance Maps. Intermediate Data Submittals include range of wave hazards information. | Not easily available online. Reports and studies conducted at the county level and may be available from county hazard offices or FEMA Region 9 https://www.fema.gov/locations/contact/california |
| **Coastal Data Information Program (CDIP)** | Current and historical information on wind, waves, and water temperature, wave and swell models and forecasting. Localized nearshore wave data available at “MOP” lines. | https://cdip.ucsd.edu/ https://cdip.ucsd.edu/mops/ |
| **FEMA National Flood Hazard Layer** | Viewer includes Flood Rate Insurance Maps (FIRMs). Note that FIRMs do not consider sea level rise or other effects of climate change. | https://www.fema.gov/flood-maps/national-flood-hazard-layer |
| **USACE Wave Information Study (WIS)** | National resource with long-term wave climate and multi-decade hindcasts of wave conditions. | https://wis.erdc.dren.mil/ |

| | | |
|---|---|---|
| **FEMA Guidelines for Flood Risk Analysis and Mapping Activities** | Extensive range of guidance and standards including focused guidance on coastal wave hazard analysis. | https://www.fema.gov/flood-maps/guidance-reports/guidelines-standards |
| **NOAA Sea Level Rise and Coastal Flooding Impacts Viewer** | "Bathtub" model showing areas below mean higher high water with a range of 1-foot increments of sea level rise. | https://coast.noaa.gov/slr/ |
| **Cal-Adapt Climate Tools** | Range of tools and datasets for considering the effects of climate change including sea level rise and projected changes in intensity and frequency of extreme precipitation events. | https://cal-adapt.org/tools/ |
| **California Geological Survey Tsunami Page** | Includes information on tsunami hazards, preparedness and evacuation resources, and data and reports for statewide probabilistic tsunami hazard analysis. | https://www.conservation.ca.gov/cgs/tsunami |
| **ASCE Tsunami Design Geodatabase** | Mapped runup extents and runup elevations used in ASCE 7 Standards. | https://asce7tsunami.online/ |

**REFERENCES: APPENDIX B**

Barnard, P. L., Erikson, L. H., Foxgrover, A. C., Hart, J. A. F., Limber, P., O'Neill, A. C., ... & Jones, J. M. (2019). Dynamic flood modeling essential to assess the coastal impacts of climate change. Scientific reports, 9(1), 4309.

Bascom W. 1979. *Waves and Beaches: The Dynamics of the Ocean Surface.* Garden City, NY: Anchor Books. 366pp.

Battalio, R. T., Bromirski, P. D., Cayan, D. R., & White, L. A. (2016). Relating Future Coastal Conditions to Existing FEMA Flood Hazard Maps: Technical Methods Manual.

Befus, K. M., Barnard, P. L., Hoover, D. J., Finzi Hart, J. A., & Voss, C. I. (2020). Increasing threat of coastal groundwater hazards from sea-level rise in California. *Nature Climate Change*, *10*(10), 946-952.

Bromirski PD, AJ Miller, RE Flick, G Auad. 2011. Dynamical suppression of sea level rise along the Pacific Coast of North America: Indications for imminent acceleration. *Journal of Geophysical Research-Oceans* 116: C07005. doi:10.1029/2010JC006759.

Bromirski PD, DR Cayan, N Graham, RE Flick, M Tyree. 2012. White Paper from the California Energy Commission. Prepared by Scripps Institution of Oceanography, CEC-500-2012-011. http://iodlabs.ucsd.edu/peter/pdfs/Bromirski_Flooding_Potential_PIER_CVAS_2012.pdf

Cayan DR, PD Bromirski, K Hayhoe, M Tyree, MD Dettinger, RE Flick. 2008. Climate change projections of sea level extremes along the California coast. *Climatic Change* 87(Suppl 1): S57-S73. doi:10.1007/s10584-007-9376-7.

Cushing L.J., Ju, Y., Kulp, S., Depsky, N., Karasaki, S., Jaeger, J., Raval, A., Strauss, B., & Morello-Frosch, R. (2023). Toxic Tides and Environmental Injustice: Social Vulnerability to Sea Level Rise and Flooding of Hazardous Sites in Coastal California. Environ. Sci. Technol. 2023, 57, 19, 7370–7381. https://doi.org/10.1021/acs.est.2c07481.

Flick RE. 1998. Comparison of California tides, storm surges, and mean sea level during the El Niño winters of 1982–1983 and 1997–1998. *Shore & Beach* 66(3): 7-11.

Flick R, J Murray, L Ewing. 2003. Trends in U.S. Tidal Datum Statistics and Tide Range. *ASCE Journal of Waterway, Port, Coast and Ocean Engineering* 129(4): 155-164. http://dsp.ucsd.edu/~jfmurray/publications/Flick2003.pdf.

Gallien TW, PL Barnard, M van Ormondt, AC Foxgrover, BF Sanders. 2012. A parcel-scale coastal flood forecasting prototype for a southern California urbanized embayment. *Journal of Coastal Research* 29(3): 642-656. doi: 10.2112/JCOASTRES-D-12-00114.1.

Governor's Office of Planning and Research. (2018). Defining Vulnerable Communities in The Context of Climate Adaptation. https://opr.ca.gov/docs/20180723-

Vulnerable_Communities.pdf.

Gallien TW, JE Schubert, BF Sanders. 2011. Predicting tidal flooding of urbanized embayments: A modeling framework and data requirements. *Coastal Engineering* 58(6): 567-577. doi:10.1016/j.coastaleng.2011.01.011.

Glover, R. E. (1959). The pattern of fresh-water flow in a coastal aquifer. *Journal of Geophysical Research*, *64*(4), 457-459.

Griggs G, K Patsch, L Savoy (Eds.). 2005. *Living with the Changing California Coast*. Berkeley and LA, CA: University of California Press. 551 pp.

Grinsted A, J Moore, S Jevrejeva. 2009. Reconstructing sea level from paleo and projected temperatures 200 to 2100 AD. *Climate Dynamics* 34: 461-472. doi:10.1007/s00382008-0507-2.

Hapke CJ, D Reid, BM Richmond, P Ruggiero, J List. 2006. *National Assessment of Shoreline Change Part 3: Historical Shore Change and Associated Coastal Land Loss Along Sandy Shorelines of the California Coast*. USGS Open File Report 2006-1219.

Hapke, C. J., & Reid, D. (2007). National assessment of shoreline change, Part 4: Historical coastal cliff retreat along the California coast (No. 2007-1133). US Geological Survey.

Highland L. 2004. *Landslide Types and Processes*. US Geological Survey Fact Sheet 2004-3072: 1-4, Reston, VA.

Hill, K., Hirschfeld, D., Lindquist, C., Cook, F., & Warner, S. (2023). Rising Coastal Groundwater as a Result of Sea-Level Rise Will Influence Contaminated Coastal Sites and Underground Infrastructure. *Earth's Future*, *11*(9), e2023EF003825.

Hummel, M.A., Berry, M.S., & Stacey M.T. (2018). Sea Level Rise Impacts on Wastewater Treatment Systems Along the U.S. Coasts. *Earth's Future*. 6:4, 622-633. https://doi.org/10.1002/2017EF000805.

Komar PD. 1998. *Beach Processes and Sedimentation*. 2nd Ed. Upper Saddle River, NJ: Prentice Hall. 544pp.

Limber, P. W., Barnard, P. L., Vitousek, S., & Erikson, L. H. (2018). A model ensemble for projecting multidecadal coastal cliff retreat during the 21st century. Journal of Geophysical Research: Earth Surface, 123(7), 1566-1589.

May, C. L.; Mohan, A.; Plane, E.; Ramirez-Lopez, D.; Mak, M.; Luchinsky, L.; Hale, T.; Hill, K. 2022. *Shallow Groundwater Response to Sea-Level Rise: Alameda, Marin, San Francisco, and San Mateo Counties*. Pathways Climate Institute and San Francisco Estuary Institute.

Merrifield MA. 2011. A shift in western tropical Pacific sea level trends during the 1990s. *Journal of Climate* 24(15): 4126-4138. doi:10.1175/2011JCLI3932.1.

FEMA, 2005. Final Draft Guidelines for Coastal Flood Hazard Analysis and Mapping for the Pacific Coast of the United States. https://www.fema.gov/sites/default/files/nepa/Guidelines_for_Coastal_Flood_Hazard_Analysis_and_Mapping_for_the_Pacific_Coast_of_the_United_States__Jan_2005__SUPERSEDED.pdf

Ocean Protection Council (OPC). 2018. *State of California Sea-Level Rise Guidance: 2018 Update. http://www.opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf*

Pfeffer WT, JT Harper, S O'Neel. 2008. Kinematic constraints on glacier contributions to 21st century sea-level rise. *Science* 321(5894): 1340 -1343. doi:10.1126/science.1159099.

Rahmstorf S. 2007. A semi-empirical approach to projecting future sea-level rise. *Science* 315(5810): 368-370. doi:10.1126/science.1135456.

Revell DL, R Battalio, B Spear, P Ruggiero, J Vandever. 2011. A methodology for predicting future coastal hazards due to sea-level rise on the California Coast. *Climatic Change* 109(Suppl 1): 251-276. doi:10.1007/s10584-011-0315-2.

Rohling E, K Grant, C Hemleben, M Siddall, B Hoogakker, M Bolshaw, M Kucera. 2008. High rates of sea-level rise during the last interglacial period. *Nature Geoscience* 1: 38-42. doi:10.1038/ngeo.2007.28.

Rotzoll, K., & Fletcher, C. H. (2013). Assessment of groundwater inundation as a consequence of sea-level rise. Nature Climate Change, 3(5), 477-481.

Scarborough, C., Welch, Z.S., Wilson, J., Gleason, M.G., Saccomanno, V.R., & Halpern, B.S. (2022). "The Historical Ecology of Coastal California." Ocean & Coastal Management 230: 106352. https://www.sciencedirect.com/science/article/pii/S0964569122003283

Schaeffer M, W Hare, S Rahmstorf, M Vermeer. 2012. Long-term sea-level rise implied by 1.5˚C and 2˚C warming levels. *Nature Climate Change* 2: 867-870. doi:10.1038/nclimate1584.

Schubert JE, BF Sanders. 2012. Building treatments for urban flood inundation models and implications for predictive skill and modeling efficiency. *Advances in Water Resources* 41: 49-64. doi:10.1016/j.advwatres.2012.02.012.

Spencer, T., Schuerch, M., Nicholls, R. J., Hinkel, J., Lincke, D., Vafeidis, A. T., ... & Brown, S. (2016). Global coastal wetland change under sea-level rise and related stresses: The DIVA Wetland Change Model. *Global and Planetary Change, 139*, 15-30.

Swirad, Z. M., & Young, A. P. (2022). Spatial and temporal trends in California coastal cliff retreat. *Geomorphology, 412*, 108318.

Thio, HK. (2019). *Probabilistic Tsunami Hazard Maps for the State of California (Phase 2)*. Report prepared by AECOM for the California Geological Survey.

Vellinga P, C Katsman, A Sterl, J Beersma, W Hazeleger, J Church, R Kopp, D Kroon, M Oppenheimer, H Plag, S Rahmstorf, J Lowe, J Ridley, H von Storch, D Vaughan, R van de Wal, R Weisse, J Kwadijk, R Lammersen, N Marinova. 2009. *Exploring high-end climate change scenarios for flood protection of the Netherlands. International Scientific Assessment*, Prepared for the Delta Committee. Scientific Report WR-2009-05. KNMI, Alterra, The Netherlands. 150pp. http://edepot.wur.nl/191831.

Vermeer M, S Rahmstorf. 2009. Global sea level linked to global temperature. *Proceedings of the National Academy of Science* 108: 21527-21532. doi:10.1073/pnas.0907765106.

Vitousek, S., Barnard, P. L., Limber, P., Erikson, L., & Cole, B. (2017). A model integrating longshore and cross-shore processes for predicting long-term shoreline response to climate change. *Journal of Geophysical Research: Earth Surface*, 122(4), 782-806.

Walder JS, P Watts, OE Sorensen, K Janssen. 2003. Tsunamis generated by subaerial mass flows. *Journal of Geophysical Research: Solid Earth (1978–2012)* 108: B5. doi: 10.1029/2001JB000707.

# Appendix C. Resources for Addressing Sea Level Rise

This section contains lists of sea level rise viewers, guidance documents, and state agency-produced resources and data clearing houses related to sea level rise. These resources will be particularly relevant for informing Steps 1-7 of the LCP planning process (Chapter 5). This section also provides a summary of the Commission's Environmental Justice and LCP Toolkit that is a resource for local jurisdictions to consider and incorporate environmental justice into their LCP planning process.

| Resource | Description | Link |
|---|---|---|
| **Key State Guidance and Research** | | |
| **California State Sea Level Rise Guidance (OPC 2024)** | The Ocean Protection Council's *State of California Sea-Level Rise Guidance* (Guidance) provides a synthesis of the best available science on sea level rise scenarios for California, a stepwise approach for state agencies and local governments to evaluate those scenarios and related hazard information in decision-making and preferred coastal adaptation approaches. This Coastal Commission SLR Policy Guidance includes the same sea level rise scenarios. It also includes recommendations about the application of the best available science that are aligned with those in the *State Sea Level Rise Guidance* but most specific to the Coastal Commission context. | https://opc.ca.gov/wp-content/uploads/2024/05/Item-4-Exhibit-A-Final-Draft-Sea-Level-Rise-Guidance-Update-2024-508.pdf |
| **California Climate Assessments**<br><br>**Fourth California Climate Assessment (2018)**<br><br>**Fifth California Climate Assessment (2023-2025)** | Senate Bill 1320 (Stern, 2020) called on the State to advance action-based science by developing California Climate Change Assessments at least every five years. Previous Assessments (2006, 2009, 2012, 2018) contributed to a growing understanding about the impacts of climate change in California and offer communities and decision makers the tools to take action, including a technical report that provides sea level rise projections. The Fifth Assessment is currently underway. | Home page: https://www.climateassessment.ca.gov/<br><br>Access 4th Assessment SLR projections here.<br><br>Fifth Assessment data products are available via Cal-Adapt Analytics Engine |
| **California Climate Adaptation Strategy (2021)** | The *California Climate Adaptation Strategy*, mandated by Assembly Bill 1482 (Gordon, 2015), links together the state's existing and planned climate adaptation efforts, showing how they collectively achieve | https://climateresilience.ca.gov/ |

| | | |
|---|---|---|
| | California's six climate resilience priorities. Its goal is to enable a coordinated, integrated approach to building climate resilience. | |
| **Making California's Coast Resilient to Sea Level Rise: Principles for Aligned State Action (2020)** | Adopted by California state agencies with coastal, bay, and shoreline climate resilience responsibilities, these principles guide unified action toward sea level rise resilience for California's coastal communities, ecosystems, and economies. The principles relate to the following subjects: Best Available Science, Partnerships, Alignment, Communications, Local Support, Coastal Resilience Projects, and Equity. | https://opc.ca.gov/wp-content/uploads/2021/01/State-SLR-Principles-Doc_Oct2020.pdf |
| **State Agency Sea-Level Rise Action Plan for California (2022)** | This Action Plan is a statewide, collaborative document designed to carry out a preceding document, *Making California's Coast Resilient to Sea Level Rise: Principles for Aligned State Action.* It identifies proposed new and ongoing work for 2022-2027 and includes over 80 trackable actions, covering both a regional and statewide scope. | https://www.opc.ca.gov/webmaster/_media_library/2022/02/Item-7_Exhibit-A_SLR-Action-Plan-Final.pdf |
| **Coastal Hazard Resilience Plan Alignment Guide (2023)** | The Coastal Resilience Compass is a planning guide that helps planners along the California coast align their planning efforts to address climate change and manage future risks. It discusses how to align Local Coastal Programs (LCPs), Local Hazard Mitigation Plans (LHMPs), General plans (with a specific focus on safety and Housing Elements), climate adaptation plans, and implementation plans. | https://resilientca.org/plan-alignment/coastal-resilience-compass/ |
| **Other Coastal Commission Guidance Documents** | | |
| **Critical Infrastructure at Risk: Sea Level Rise Adaptation Planning for California's Coastal Zone (CCC 2021)** | This guidance promotes resilient coastal infrastructure and protection of coastal resources by providing recommendations for stakeholders on how to plan effectively for the impacts of sea level rise on coastal infrastructure, a description of the regulatory framework that applies to adaptation planning for infrastructure, and model policies that can be used by local governments as a tool for updating LCPs. It addresses two main types of infrastructure – transportation and water – and presents six key considerations for successful adaptation planning. | https://www.coastal.ca.gov/climate/slr/vulnerability-adaptation/infrastructure/ |
| **Public Trust Guiding Principles and** | This Commission-adopted document describes how the public trust doctrine relates to the Coastal Commission's and local governments' work on sea level rise planning under the Coastal Act. It presents a | https://www.coastal.ca.gov/public-trust/ |

| | | |
|---|---|---|
| **Action Plan (CCC 2023)** | series of principles to guide the Commission's and local governments' work on this subject as well as a set of next steps and research priorities for the Commission. | |
| **California Coastal Commission Sustainability Principles: A Framework for Reducing Greenhouse Gas Emissions in the Coastal Zone (CCC 2023)** | This set of Commission-adopted principles aim to improve climate resiliency and minimize the effects of climate change throughout the coastal zone. The principles align with and help carry out the Commission's 2021 to 2025 Strategic Plan, particularly with respect to Objective 4.5 to facilitate greenhouse gas reductions in LCPs, CDPs, and other efforts. The principles also align with the state's goal of carbon neutrality by 2045 and related statewide climate strategies. | https://documents.coastal.ca.gov/assets/lcp/LUPUpdate/Sustainability%20Principles_Adopted%20August%209%202023%20Final.pdf |
| **Progress in California: status of adaptation planning, LCPs, and case studies** | | |
| **Coastal Commission website** | The Coastal Commission's LCP Local Assistance Grant Program webpage provides a "Status of Grantees" chart that links to various local governments' sea level rise vulnerability assessments, adaptation plans, and LCP updates. This chart is a good resource for those looking for examples of recently completed studies and plans related to SLR. | https://www.coastal.ca.gov/lcp/grants/ |
| **California Coastal Adaptation Planning Inventory** | This online Storymap summarizes the status of coastal adaptation planning in California's 76 coastal jurisdictions along the outer coast, including community vulnerability assessments, adaptation strategies, and local coastal planning under the Coastal Act. The inventory was developed by the research team at UCSB's Ocean and Coastal Policy Center, with major funding from the California Ocean Protection Council (OPC) under Proposition 68, and will be periodically updated. | https://storymaps.arcgis.com/stories/5c3ec4198b564750886cc75b95a8e492 |
| **California Adaptation Clearinghouse** | Hosted by the OPR Integrated Climate Adaptation and Resiliency Program (ICARP), the *California Adaptation Clearinghouse* is a searchable database of adaptation and resilience resources organized by climate impact, topic, and region. Types of resources in the Clearinghouse include assessments, plans, or strategies; communication and educational materials; planning and policy guidance; data, tools, and research; and case studies, projects, and example planning documents. | https://resilientca.org/ |

| Funding | | |
|---|---|---|
| **Coastal Commission LCP Local Assistance Grant Program** | The Coastal Commission's LCP Local Assistance Grant Program provides funds to support local governments in completing or updating Local Coastal Programs (LCP) consistent with the California Coastal Act, with special emphasis on planning for sea level rise and climate change. Grant-funded work has included the sea level rise vulnerability assessments, technical studies, economic analyses, adaptation planning and reports, public outreach and engagement, and LCP policy development. Additional program details, including eligibility information and evaluation criteria, are provided on the program website. | https://www.coastal.ca.gov/lcp/grants/ |
| **Ocean Protection Council SB1 Grant Program** | OPC's SB 1 SLR Adaptation Planning Grant Program (SB 1 Grant Program) aims to provide funding for coastal communities to develop consistent sea level rise adaptation plans and projects to build resilience to sea level rise along the entire coast of California and San Francisco Bay. One track funds projects in the pre-planning, data collection, and planning phases, and another funds projects in the implementation phase. | https://www.opc.ca.gov/sb-1-funding/ |
| **State Coastal Conservancy** | The California State Coastal Conservancy has a variety of grant programs to support increased public access to and along the coast, protection and restoration of natural lands and wildlife habitat, preservation of working lands, and increased community resilience to climate change. Funding can support a variety of project stages including feasibility studies, property acquisition, community engagement, environmental review, and monitoring. More information on Conservancy grants can be found on their website. | https://scc.ca.gov/grants/ |
| **Grants.ca.gov** | The California Grants Portal, a project by the California State Library, is a search engine for all grants and loans offered on a competitive or first-come basis by California state agencies. Agencies that have historically funded projects related to SLR adaptation include: the Federal Emergency Management Agency (FEMA), California Governor's Office of Emergency Services (CalOES), Ocean Protection Council (OPC), Office of Planning and Research (OPR), Strategic Growth Council (SGC), State Coastal Conservancy (SCC), and California Coastal Commission (CCC). | Grants.ca.gov |

| | | |
|---|---|---|
| **Coastal Quest Coastal Funding Database** | This database provides current funding opportunities that support coastal resilience programs and coastal multi-benefit nature-based solutions, including disaster resilience, 30×30 protection, conservation, and restoration. The database is updated weekly. | https://www.coastal-quest.org/our-programs/coastal-funding-database/ |
| **SLR Mapping & Scenario Tools** | | |
| **Our Coast Our Future (CoSMoS)** | The USGS's Coastal Storm Modeling System (CoSMoS) provides maps of various sea level rise-related hazards under half-meter incremental sea level rise scenarios. CoSMoS provides more detailed predictions of coastal flooding due to both future sea level rise and storms integrated with long-term coastal evolution (i.e., beach changes and cliff/bluff retreat) over large geographic areas (100s of kilometers). While projections of groundwater rise and shoreline change are available statewide, other hazards are available from Point Arena to the Mexico border and will be available statewide in the coming years. | Access the online viewer at ourcoastourfuture.org<br><br>Download GIS data layers at https://www.sciencebase.gov/catalog/item/5633fea2e4b048076347f1cf and view them on Cal Adapt at Cal-Adapt.org<br><br>(Data is also hosted on the 30x30 California Climate Explorer) |
| **Hazard Exposure Reporting and Analytics (HERA) (CoSMoS data)** | The USGS's CoSMoS data is hosted on both ourcoastourfuture.org (above) and on HERA, the Hazard Exposure Reporting and Analytics website. HERA allows users to overlay the hazard data layers of CoSMoS with a host of different spatial datasets on communities, residents, employees, land types, habitats, parcels, and various types of critical infrastructure and facilities. It provides users with statistics regarding the number of people and assets within any give hazard zone. | https://www.usgs.gov/apps/hera/ |
| **NOAA Sea Level Rise Viewer** | An example of a "bathtub model," this viewer shows areas that are hydrologically connected to the ocean and are located at 1-foot increments of elevation above mean sea level rise, representing the geographic areas that would become inundated with sea level rise up to 10 feet. Storms, waves, erosion, and other coastal processes are not represented. | https://coast.noaa.gov/digitalcoast/tools/slr.html |

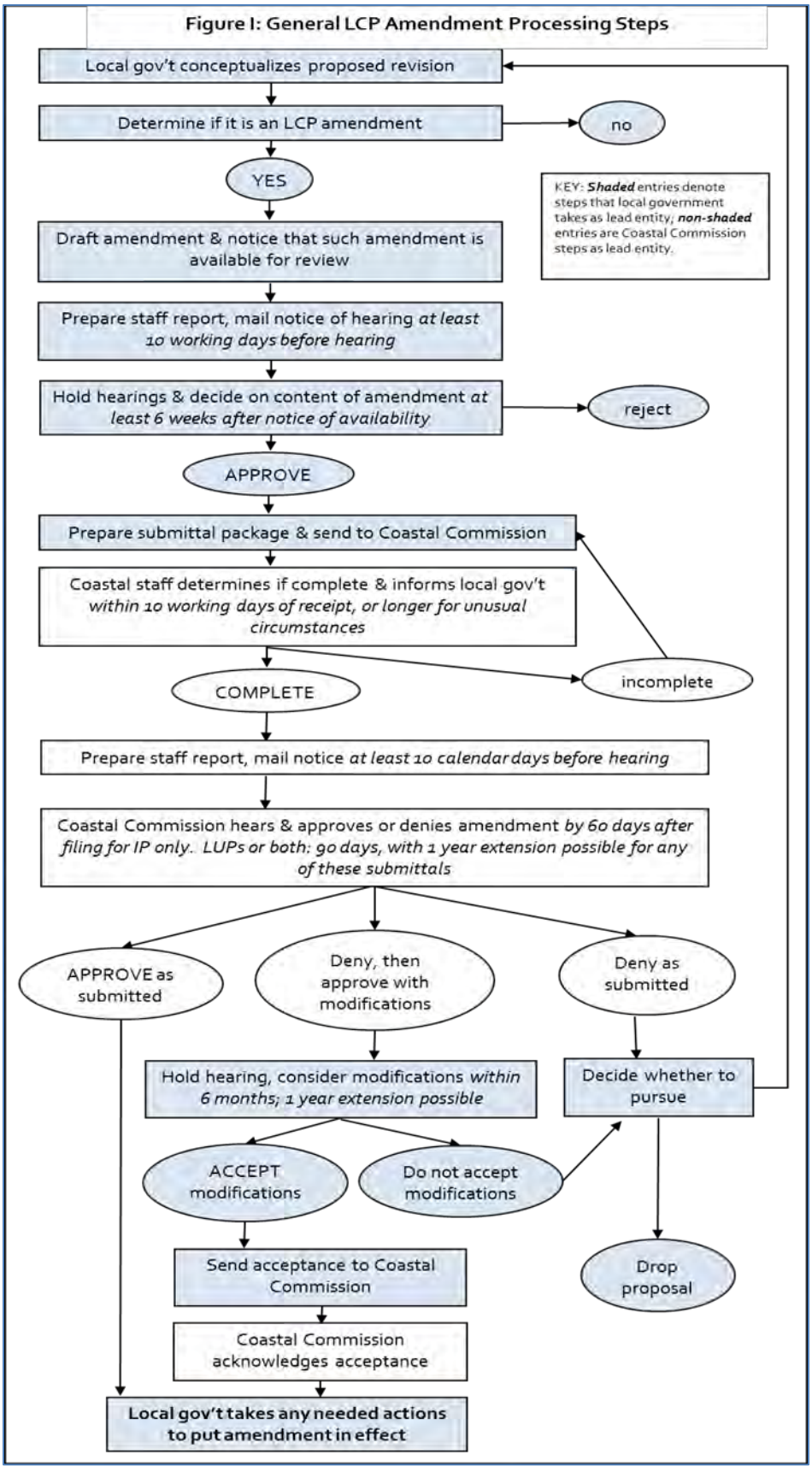
| | | |
|---|---|---|
| **NASA Flooding Analysis Tool** | This tool describes the frequency of high-tide flooding will change under various sea level rise scenarios. Users can view sea-level observations and assess past high-tide flooding frequency, view future changes in high-tide flooding frequency under various sea level rise scenarios, and view statistics and inflection points that support decision making. The tool was developed with funding from the NASA Sea Level Change Team by scientists at the University of Hawaii Sea Level Center and is based on the methods of Thompson *et al*., 2021. | https://sealevel.nasa.gov/data_tools/15/ |
| **Cal-Adapt – Exploring California's Climate** | Cal-Adapt hosts two datasets on sea level rise hazards: CoSMoS data and CalFloD3D-TFS. The CoSMoS data is the same as the dataset described above. The CalFloD3D-TFS assesses potential coastal flooding exposure to areas of interest to the Transportation Fuel Sector (TFS) over five 20-year planning horizons and the Fourth Assessment scenarios using a 3Di hydrodynamic model during extremely high sea level events (72 hour storm event). Due to the inclusion of aboveground objects such as buildings and levees, CalFloD-3D depicts detailed land surface details. Details are described in Radke *et al*., 2018.<br><br>Cal-Adapt Analytics Engine provides the foundational climate and environmental data that underpins the California Climate Change Assessment, including sea level rise information. | http://cal-adapt.org/tools/slr-calflod-3d/<br><br>https://analytics.cal-adapt.org/ |
| **NASA Interagency Sea Level Rise Scenario Tool** | The NASA Interagency Sea Level Rise Scenario Tool provides graphs of the sea level rise scenarios in the report, *Global and Regional Sea Level Rise Scenarios for the United States* (Sweet *et al*., 2022). Scenarios are available for all U.S. states and territories, out to the year 2150. | https://sealevel.nasa.gov/task-force-scenario-tool?psmsl_id=1352 |
| **NASA & IPCC Sea Level Rise Projection Tool** | The NASA Sea Level Projection Tool allows users to visualize and download the sea level projections from the IPCC *Sixth Assessment Report* (AR6). Along with global mean sea level rise projections, projections are available for various regions and tide gauge locations around the globe. | https://sealevel.nasa.gov/ipcc-ar6-sea-level-projection-tool?type=global |

The Coastal Commission has developed a resource guide to assist local governments in integrating environmental justice into their LCPs. This guide is a direct response to the Commission's Environmental Justice Policy, which encourages local authorities to include

environmental justice considerations in their coastal management efforts, particularly in addressing sea level rise and ensuring community involvement. The guide is enriched with extensive research, best practices, and examples from jurisdictions like Morro Bay and Half Moon Bay, which have successfully incorporated environmental justice measures into their LCPs. It offers practical advice on amending LCPs to reflect environmental justice concerns, building meaningful relationships with affected communities, and ensuring that these communities' perspectives and needs are central to the planning process. This resource is designed to be a comprehensive tool for local governments to enhance their coastal management strategies and protect vulnerable populations while managing coastal resources effectively. For more detailed information and guidance on how to integrate environmental justice into Local Coastal Programs, you can access the full Resources for Addressing Environmental Justice Through Local Coastal Programs guide on the Commission's webpage.

# Appendix D. General LCP Amendment Processing Steps and Best Practices

Sea level rise is one of many topics that should be addressed in a Local Coastal Program (LCP) or LCP amendment. The Coastal Commission offers a Local Coastal Program (LCP) Update Guide that outlines the broad process for amending or certifying an LCP, including guidance for both Land Use Plans and Implementation Plans. It addresses major Coastal Act concerns, including public access, recreation and visitor serving facilities, water quality protection, ESHA and natural resources, agricultural resources, new development, archaeological and cultural resources, scenic and visual resources, coastal hazards, shoreline erosion and protective devices, energy and industrial development, and timberlands. Therefore, this *Sea Level Rise Policy Guidance* should be used in conjunction with the LCP Update Guide to perform complete LCP amendments or certifications. The following figure depicts the general LCP amendment process.


Figure I: General LCP Amendment Processing Steps
Local gov't conceptualizes proposed revision
Determine if it is an LCP amendment
no
YES
KEY: Shaded entries denote steps that local government takes as lead entity; non-shaded entries are Coastal Commission steps as lead entity.
Draft amendment & notice that such amendment is available for review
Prepare staff report, mail notice of hearing at least 10 working days before hearing
Hold hearings & decide on content of amendment at least 6 weeks after notice of availability
reject
APPROVE
Prepare submittal package & send to Coastal Commission
Coastal staff determines if complete & informs local gov't within 10 working days of receipt, or longer for unusual circumstances
incomplete
COMPLETE
Prepare staff report, mail notice at least 10 calendar days before hearing
Coastal Commission hears & approves or denies amendment by 60 days after filing for IP only. LUPs or both: 90 days, with 1 year extension possible for any of these submittals
APPROVE as submitted
Deny, then approve with modifications
Deny as submitted
Hold hearing, consider modifications within 6 months; 1 year extension possible
Decide whether to pursue
ACCEPT modifications
Do not accept modifications
Send acceptance to Coastal Commission
Drop proposal
Coastal Commission acknowledges acceptance
Local gov't takes any needed actions to put amendment in effect

*This page intentionally left blank*



# Appendix E. Primary Coastal Act Policies Related to Sea Level Rise and Coastal Hazards

**Legislative Findings Relating to Sea Level Rise**

Section 30006.5 of the Coastal Act states (Legislative findings and declarations; technical advice and recommendations) states (emphasis added):

> The Legislature further finds and declares that sound and timely scientific recommendations are necessary for many coastal planning, conservation, and development decisions and that the commission should, in addition to developing its own expertise in significant applicable fields of science, interact with members of the scientific and academic communities in the social, physical, and natural sciences so that the commission may receive technical advice and recommendations with regard to its decision-making, especially with regard to issues such as coastal erosion and geology, marine biodiversity, wetland restoration, the question of sea level rise, desalination plants, and the cumulative impact of coastal zone developments.

**Environmental Justice**

Section 30013 of the Coastal Act (Environmental Justice) states:

> The Legislature further finds and declares that in order to advance the principles of environmental justice and equality, subdivision (a) of Section 11135 of the Government Code and subdivision (e) of Section 65040.12 of the Government Code apply to the commission and all public agencies implementing the provisions of this division. As required by Section 11135 of the Government Code, no person in the State of California, on the basis of race, national origin, ethnic group identification, religion, age, sex, sexual orientation, color, genetic information, or disability, shall be unlawfully denied full and equal access to the benefits of, or be unlawfully subjected to discrimination, under any program or activity that is conducted, operated, or administered pursuant to this division, is funded directly by the state for purposes of this division, or receives any financial assistance from the state pursuant to this division. (Added by Ch. 578, Stats. 2016.)

**Public Access and Recreation**

Section 30210 of the Coastal Act (Access; recreational opportunities; posting) states:

> In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Section 30211 of the Coastal Act (Development not to interfere with access) states:

> Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use

of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

Section 30212 of the Coastal Act (New development projects) states:

(a) Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) adequate access exists nearby, or (3) agriculture would be adversely affected. Dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.

Section 30214 of the Coastal Act (Implementation of public access policies; legislative intent) states:

(a) The public access policies of this article shall be implemented in a manner that takes into account the need to regulate the time, place, and manner of public access depending on the facts and circumstances in each case including, but not limited to, the following:

(1) Topographic and geologic site characteristics.

(2) The capacity of the site to sustain use and at what level of intensity.

(3) The appropriateness of limiting public access to the right to pass and repass depending on such factors as the fragility of the natural resources in the area and the proximity of the access area to adjacent residential uses.

(4) The need to provide for the management of access areas so as to protect the privacy of adjacent property owners and to protect the aesthetic values of the area by providing for the collection of litter.

(b) It is the intent of the Legislature that the public access policies of this article be carried out in a reasonable manner that considers the equities and that balances the rights of the individual property owner with the public's constitutional right of access pursuant to Section 4 of Article X of the California Constitution. Nothing in this section or any amendment thereto shall be construed as a limitation on the rights guaranteed to the public under Section 4 of Article X of the California Constitution.

(c) In carrying out the public access policies of this article, the commission and any other responsible public agency shall consider and encourage the utilization of innovative access management techniques, including, but not limited to, agreements with private organizations which would minimize management costs and encourage the use of volunteer programs.

Section 30220 of the Coastal Act (Protection of certain water-oriented activities) states:

Coastal areas suited for water-oriented recreational activities that cannot readily be provided at inland water areas shall be protected for such uses.

Section 30221 of the Coastal Act (Oceanfront land; protection for recreational use and development) states:

> Oceanfront land suitable for recreational use shall be protected for recreational use and development unless present and foreseeable future demand for public or commercial recreational activities that could be accommodated on the property is already adequately provided for in the area.

Section 30223 of the Coastal Act (Upland areas) states:

> Upland areas necessary to support coastal recreational uses shall be reserved for such uses, where feasible.

**Wetlands and Environmentally Sensitive Resources**

Section 30231 of the Coastal Act (Biological productivity; water quality) states in part:

> The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored…

Section 30233 of the Coastal Act (Diking, filling or dredging; continued movement of sediment and nutrients) states:

> (a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

Section 30240 of the Coastal Act (Environmentally sensitive habitat areas; adjacent developments) states:

> (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.
>
> (b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Coastal Act Section 30121 defines “Wetland” as follows:

> "Wetland" means lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.

The California Code of Regulations Section 13577(b) of Title 14, Division 5.5, Article 18 defines "Wetland" as follows:

> (1) Measure 100 feet landward from the upland limit of the wetland. Wetland shall be defined as land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats. For purposes of this section, the upland limit of a wetland shall be defined as:
>
> (A) the boundary between land with predominantly hydrophytic cover and land with predominantly mesophytic or xerophytic cover;
>
> (B) the boundary between soil that is predominantly hydric and soil that is predominantly nonhydric; or
>
> (C) in the case of wetlands without vegetation or soils, the boundary between land that is flooded or saturated at some time during years of normal precipitation, and land that is not.
>
> (2) For the purposes of this section, the term "wetland" shall not include wetland habitat created by the presence of and associated with agricultural ponds and reservoirs where:
>
> (A) the pond or reservoir was in fact constructed by a farmer or rancher for agricultural purposes; and
>
> (B) there is no evidence (e.g., aerial photographs, historical survey, etc.) showing that wetland habitat pre-dated the existence of the pond or reservoir. Areas with drained hydric soils that are no longer capable of supporting hydrophytes shall not be considered wetlands.

In addition, Coastal Act Section 30107.5 defines "Environmentally sensitive area" as follows:

> "Environmentally sensitive area" means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

**Agricultural and Timber Lands**

Section 30241 of the Coastal Act (Prime agricultural land; maintenance in agricultural production) states:

> The maximum amount of prime agricultural land shall be maintained in agricultural production to assure the protection of the areas' agricultural economy, and conflicts shall be minimized between agricultural and urban land uses…

Section 30242 of the Coastal Act (Lands suitable for agricultural use; conversion) states:

> All other lands suitable for agricultural use shall not be converted to nonagricultural uses unless (1) continued or renewed agriculture use is not feasible, or (2) such conversion would preserve prime agricultural land or concentrate development consistent with Section 30250. Any such permitted conversion shall be compatible with continue agricultural use on surrounding lands.

Section 30243 of the Coastal Act (Productivity of soils and timberlands; conversions) states:

> The long-term productivity of soils and timberlands shall be protected, and conversions of coastal commercial timberlands in units of commercial size to other uses or their division into units of noncommercial size shall be limited to providing for necessary timber processing and related facilities.

**Archaeological and Paleontological Resources**

Section 30244 of the Coastal Act (Archaeological or paleontological resources) states:

> Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required.

**Marine Resources**

Section 30230 of the Coastal Act (Marine resources; maintenance) states:

> Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231 of the Coastal Act (Biological productivity; water quality) states:

> The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms

> and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Section 30233 of the Coastal Act (Diking, filling or dredging; continued movement of sediment and nutrients) states:

> (a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects…
>
> (d) Erosion control and flood control facilities constructed on watercourses can impede the movement of sediment and nutrients that would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a Coastal Development Permit for these purposes are the method of placement, time of year of placement, and sensitivity of the placement area.

Section 30234 of the Coastal Act (Commercial fishing and recreational boating facilities**)** states:

> Facilities serving the commercial fishing and recreational boating industries shall be protected and, where feasible, upgraded. Existing commercial fishing and recreational boating harbor space shall not be reduced unless the demand for those facilities no longer exists or adequate substitute space has been provided. Proposed recreational boating facilities shall, where feasible, be designed and located in such a fashion as not to interfere with the needs of the commercial fishing industry.

Section 30234.5 of the Coastal Act (Economic, commercial, and recreational importance of fishing) states:

> The economic, commercial, and recreational importance of fishing activities shall be recognized and protected.

**Coastal Development**

Section 30250 of the Coastal Act (Location; existing developed area) states:

> (a) New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able

> to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. In addition, land divisions, other than leases for agricultural uses, outside existing developed areas shall be permitted only where 50 percent of the usable parcels in the area have been developed and the created parcels would be no smaller than the average size of surrounding parcels.
>
> (b) Where feasible, new hazardous industrial development shall be located away from existing developed areas.
>
> (c) Visitor-serving facilities that cannot feasibly be located in existing developed areas shall be located in existing isolated developments or at selected points of attraction for visitors.

Section 30251 of the Coastal Act (Scenic and visual qualities) states:

> The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas...

Section 30253 the Coastal Act (Minimization of adverse impacts) states in part:

> New development shall do all of the following:
>
> (a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.
>
> (b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs...

Section 30235 of the Coastal Act (Construction altering natural shoreline) states:

> Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fishkills should be phased out or upgraded where feasible.

Section 30236 of the Coastal Act (Water supply and flood control) states:

> Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (l) necessary water

supply projects, (2) flood control projects where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.

**Sea Level Rise**

Section 30270 of the Coastal Act (Sea level rise) states:

> The Commission shall take into account the effects of sea level rise in coastal resources planning and management policies and activities in order to identify, assess, and, to the extent feasible, avoid and mitigate the adverse effects of sea level rise.

**Ports**

Section 30705 of the Coastal Act (Diking, filling or dredging water areas) states:

> (a) Water areas may be diked, filled, or dredged when consistent with a certified port master plan only for the following: …
>
> (b) The design and location of new or expanded facilities shall, to the extent practicable, take advantage of existing water depths, water circulation, siltation patterns, and means available to reduce controllable sedimentation so as to diminish the need for future dredging.
>
> (c) Dredging shall be planned, scheduled, and carried out to minimize disruption to fish and bird breeding and migrations, marine habitats, and water circulation. Bottom sediments or sediment elutriate shall be analyzed for toxicants prior to dredging or mining, and where water quality standards are met, dredge spoils may be deposited in open coastal water sites designated to minimize potential adverse impacts on marine organisms, or in confined coastal waters designated as fill sites by the master plan where such spoil can be isolated and contained, or in fill basins on upland sites. Dredge material shall not be transported from coastal waters into estuarine or fresh water areas for disposal.

Section 30706 of the Coastal Act (Fill) states:

> In addition to the other provisions of this chapter, the policies contained in this section shall govern filling seaward of the mean high tide line within the jurisdiction of ports:
>
> > (a) The water area to be filled shall be the minimum necessary to achieve the purpose of the fill.
> >
> > (b) The nature, location, and extent of any fill, including the disposal of dredge spoils within an area designated for fill, shall minimize harmful effects to coastal resources, such as water quality, fish or wildlife resources, recreational

resources, or sand transport systems, and shall minimize reductions of the volume, surface area, or circulation of water.

(c) The fill is constructed in accordance with sound safety standards which will afford reasonable protection to persons and property against the hazards of unstable geologic or soil conditions or of flood or storm waters.

(d) The fill is consistent with navigational safety.

Section 30708 of the Coastal Act (Location, design and construction of port related developments) states:

All port-related developments shall be located, designed, and constructed so as to:

(a) Minimize substantial adverse environmental impacts.

(b) Minimize potential traffic conflicts between vessels.

(c) Give highest priority to the use of existing land space within harbors for port purposes, including, but not limited to, navigational facilities, shipping industries, and necessary support and access facilities.

(d) Provide for other beneficial uses consistent with the public trust, including, but not limited to, recreation and wildlife habitat uses, to the extent feasible.

(e) Encourage rail service to port areas and multicompany use of facilities.

**Public Works Facilities**

According to Coastal Act Section 30114, public works facilities include:

(a) All production, storage, transmission, and recovery facilities for water, sewerage, telephone, and other similar utilities owned or operated by any public agency or by any utility subject to the jurisdiction of the Public Utilities Commission, except for energy facilities.

(b) All public transportation facilities, including streets, roads, highways, public parking lots and structures, ports, harbors, airports, railroads, and mass transit facilities and stations, bridges, trolley wires, and other related facilities. For purposes of this division, neither the Ports of Hueneme, Long Beach, Los Angeles, nor San Diego Unified Port District nor any of the developments within these ports shall be considered public works.

(c) All publicly financed recreational facilities, all projects of the State Coastal Conservancy, and any development by a special district.

(d) All community college facilities.

**Greenhouse Gas Emissions Reduction**

Section 30250(a) of the Coastal Act (Location, existing developed areas states) in part:

> (a) New residential, commercial, or industrial development, except as otherwise provided in this division, shall be located within, contiguous with, or in close proximity to, existing developed areas able to accommodate it or, where such areas are not able to accommodate it, in other areas with adequate public services and where it will not have significant adverse effects, either individually or cumulatively, on coastal resources. In addition, land divisions, other than leases for agricultural uses, outside existing developed areas shall be permitted only where 50 percent of the usable parcels in the area have been developed and the created parcels would be no smaller than the average size of surrounding parcels.

Section 30252 of the Coastal Act (Maintenance and enhancement of public access) states:

> The location and amount of new development should maintain and enhance public access to the coast by (1) facilitating the provision or extension of transit service, (2) providing commercial facilities within or adjoining residential development or in other areas that will minimize the use of coastal access roads, (3) providing nonautomobile circulation within the development, (4) providing adequate parking facilities or providing substitute means of serving the development with public transportation, (5) assuring the potential for public transit for high intensity uses such as high-rise office buildings, and by (6) assuring that the recreational needs of new residents will not overload nearby coastal recreation areas by correlating the amount of development with local park acquisition and development plans with the provision of onsite recreational facilities to serve the new development.

Section 30253(d) of the Coastal Act (Minimization of adverse impacts) states in part:

> New Development shall:
>
> > (d) Minimize energy consumption and vehicle miles traveled….

*This page intentionally left blank*

# Appendix F. Sea Level Rise Scenarios for 14 California Tide Gauges

## Map of Tide Gauge Locations




Figure F-1. Map of tide gauge locations (from OPC 2024)

Table F-1. Sea Level Scenarios for Crescent City

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 |
| **2040** | 0.1 | 0.2 | 0.2 | 0.3 | 0.4 |
| **2050** | 0.1 | 0.3 | 0.4 | 0.6 | 0.8 |
| **2060** | 0.1 | 0.4 | 0.6 | 1.0 | 1.5 |
| **2070** | 0.2 | 0.4 | 0.8 | 1.6 | 2.3 |
| **2080** | 0.2 | 0.6 | 1.2 | 2.3 | 3.4 |
| **2090** | 0.2 | 0.7 | 1.7 | 3.0 | 4.5 |
| **2100** | 0.2 | 0.8 | 2.3 | 3.9 | 5.6 |
| **2110** | 0.2 | 0.9 | 2.9 | 4.7 | 6.9 |
| **2120** | 0.2 | 1.0 | 3.4 | 5.3 | 7.9 |
| **2130** | 0.2 | 1.2 | 3.8 | 5.8 | 8.7 |
| **2140** | 0.2 | 1.3 | 4.2 | 6.3 | 9.6 |
| **2150** | 0.2 | 1.4 | 4.7 | 6.8 | 10.3 |

Median values of Sea Level Scenarios, in feet, for each decade from 2020 to 2150, with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion. The red box highlights the three scenarios that the *State Sea Level Rise Guidance* (OPC 2024) and this guidance recommend for use in various planning and project contexts.

Table F-2. Sea Level Scenarios for North Spit, Humboldt Bay

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.5 | 0.6 | 0.6 | 0.6 | 0.7 |
| **2040** | 0.7 | 0.8 | 0.9 | 1 | 1.1 |
| **2050** | 0.9 | 1 | 1.2 | 1.4 | 1.6 |
| **2060** | 1.1 | 1.3 | 1.5 | 2 | 2.4 |
| **2070** | 1.3 | 1.5 | 1.9 | 2.7 | 3.5 |
| **2080** | 1.4 | 1.8 | 2.5 | 3.6 | 4.7 |
| **2090** | 1.6 | 2.1 | 3.1 | 4.5 | 6 |
| **2100** | 1.8 | 2.4 | 3.9 | 5.5 | 7.3 |
| **2110** | 1.9 | 2.7 | 4.6 | 6.5 | 8.7 |
| **2120** | 2.1 | 3 | 5.3 | 7.3 | 9.9 |
| **2130** | 2.3 | 3.3 | 5.9 | 8 | 10.8 |
| **2140** | 2.4 | 3.5 | 6.5 | 8.6 | 11.9 |
| **2150** | 2.6 | 3.8 | 7.1 | 9.3 | 12.8 |

Median values of Sea Level Scenarios, in feet, for each decade from 2020 to 2150, with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion. The red box highlights the three scenarios that the *State Sea Level Rise Guidance* (OPC 2024) and this guidance recommend for use in various planning and project contexts.

Table F-3. Sea Level Scenarios for Arena Cove

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 |
| **2040** | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 |
| **2050** | 0.4 | 0.5 | 0.7 | 0.9 | 1.1 |
| **2060** | 0.5 | 0.7 | 0.9 | 1.4 | 1.8 |
| **2070** | 0.5 | 0.8 | 1.2 | 2.1 | 2.8 |
| **2080** | 0.6 | 1.0 | 1.7 | 2.8 | 3.9 |
| **2090** | 0.7 | 1.2 | 2.2 | 3.6 | 5.1 |
| **2100** | 0.8 | 1.4 | 2.9 | 4.5 | 6.4 |
| **2110** | 0.8 | 1.6 | 3.6 | 5.4 | 7.6 |
| **2120** | 0.9 | 1.7 | 4.1 | 6.1 | 8.7 |
| **2130** | 0.9 | 1.9 | 4.6 | 6.7 | 9.6 |
| **2140** | 1.0 | 2.1 | 5.1 | 7.3 | 10.5 |
| **2150** | 1.0 | 2.3 | 5.6 | 7.8 | 11.4 |

Median values of Sea Level Scenarios, in feet, for each decade from 2020 to 2150, with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion. The red box highlights the three scenarios that the *State Sea Level Rise Guidance* (OPC 2024) and this guidance recommend for use in various planning and project contexts.

Table F-4. Sea Level Scenarios for Point Reyes

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.3 | 0.4 | 0.4 | 0.4 | 0.5 |
| **2040** | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
| **2050** | 0.5 | 0.7 | 0.8 | 1.0 | 1.3 |
| **2060** | 0.6 | 0.8 | 1.1 | 1.6 | 2.0 |
| **2070** | 0.7 | 1.0 | 1.4 | 2.2 | 3.0 |
| **2080** | 0.8 | 1.2 | 1.9 | 3.0 | 4.1 |
| **2090** | 0.9 | 1.4 | 2.5 | 3.9 | 5.4 |
| **2100** | 1.0 | 1.6 | 3.1 | 4.8 | 6.6 |
| **2110** | 1.1 | 1.8 | 3.8 | 5.7 | 7.9 |
| **2120** | 1.2 | 2.0 | 4.4 | 6.4 | 9.0 |
| **2130** | 1.2 | 2.2 | 4.9 | 7.0 | 9.9 |
| **2140** | 1.3 | 2.4 | 5.5 | 7.6 | 10.9 |
| **2150** | 1.4 | 2.7 | 6.0 | 8.2 | 11.8 |

Median values of Sea Level Scenarios, in feet, for each decade from 2020 to 2150, with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion. The red box highlights the three scenarios that the *State Sea Level Rise Guidance* (OPC 2024) and this guidance recommend for use in various planning and project contexts.

Table F-5. Sea Level Scenarios for San Francisco

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 |
| **2040** | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
| **2050** | 0.5 | 0.6 | 0.8 | 1.0 | 1.3 |
| **2060** | 0.6 | 0.8 | 1.1 | 1.5 | 2.0 |
| **2070** | 0.7 | 1.0 | 1.4 | 2.2 | 2.9 |
| **2080** | 0.8 | 1.2 | 1.8 | 3.0 | 4.1 |
| **2090** | 0.9 | 1.4 | 2.4 | 3.8 | 5.3 |
| **2100** | 1.0 | 1.6 | 3.1 | 4.8 | 6.5 |
| **2110** | 1.0 | 1.8 | 3.8 | 5.6 | 7.8 |
| **2120** | 1.1 | 2.0 | 4.4 | 6.4 | 9.0 |
| **2130** | 1.2 | 2.2 | 4.9 | 7.0 | 9.9 |
| **2140** | 1.3 | 2.4 | 5.4 | 7.6 | 10.8 |
| **2150** | 1.3 | 2.6 | 6.0 | 8.1 | 11.7 |

Median values of Sea Level Scenarios, in feet, for each decade from 2020 to 2150, with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion. The red box highlights the three scenarios that the *State Sea Level Rise Guidance* (OPC 2024) and this guidance recommend for use in various planning and project contexts.

Table F-6. Sea Level Scenarios for Alameda

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 |
| **2040** | 0.3 | 0.4 | 0.4 | 0.5 | 0.6 |
| **2050** | 0.3 | 0.5 | 0.6 | 0.9 | 1.1 |
| **2060** | 0.4 | 0.6 | 0.9 | 1.4 | 1.8 |
| **2070** | 0.5 | 0.8 | 1.2 | 2.0 | 2.7 |
| **2080** | 0.5 | 0.9 | 1.6 | 2.8 | 3.8 |
| **2090** | 0.6 | 1.1 | 2.1 | 3.5 | 5.0 |
| **2100** | 0.6 | 1.2 | 2.8 | 4.4 | 6.2 |
| **2110** | 0.7 | 1.4 | 3.4 | 5.3 | 7.5 |
| **2120** | 0.7 | 1.6 | 4.0 | 5.9 | 8.5 |
| **2130** | 0.8 | 1.7 | 4.5 | 6.5 | 9.4 |
| **2140** | 0.8 | 1.9 | 4.9 | 7.1 | 10.3 |
| **2150** | 0.8 | 2.1 | 5.4 | 7.6 | 11.2 |

Median values of Sea Level Scenarios, in feet, for each decade from 2020 to 2150, with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion. The red box highlights the three scenarios that the *State Sea Level Rise Guidance* (OPC 2024) and this guidance recommend for use in various planning and project contexts.

Table F-7. Sea Level Scenarios for Port Chicago

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.3 | 0.4 | 0.4 | 0.4 | 0.4 |
| **2040** | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
| **2050** | 0.5 | 0.6 | 0.8 | 1.0 | 1.3 |
| **2060** | 0.6 | 0.8 | 1.1 | 1.5 | 2.0 |
| **2070** | 0.7 | 1.0 | 1.4 | 2.2 | 2.9 |
| **2080** | 0.8 | 1.2 | 1.8 | 3.0 | 4.1 |
| **2090** | 0.9 | 1.4 | 2.4 | 3.8 | 5.3 |
| **2100** | 1.0 | 1.6 | 3.1 | 4.8 | 6.5 |
| **2110** | 1.0 | 1.8 | 3.8 | 5.6 | 7.8 |
| **2120** | 1.1 | 2.0 | 4.4 | 6.4 | 9.0 |
| **2130** | 1.2 | 2.2 | 4.9 | 7.0 | 9.9 |
| **2140** | 1.3 | 2.4 | 5.4 | 7.6 | 10.8 |
| **2150** | 1.4 | 2.6 | 6.0 | 8.1 | 11.7 |

Median values of Sea Level Scenarios, in feet, for each decade from 2020 to 2150, with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion. The red box highlights the three scenarios that the *State Sea Level Rise Guidance* (OPC 2024) and this guidance recommend for use in various planning and project contexts.

Table F-8. Sea Level Scenarios for Monterey

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 |
| **2040** | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 |
| **2050** | 0.4 | 0.6 | 0.7 | 0.9 | 1.2 |
| **2060** | 0.5 | 0.7 | 1.0 | 1.4 | 1.9 |
| **2070** | 0.6 | 0.9 | 1.3 | 2.1 | 2.8 |
| **2080** | 0.6 | 1.0 | 1.7 | 2.9 | 3.9 |
| **2090** | 0.7 | 1.2 | 2.3 | 3.7 | 5.2 |
| **2100** | 0.8 | 1.4 | 2.9 | 4.6 | 6.4 |
| **2110** | 0.8 | 1.6 | 3.6 | 5.5 | 7.7 |
| **2120** | 0.9 | 1.8 | 4.2 | 6.2 | 8.8 |
| **2130** | 0.9 | 1.9 | 4.7 | 6.8 | 9.7 |
| **2140** | 1.0 | 2.1 | 5.2 | 7.3 | 10.6 |
| **2150** | 1.1 | 2.3 | 5.7 | 7.9 | 11.5 |

Median values of Sea Level Scenarios, in feet, for each decade from 2020 to 2150, with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion. The red box highlights the three scenarios that the *State Sea Level Rise Guidance* (OPC 2024) and this guidance recommend for use in various planning and project contexts.

Table F-9. Sea Level Scenarios for Port San Luis

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 |
| **2040** | 0.3 | 0.4 | 0.4 | 0.5 | 0.6 |
| **2050** | 0.3 | 0.5 | 0.6 | 0.9 | 1.1 |
| **2060** | 0.4 | 0.6 | 0.9 | 1.4 | 1.8 |
| **2070** | 0.5 | 0.7 | 1.2 | 2.0 | 2.7 |
| **2080** | 0.5 | 0.9 | 1.6 | 2.8 | 3.8 |
| **2090** | 0.5 | 1.1 | 2.1 | 3.5 | 5.0 |
| **2100** | 0.6 | 1.2 | 2.8 | 4.5 | 6.3 |
| **2110** | 0.6 | 1.4 | 3.4 | 5.3 | 7.5 |
| **2120** | 0.7 | 1.5 | 4.0 | 6.0 | 8.6 |
| **2130** | 0.7 | 1.7 | 4.4 | 6.6 | 9.5 |
| **2140** | 0.7 | 1.9 | 4.9 | 7.1 | 10.4 |
| **2150** | 0.8 | 2.0 | 5.5 | 7.6 | 11.3 |

Median values of Sea Level Scenarios, in feet, for each decade from 2020 to 2150, with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion. The red box highlights the three scenarios that the *State Sea Level Rise Guidance* (OPC 2024) and this guidance recommend for use in various planning and project contexts.

Table F-10. Sea Level Scenarios for Santa Barbara

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 |
| **2040** | 0.3 | 0.4 | 0.4 | 0.5 | 0.6 |
| **2050** | 0.3 | 0.5 | 0.6 | 0.9 | 1.1 |
| **2060** | 0.4 | 0.6 | 0.9 | 1.4 | 1.8 |
| **2070** | 0.5 | 0.7 | 1.2 | 2.0 | 2.7 |
| **2080** | 0.5 | 0.9 | 1.6 | 2.8 | 3.8 |
| **2090** | 0.5 | 1.1 | 2.1 | 3.5 | 5.0 |
| **2100** | 0.6 | 1.2 | 2.8 | 4.5 | 6.3 |
| **2110** | 0.6 | 1.4 | 3.4 | 5.3 | 7.5 |
| **2120** | 0.7 | 1.5 | 4.0 | 6.0 | 8.6 |
| **2130** | 0.7 | 1.7 | 4.4 | 6.6 | 9.5 |
| **2140** | 0.7 | 1.9 | 4.9 | 7.1 | 10.4 |
| **2150** | 0.8 | 2.0 | 5.5 | 7.6 | 11.3 |

Median values of Sea Level Scenarios, in feet, for each decade from 2020 to 2150, with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion. The red box highlights the three scenarios that the *State Sea Level Rise Guidance* (OPC 2024) and this guidance recommend for use in various planning and project contexts.

Table F-11. Sea Level Scenarios for Santa Monica

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 |
| **2040** | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 |
| **2050** | 0.4 | 0.6 | 0.7 | 0.9 | 1.2 |
| **2060** | 0.5 | 0.7 | 1.0 | 1.5 | 1.9 |
| **2070** | 0.6 | 0.9 | 1.3 | 2.1 | 2.8 |
| **2080** | 0.6 | 1.0 | 1.7 | 2.9 | 3.9 |
| **2090** | 0.7 | 1.2 | 2.3 | 3.7 | 5.2 |
| **2100** | 0.8 | 1.4 | 2.9 | 4.6 | 6.4 |
| **2110** | 0.8 | 1.6 | 3.6 | 5.5 | 7.7 |
| **2120** | 0.9 | 1.8 | 4.2 | 6.2 | 8.8 |
| **2130** | 0.9 | 1.9 | 4.7 | 6.8 | 9.7 |
| **2140** | 1.0 | 2.1 | 5.2 | 7.3 | 10.6 |
| **2150** | 1.1 | 2.3 | 5.7 | 7.9 | 11.5 |

Median values of Sea Level Scenarios, in feet, for each decade from 2020 to 2150, with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion. The red box highlights the three scenarios that the *State Sea Level Rise Guidance* (OPC 2024) and this guidance recommend for use in various planning and project contexts.

Table F-12. Sea Level Scenarios for Los Angeles

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 |
| **2040** | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 |
| **2050** | 0.4 | 0.5 | 0.7 | 0.9 | 1.1 |
| **2060** | 0.4 | 0.6 | 0.9 | 1.4 | 1.8 |
| **2070** | 0.5 | 0.8 | 1.2 | 2.1 | 2.7 |
| **2080** | 0.5 | 0.9 | 1.6 | 2.8 | 3.8 |
| **2090** | 0.6 | 1.1 | 2.2 | 3.6 | 5.0 |
| **2100** | 0.6 | 1.3 | 2.8 | 4.5 | 6.3 |
| **2110** | 0.7 | 1.4 | 3.5 | 5.3 | 7.6 |
| **2120** | 0.7 | 1.6 | 4.0 | 6.0 | 8.6 |
| **2130** | 0.8 | 1.8 | 4.5 | 6.6 | 9.5 |
| **2140** | 0.8 | 1.9 | 5.0 | 7.1 | 10.4 |
| **2150** | 0.8 | 2.1 | 5.5 | 7.7 | 11.3 |

Median values of Sea Level Scenarios, in feet, for each decade from 2020 to 2150, with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion. The red box highlights the three scenarios that the *State Sea Level Rise Guidance* (OPC 2024) and this guidance recommend for use in various planning and project contexts.

Table F-13. Sea Level Scenarios for La Jolla

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.3 | 0.4 | 0.4 | 0.4 | 0.5 |
| **2040** | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
| **2050** | 0.5 | 0.7 | 0.8 | 1.0 | 1.3 |
| **2060** | 0.6 | 0.8 | 1.1 | 1.6 | 2.0 |
| **2070** | 0.7 | 1.0 | 1.4 | 2.3 | 3.0 |
| **2080** | 0.8 | 1.2 | 1.8 | 3.1 | 4.1 |
| **2090** | 0.9 | 1.4 | 2.4 | 3.9 | 5.3 |
| **2100** | 0.9 | 1.6 | 3.1 | 4.8 | 6.6 |
| **2110** | 1.0 | 1.8 | 3.8 | 5.7 | 7.9 |
| **2120** | 1.1 | 2.0 | 4.4 | 6.4 | 9.0 |
| **2130** | 1.2 | 2.2 | 4.9 | 7.1 | 9.9 |
| **2140** | 1.2 | 2.4 | 5.5 | 7.6 | 10.9 |
| **2150** | 1.3 | 2.6 | 6.0 | 8.2 | 11.8 |

Median values of Sea Level Scenarios, in feet, for each decade from 2020 to 2150, with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion. The red box highlights the three scenarios that the *State Sea Level Rise Guidance* (OPC 2024) and this guidance recommend for use in various planning and project contexts.

Table F-14. Sea Level Scenarios for San Diego

| Projected SLR Amounts (in feet) | | | | | |
|---|---|---|---|---|---|
| | **Low** | **Intermediate-Low** | **Intermediate** | **Intermediate-High** | **High** |
| **2030** | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 |
| **2040** | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
| **2050** | 0.5 | 0.7 | 0.8 | 1.1 | 1.3 |
| **2060** | 0.6 | 0.9 | 1.1 | 1.6 | 2.0 |
| **2070** | 0.7 | 1.0 | 1.4 | 2.3 | 3.0 |
| **2080** | 0.8 | 1.2 | 1.9 | 3.1 | 4.1 |
| **2090** | 0.9 | 1.4 | 2.5 | 3.9 | 5.4 |
| **2100** | 1.0 | 1.6 | 3.2 | 4.9 | 6.7 |
| **2110** | 1.1 | 1.8 | 3.9 | 5.7 | 8.0 |
| **2120** | 1.2 | 2.1 | 4.5 | 6.5 | 9.1 |
| **2130** | 1.3 | 2.3 | 5.0 | 7.1 | 10.0 |
| **2140** | 1.3 | 2.5 | 5.6 | 7.7 | 11.0 |
| **2150** | 1.4 | 2.7 | 6.1 | 8.3 | 11.9 |

Median values of Sea Level Scenarios, in feet, for each decade from 2020 to 2150, with a baseline of 2000. All median scenario values incorporate the local estimate of vertical land motion. The red box highlights the three scenarios that the *State Sea Level Rise Guidance* (OPC 2024) and this guidance recommend for use in various planning and project contexts.

# Appendix G. Coastal Commission Contact Information

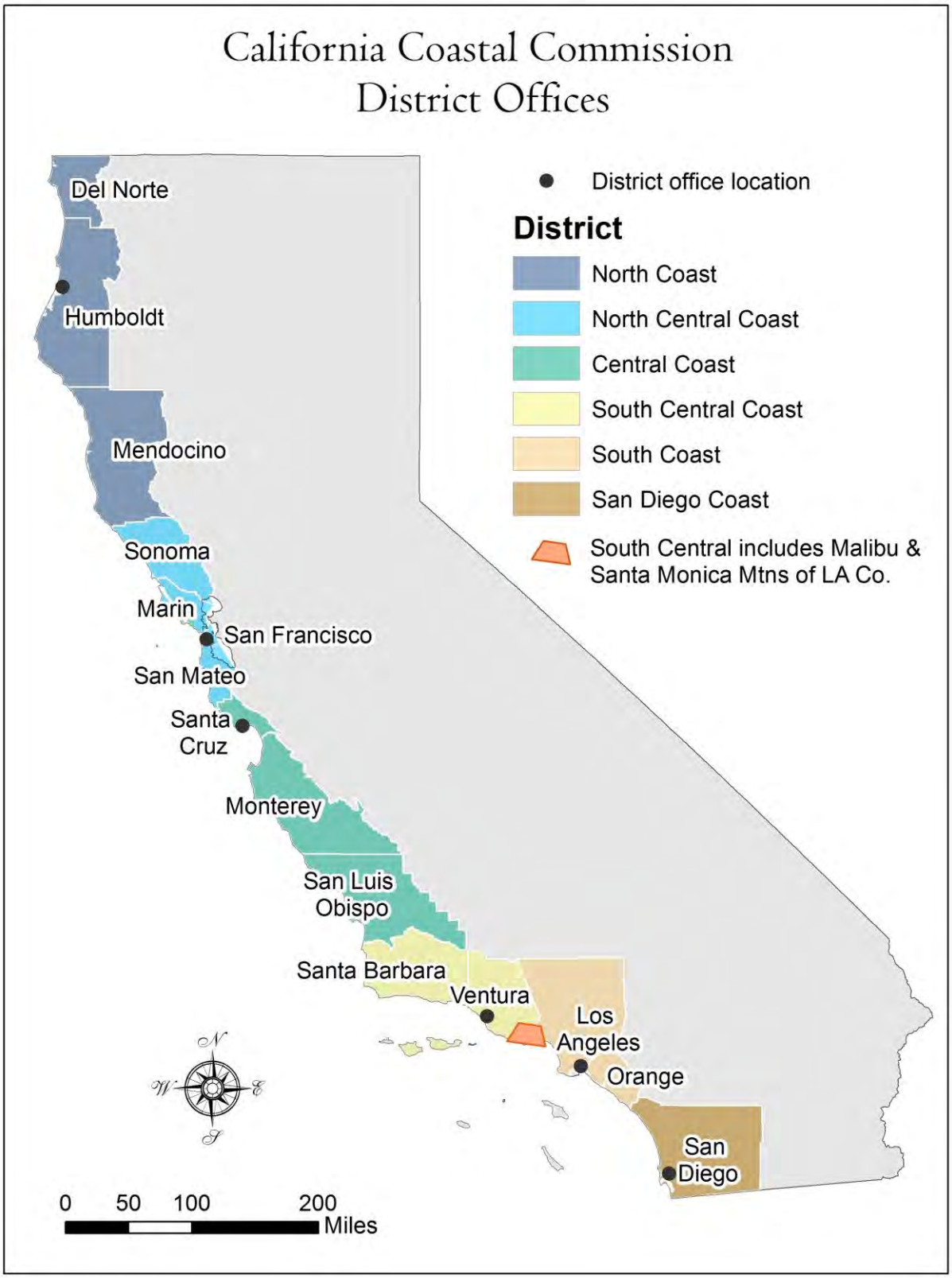



Figure G-1. Location of Coastal Commission Offices

## Coastal Commission District Office Contact Information

**North Coast** (Del Norte, Humboldt, Mendocino Counties)
(707) 826-8950

**North Central Coast** (Sonoma, Marin, San Francisco, San Mateo Counties)
(415) 904-5260

**Headquarters**
(415)-904-5202

**Central Coast** (Santa Cruz, Monterey, San Luis Obispo Counties)
(831) 427-4863

**South Central Coast** (Santa Barbara and Ventura Counties, and the Malibu portion of Los Angeles County)
(805) 585-1800

**South Coast** (Los Angeles (except Malibu) and Orange Counties)
(562) 590-5071

**San Diego** (San Diego County)
(619) 767-2370

## Tara Satushek

**From:** Tim Trohimovich <Tim@futurewise.org>
**Sent:** Thursday, March 13, 2025 5:32 PM
**To:** PDS comments
**Subject:** Re: Comments on "2025 Skagit County Periodic Comprehensive Plan Update"
**Attachments:** CommerceReports_CSHD_FarmworkerHousing_Final_4.26.22.pdf

Dear Staff:

Here is the third set of enclosures.

Tim Trohimovich, AICP
Director of Planning & Law
Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org

---

**From:** Tim Trohimovich <Tim@futurewise.org>
**Sent:** Thursday, March 13, 2025 5:30 PM
**To:** Skagit County PD&S Comments <pdscomments@co.skagit.wa.us>
**Subject:** Re: Comments on "2025 Skagit County Periodic Comprehensive Plan Update"

Dear Staff:

Here is the second set of enclosures.

Tim Trohimovich, AICP
Director of Planning & Law
Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org

---

**From:** Tim Trohimovich <Tim@futurewise.org>
**Sent:** Thursday, March 13, 2025 5:29 PM
**To:** Skagit County PD&S Comments <pdscomments@co.skagit.wa.us>
**Subject:** Re: Comments on "2025 Skagit County Periodic Comprehensive Plan Update"

Dear Staff:

Here is the first set of enclosures.

Tim Trohimovich, AICP
Director of Planning & Law
Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org

---

**From:** Tim Trohimovich
**Sent:** Thursday, March 13, 2025 5:23 PM
**To:** Skagit County PD&S Comments <pdscomments@co.skagit.wa.us>
**Subject:** Comments on "2025 Skagit County Periodic Comprehensive Plan Update"

Dear Staff:

Subject: Comments on the 2025 Skagit County Periodic Comprehensive Plan Update

Thank you for the opportunity to comment on the 2025 Skagit County Periodic Comprehensive Plan Update. Futurewise strongly supports the update. We have comments on the final draft below.

Futurewise works throughout Washington State to support land-use policies that encourage healthy, equitable and opportunity-rich communities, and that protect our most valuable farmlands, forests, and water resources. We have members across Washington State including Skagit County.

## Comments on the Preface

The first sentence under "2025 Forecast" on page 10 of the redlined version has the year 20~~4~~5. It appears that 2025 was intended.

**The Rural Growth Allocations, see redline pages 10 through 12.**

Futurewise has three concerns about the rural growth allocations. First, allocating 20 percent of the county's growth to the rural area will be costly for county taxpayers and ratepayers. A peer-reviewed study shows that "the cost of providing public services in rural areas is 39% greater than in cities." Ron Shani, Yaniv Reingewertz & Eran Vigoda-Gadot, *Far from-sight and expensive: additional costs of public services in rural areas* Local Government Studies p. 1, pp. 11 – 12 (22 Jun 2024), DOI: 10.1080/03003930.2024.2369784 last accessed on March 11, 2025, at: https://www.tandfonline.com/doi/pdf/10.1080/03003930.2024.2369784 and enclosed in another email with the filename: "Far-from-sight and expensive additional costs of public services in rural areas.pdf." The draft comprehensive plan in Appendix C the Transportation Element Technical Appendix on page 572 shows a transportation capital projects deficit of $150,689,518. Reallocating rural growth to cities and towns could reduce this $150 million transportation deficit.

Second, 501 rural housing units are intended to be affordable to households earning 51 to 80 percent of the area median income (AMI). The State of Washington Department of Commerce has documented that to provide housing affordable to families and individuals earning 80 percent or less of the area median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your*

*Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023) last accessed on March 11, 2025, at: https://deptofcommerce.app.box.com/s/1d9d5l7g509r389f0mjpowh8isjpirlh and enclosed in another email with the filename: "HB 1220_Book2_Housing Element Update_230823 Final_updated 240920.pdf." Low-rise multifamily and mid-rise multifamily housing are urban uses and require sewers and other urban services. RCW 36.70A.070(5) prohibits urban uses outside urban growth areas.

Third allocating 20 percent of the county's growth to the rural area will make it difficult to comply with RCW 36.70A.070(9)(d)(i) which provides that:

> The greenhouse gas emissions reduction subelement of the comprehensive plan, and its related development regulations, must identify the actions the jurisdiction will take during the planning cycle consistent with the guidelines published by the department pursuant to RCW 70A.45.120 that will:
>
> (A) Result in reductions in overall greenhouse gas emissions generated by transportation and land use within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state;
>
> (B) Result in reductions in per capita vehicle miles traveled within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; and
>
> (C) Prioritize reductions that benefit overburdened communities in order to maximize the cobenefits of reduced air pollution and environmental justice.

Adding twenty percent of the county's growth to rural Skagit County will likely increase greenhouse gas emissions, increase per capital vehicle miles traveled, and not benefit overburdened communities. Rural residents have substantially higher greenhouse gas emissions, particularly higher transport-related direct greenhouse gas emissions than residents in the urban growth areas. Jeffrey Wilson, Jamie Spinney, Hugh Millward, Darren Scott, Anders Hayden, and Peter Tyedmers, *Blame the exurbs, not the suburbs: Exploring the distribution of greenhouse gas emissions within a city region* 62 Energy Policy 1329, pp. 1334 – 35 (2013) enclosed in another email with the filename: "Blame_the_exurbs_not_the_suburbs_Explori.pdf." Energy Policy is a peer reviewed journal. Energy Policy Guide for authors webpage p. *14 last accessed on March 18, 2024, at: https://www.sciencedirect.com/journal/energy-policy/publish/guide-for-authors and in another email with the filename: "Guide for authors - Energy Policy.pdf." The transport-related direct emissions of rural residents are three times those in the inner city, and 1.5 times those in the suburbs. *Id.* p. 1335.

It is better to focus these housing types in cities, towns, and urban growth areas where the public facilities and services they require can be more affordably provided. This is important because if the planned, but not economically feasible, capacity for affordable housing in rural areas is counted towards the affordable housing need then the County and its cities and towns will not have the capacity for the affordable housing the county needs.

## Comments on Element 2: Urban, Open Space, and Land Use.

Futurewise supports the existing and proposed policies in this chapter.

We strongly support policy 2A-1.4 calling for the engagement of federally recognized Indian tribes before expanding urban growth areas.

We also support policies increasing development capacity in urban growth areas where sewer is available. This will increase housing affordability. Washington States Department of Commerce, Local Government Division

Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023).

## Comments on Element 3 the Rural Element.

**Rural Water on pages 82 and 83 of the Redline Version.**

While we recognize that this section is primarily a historical narrative, RCW 36.70A.070(1) provides that "[t]he land use element shall provide for protection of the quality and quantity of groundwater used for public water supplies." RCW 36.70A.070(5)(c)(iv) provides that "[t]he rural element shall include measures that apply to rural development and protect the rural character of the area, as established by the county, by: … Protecting surface water and groundwater resources." The Growth Management Act (GMA) in RCW 36.70A.590 also provides that:

> For the purposes of complying with the requirements of this chapter [the GMA] relating to surface and groundwater resources, a county or city may rely on or refer to applicable minimum instream flow rules adopted by the department of ecology under chapters 90.22 and 90.54 RCW. Development regulations must ensure that proposed water uses are consistent with RCW 90.44.050 and with applicable rules adopted pursuant to chapters 90.22 and 90.54 RCW when making decisions under RCW 19.27.097 and 58.17.110.

These policies and development regulations are required because overuse of surface or ground water often harms senior water rights holders and fish and wildlife habitat and consequently tribal treaty rights. Ecology has documented that lower streamflows in parts of the Skagit basin "have impacted important resources for fisheries and general stream health." State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023) last accessed on March 12, 2025, at: https://apps.ecology.wa.gov/publications/documents/2011003.pdf and enclosed in another email with the filename: "2011003.pdf."

> The reduced availability of surface water can have a negative impact on all stages of the salmonid life cycle. Water quality (e.g. temperature, flows) is affected by decreased inputs from groundwater. Lessened groundwater input concentrates pollutants, increases temperature, and diminish[es] dissolved oxygen. This is detrimental to salmonid migration, spawning and rearing.

*2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40 last accessed on March 12, 2025, at: https://nwifc.org/publications/state-of-our-watersheds/ and cited excerpts in another email with the filename: "state-of-our-watersheds-sow-2020-final-web excerpts.pdf."

Changes in Skagit County will directly impact the level of development that can be accommodated outside of urban growth areas. Most water in the Skagit "watershed is already legally spoken for or 'appropriated.'" State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023). Water is already limited and changes in hydrology will make water scarcer in the summer in the future. *Id.*; *Skagit River Basin Climate Science Report: Executive Summary* p. 9 last accessed on March 12, 2025, at: https://www.skagitcounty.net/EnvisionSkagit/Documents/ClimateChange/executive_summary.pdf and enclosed in another email with the filename: "executive_summary.pdf." Winter flooding will increase. *Skagit River Basin Climate Science Report: Executive Summary* pp. 9 – 11. These and other changes will make accommodating rural growth more difficult, more costly, and will adversely affect water available for salmon, wildlife, and irrigation. We recommend the County adopt policies consistent with RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590 to protect water quality and quantity.

**Goal 3A-2 revision on page 87 of the redline version.**

Goal 3A-2 is proposed to be amended to provide for a variety of "affordable housing types." The State of Washington Department of Commerce has documented that to provide housing affordable to families and individuals earning 80 percent or less of the county adjusted median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023). Low-rise multifamily and mid-rise multifamily housing are urban uses and require sewers and other urban services. RCW 36.70A.070(5) prohibits urban uses outside urban growth areas. Even if these housing types were allowed, it would not be affordable to provide the public facilities and services they need. A peer-reviewed study shows that "the cost of providing public services in rural areas is 39% greater than in cities." Ron Shani, Yaniv Reingewertz & Eran Vigoda-Gadot, *Far from-sight and expensive: additional costs of public services in rural areas* Local Government Studies p. 1, pp. 11 – 12 (22 Jun 2024), DOI: 10.1080/03003930.2024.2369784. The Appendix C, the Transportation Element Technical Appendix on page 572, shows a transportation capital projects deficit of $150 million.

There is also unlikely to be water available to serve these developments in the rural area. *2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40, p. 348. It is better to focus these housing types in cities, towns, and urban growth areas where the public facilities and services they require can be more affordably provided. This is important because if the planned, but not economically feasible, capacity for affordable housing in rural areas is counted towards the affordable housing need then the County and its cities and towns will not have the capacity for the affordable housing the county needs.

## Comments on Element 4: Natural Resource Lands.

**Policy 4A-1.1 on page 130 of the redline version.**

We appreciate that Policy 4A-1.1 is proposed to be amended to provide the "County may also consider unique farmlands soils and farmlands of statewide importance" in designating agricultural lands of long-term commercial significance. WAC 365-190-050(3)(c)(i) provides that in designating agricultural lands of long-term commercial significance "counties and cities should consider …: (i) The classification of prime and unique farmland soils, and farmlands of statewide importance, as mapped by the Natural Resources Conservation Service[.]" Consistent with WAC 365-190-050(3)(c) "should" should be substituted for "may" in Policy 4A-1.1.

We also support Policy 4A-1.1.(e) which requires that individual dedesignation requests must be deferred until a comprehensive countywide analysis is conducted. This policy is required by WAC 365-190-040 and WAC 365-190-050. These changes will better protect working farms and the county economy.

**Adopt a policy prohibiting the transfer of agricultural water for rural residential development.**

As was documented above, water is very limited in Skagit County. There will be pressure to transfer agricultural water to rural residential uses. Once this water is transferred, it will be lost to agriculture. While Skagit County cannot directly regulate water right transfers, it can use its zoning authority and subdivision authority to prohibit the use of agricultural water to mitigate rural residential and commercial developments. We urge the county to adopt a policy and regulation to prohibit the use of agricultural water to mitigate rural residential and commercial developments. It will aid the agricultural industry and the county economy long-term.

**Policy 4B-1.1 and Policy 4B-3.3 on pages 139 through 140 and page 144 of the redline version.**

We support the revisions to Policy 4B-1.1(e) and Policy 4B-3.3 so the policies comply with the amendments to WAC 365-190-040 and WAC 365-190-060. These amendments will help to conserve forest lands and forest industry jobs.

**New Policy on the Wildland Urban Interface and Policy 4B-2.11 on page 144 of the redline version.**

Wildfire is a significant and increasing risk in Skagit County. *Skagit County Community Wildfire Protection Plan 2019 Update* pp. 20 – 21 last accessed on March 12, 2025, at: https://skagitcounty.net/EmergencyManagement/Documents/Skagit%20County%20CWPP.pdf and enclosed in another email with the filename: "Skagit County CWPP.pdf." The Growth Management Act in RCW 36.70A.070(1) provides in part that:

> The land use element must reduce and mitigate the risk to lives and property posed by wildfires by using land use planning tools, which may include, but are not limited to, adoption of portions or all of the wildland urban interface code developed by the international code council or developing building and maintenance standards consistent with the firewise USA program or similar program designed to reduce wildfire risk, reducing wildfire risks to residential development in high risk areas and the wildland urban interface area, separating human development from wildfire prone landscapes, and protecting existing residential development and infrastructure through community wildfire preparedness and fire adaptation measures.

While we appreciate and support Policy 4B-2.11, RCW 36.70A.070(1) requires more. We recommend that development be directed away from the WUI. We also recommend the adoption and enforcement of the Firewise Principles which recommend "'two ways out' of the neighborhood for safe evacuation during a wildfire" along with other important measures to protect people and property. *Firewise USA® Program* p. *9 accessed on March 12, 2025, at: https://www.nfpa.org/en/education-and-research/wildfire/firewise-usa/firewise-usa-resources. We recommend that the following new policy be adopted as part of the Land Use Element or the Climate Change Element:

Policy X: Direct non-resource land uses and development away from the Wildland-Urban Interface (WUI), encourage the implementation of Firewise Principles for existing developments and uses, and require implementation of Firewise Principles for new developments and uses.

**Goal 4D-1 on page 153 of the redline version.**

We support the revisions to Goal 4D-1 to comply with WAC 365-190-040 and WAC 365-190-070. These changes will aid the construction industry and the county economy.

## Comments on Element 5: Environment.

**Designate and protect rare plant categories and listings from the Department of Natural Resources, Natural Heritage Program as the GMA requires. See pages 183 to 184 of the redline version.**

The "GMA requires the County to protect the functions and values of Critical Area Ecosystems." *Whidbey Environmental Action Network v. Island Cnty.*, Western Washington Region Growth Management Hearings Board (WWRGMHB) Case No. 14-2-0009, Final Decision and Order (June 24, 2015), at 21 of 49 last accessed on March 12, 2025, at: https://eluho2022.my.site.com/casemanager/s/case/50082000001BDWk/detail. This includes the "high quality ecosystem and rare plant categories and listings from the department of natural resources, natural heritage program." *Id.* at 32 – 35 of 49, see also WAC 365-190-040(4)(b). The *2024 Washington Vascular Plant Species of Conservation Concern* identifies rare plants in Skagit County. Jesse E. D. Miller, Sienna Wessel, and Walter Fertig, *2024 Washington Vascular Plant Species of Conservation Concern* pp. 8 – 44 (Washington Natural Heritage Program, Natural Heritage Report 2024-07: July 3, 2024) last accessed on March 12, 2025, at: https://www.dnr.wa.gov/publications/amp_nh_vascular_ets.pdf and enclosed in another email with the filename:

"amp_nh_vascular_ets.pdf." These plants and ecosystems need to be designated as fish and wildlife habitats and conserved as the Growth Management Act requires.

**Do not change the "shalls" to "shoulds" in Policy 5A-5.1, Policy 5A-5.2, and Policy 5A-5.3 on pages 181 through 188 of the redline version.**

Policy 5A-5.1 is proposed to be amended to add that: "Critical areas shall be designated and protected to maintain no net loss of wetland functions and value." We strongly support this addition. It is also consistent with the Growth Management Act (GMA) which "requires that the regulations for critical areas must protect the 'functions and values' of those designated areas. [RCW 36.70A.172(1).] This means all functions and values." *Whidbey Env't Action Network v. Island Cnty.*, 122 Wn. App. 156, 174–75, 93 P.3d 885, 894 (2004). However, elsewhere in this policy the "shalls" are changed to "should." Shoulds are not consistent with the Growth Management Act requirement and should not be substituted for "shalls."

"Shoulds" are not consistent with the Growth Management Act requirement and also should not be substituted for "shalls in Policy 5A-5.2 and Policy 5A-5.3.

**Do not change "shall" to "should" in policy 5A-5.8 on page 191 of the of the redline version.**

For the same reason, do not change "shall" to "should" in policy 5A-5.8.

**Futurewise supports Goal 5B and its associated policies to address climate hazards and to reduced greenhouse gas pollution on pages 191 and 192 of the redline version.**

We support Goal 5B and its associated policies to address climate hazards and to reduced greenhouse gas pollution. This goal and the policies are required by RCW 36.70A.070(9). We have additional comments on the topic of climate below.

## Comments on Element 7: Housing.

**RCW 36.70A.070(2)(c) requires the housing element to identify sufficient land for affordable housing including STEP housing.**

RCW 36.70A.070(2)(c) requires the County housing element, and the housing elements of the cities, to identify "sufficient capacity of land for housing including, but not limited to, government-assisted housing, housing for moderate, low, very low, and extremely low-income households, manufactured housing, multifamily housing, group homes, foster care facilities, emergency housing, emergency shelters, [and] permanent supportive housing ...." Using the State of Washington Department of Commerce Housing for All Planning Tool (HAPT) methodology, the population targets are converted to needed housing units by income category and beds for permanent supportive housing. The County must then identify the land with the zoning capacities needed to accommodate these housing units by income band or category. We were unable to find the documentation of sufficient capacity in the housing element. It may be in Appendix E Housing Needs Assessment, but we were unable to find this appendix. If it is in the appendix, that is fine. If not, the housing element should document that the County has sufficient capacity for affordable housing types and indoor emergency shelters, transitional housing, emergency housing, and permanent supportive housing (STEP housing).

**Affordable housing should be focused in cities, towns, and urban growth areas.**

The Housing Element on page 226 states: "Skagit County plans to accommodate new housing within its existing land use designations by focusing on limited areas of more intense rural development, specifically the rural village residential zones. The rural village residential zone, which are part of the County's land use and zoning regulations, has been revised to allow for new housing types that are affordable to moderate- and low-income residents." The State of Washington Department of Commerce has documented that to provide housing affordable to families and

individuals earning 80 percent or less of the area median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023). Middle housing is not affordable to families earning 80 percent or less of the area median income. In addition, as was documented above there is a significant water shortage and placing affordable housing in rural areas increases transportation costs for families and transportation and public service costs for the County. We do not believe this strategy will work and should be discarded. Instead, affordable housing should be focused in cities, towns, and urban growth areas where affordable housing types and densities can actually be constructed.

Similarly, the *Washington Farmworker Housing Needs Assessment* recommended that to provide more affordable farm worker housing cities should be encouraged "to increase zoning and infrastructure investments for multi-family housing within urban growth areas." BERK Consulting, *Washington Farmworker Housing Needs Assessment* p. 184 (The Washington State Department of Commerce: Jan. 2022) last accessed on March 12, 2025, at: https://www.commerce.wa.gov/wp-content/uploads/2022/04/CommerceReports_CSHD_FarmworkerHousing_Final_4.26.22.pdf and enclosed in a separate email with the filename: "CommerceReports_CSHD_FarmworkerHousing_Final_4.26.22.pdf." The assessment also recommended that cities remove "barriers to the development of rental housing." *Id*. "Encouraging cities to identify and remove barriers to rental housing development is an important strategy to address housing needs for farmworkers." *Id*.

**Comments on Element 12: Climate and Resiliency**

Overall, Futurewise strongly supports the Climate and Resiliency element. We do have some suggestions provided below.

**Futurewise supports Goal 12J on page 396 of the redline version.**

Goal 12J on page 396 calls for integrating climate change projections into land use, infrastructure planning, and development regulations, ensuring long-term safety from sea-level rise, flooding, wildfires, and other climate-exacerbated hazards while protecting natural ecosystems. We support this goal and its associated policies. The deadline for Skagit County to update its development regulations is December 31, 2025. RCW 36.70A.130(1)(a), (5)(b).

**Please clarify policy 12J-1.8 on page 397 of the redline version.**

Futurewise strongly supports policy 12J-1.8. It intends to cover sea level rise which we support. On addition, as the seas are rising and storms become more intense, coastal rivers and streams will be subject to more channel migration. We recommend that policy 12J-1.8 be clarified as follows with our additions underlined.

policy 12J-1.8 All residential and commercial development and accessory uses, port and water related industrial facilities, equipment, and works should be located, designed, and maintained to avoid, or if necessary, withstand 100-year flood frequency flooding, and/or storm tides or surges, channel migration, and tides and water levels likely over the next 100 years without becoming hazards and without the placement of flood hazard reduction measures or other hard structural shoreline stabilization. Incorporate climate projections to account for anticipated changes in flood frequency, storm intensity, and sea-level rise. Ensure that designs and maintenance plans adapt to these projections to enhance long-term resilience against evolving climate impacts.

**Include a policy including the California Coastal Commission recommendations for adapting to sea level rise.**

In addition, we suggest that the County incorporate a policy on adapting to sea level rise and its adverse impacts modeled on the process California's coastal counties and cities use. *California Coastal Commission Sea Level*

*Rise Policy Guidance: Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits* pp. 97 – 140 (2024 Update: Nov. 13, 2024) last accessed on March 13, 2025, at: https://www.coastal.ca.gov/climate/slrguidance.html and enclosed in another email with the filename: "2024AdoptedSLRPolicyGuidanceUpdate.pdf." The process includes seven steps and we recommend a policy incorporating these steps be adopted.

1. Initiate planning effort, identify key goals and stakeholders, and engage with environmental justice communities and Indian tribes.
2. Determine the range of sea level rise scenarios relevant to Skagit County's marine shorelines. The California Coastal Commission recommends analyzing intermediate and long-term projections because "development constructed today is likely to remain in place over the next 75-100 years, or longer." *Id*. p. 109.
3. Identify potential physical sea level rise impacts in Skagit County's unincorporated marine shorelines.
4. Assess potential risks from sea level rise to coastal resources, development, and environmental justice communities in unincorporated Skagit County.
5. Identify equitable adaptation measures. The *California Coastal Commission Sea Level Rise Policy Guidance* includes recommended adaptation strategies the County can consider. *Id*. pp. 179 – 226.
6. Adopt an updated comprehensive plan and development regulations incorporating the selected adaptation strategies.
7. Implement the updated comprehensive plan and development regulations and monitor and revise as needed. Because the scientific data on sea level rise is evolving, the California Coastal Commission recommends that "[i]t will likely be important to modify maps of current and future hazard areas on a five- to ten-year basis or as necessary to allow for the incorporation of new sea level rise science, monitoring results, and information on coastal conditions." *Id*. p. 139.

**The greenhouse gas emissions reduction subelement must quantify whether the element will reduce greenhouse gas emissions and reduce per capita vehicle miles traveled.**

RCW 36.70A.070(9)(d)(i) provides:

> (d)(i) The greenhouse gas emissions reduction subelement of the comprehensive plan, and its related development regulations, must identify the actions the jurisdiction will take during the planning cycle consistent with the guidelines published by the department pursuant to RCW 70A.45.120 that will:
>
> (A) Result in reductions in overall greenhouse gas emissions generated by transportation and land use within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; (B) Result in reductions in per capita vehicle miles traveled within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; and
>
> (C) Prioritize reductions that benefit overburdened communities in order to maximize the cobenefits of reduced air pollution and environmental justice.

Please note that subelement and its related development regulations "must identify the actions the jurisdiction will take … that will: … [r]esult in reductions in overall greenhouse gas emissions …. Similarly, the subelement and its related development regulations "must identify the actions the jurisdiction will take … that will: … [r]esult in reductions in per capita vehicle miles traveled …." The element itself "must identify" the reductions.

Further, RCW 36.70A.070 provides that "[t]he plan shall be an internally consistent document and all elements shall be consistent with the future land use map." So these calculations must take into the planned growth over the next 20 years.

While we appreciate the three scenarios described on page 399, the reductions are not quantified and it is not clear if they take into account the proposed growth allocations. This information is needed to document compliance with RCW 36.70A.070(9)(d)(i). It would also be helpful to know if these reductions will over time put the County on a path to address the State's overall target of net-zero emissions by 2050. If this information is in an appendix that will be included with the comprehensive plan in the future that would be sufficient to document compliance.

**The Growth Management Act requires water quantity policies and regulations as part of the 2025 comprehensive plan and development regulations update.**

As was documented above, RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590 require Skagit County to adopt policies and regulations to protect water quality and quantity. These policies and development regulations are required because overuse of surface or ground water often harms senior water rights holders and fish and wildlife habitat and consequently tribal treaty rights. Most water in the Skagit "watershed is already legally spoken for or 'appropriated.'" State of Washington Department of Ecology Water Resources Program, WRIAs 3 & 4 Skagit Watershed Water Availability p. 3 (Publication 20-11-003: May 2023). The Washington State Department of Ecology has summarized water availability in the Skagit basin:

> Increasing demands for water over time, from ongoing population growth, agriculture, and other consumptive uses as well as associated land use practices, have resulted in lower streamflows in some areas. These decreases have impacted important resources for fisheries and general stream health. The impacts of climate change in WRIAs 3 and 4 are also yet to be fully realized. However, it is apparent that water availability is limited throughout the Skagit Watershed.

State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023). "The reduced availability of surface water can have a negative impact on all stages of the salmonid life cycle." *2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40.

To address current and future water shortages and to comply with RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590, the comprehensive plan and development regulations should adopt policies and regulations to ensure development complies with the water codes and the applicable instream flow rules.

RCW 36.70A.590 requires the development regulations to ensure that proposed water uses are consistent with RCW 90.44.050. When the County determines if a development, land division, or use qualifies for a residential permit-exempt well under RCW 90.44.050, the development regulations must require that the County limit the water used by the proposal and the parent parcel that existed in 2002, any lots created from the parent parcel, and any development built on or after 2002 on those lots to the no more than the 5,000 gallons a day allowed by RCW 90.44.050. Under the State Supreme Court's *Campbell and Gwinn* decision, each lot is entitled to <u>one</u> 5,000 gallon per day permit exempt withdrawal for single or group domestic uses under RCW 90.44.050. *State Dep't of Ecology v. Campbell & Gwinn, L.L.C.*, 146 Wn.2d 1, 14, 43 P.3d 4, 110 (2002). A "developer may not claim multiple exemptions for the homeowners." *Id*. So each lot that existed in 2002, the year the *Campbell and Gwinn* decision was decided, is entitled to one permit-exempt withdrawal under RCW 90.44.050 and is limited to 5,000 gallons per day.

As lots are subdivided or developed over time, part or all of the permit exempt withdrawals are used by the lots created or the development authorized. To qualify for a permit-exempt groundwater withdrawal authorized under RCW 90.44.050, the lot must have some remaining water from the parent parcel's single 5,000 gallon per day permit exempt withdrawal for single or group domestic uses.

Therefore, the required regulations can only authorize the use of a permit exempt-well for single or group domestic uses if the water use allowed under the permit-exemption does not exceed the 5,000 gallons a day allowed by

RCW 90.44.050 including the parent parcel that existed in 2002, any lots created from the parent parcel, and any development built on or after 2002. To comply with RCW 36.70A.590, the proposed development regulations must include this important limitation.

Thank you for considering our comments. If you require additional information, please contact me at telephone (206) 343-0681 or email: tim@futurewise.org.

We will be providing the supporting documents in several emails.

Tim Trohimovich (he/him)
Director of Planning & Law

Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org
**futurewise.org**
connect:

STATE OF WASHINGTON
DEPARTMENT OF COMMERCE
*1011 Plum Street SE • PO Box 42525 • Olympia, Washington 98504-2525 • (360) 725-4000*
*www.commerce.wa.gov*

April 21, 2022

Dear Governor Inslee and Washington State Legislators,

Enclosed is the farmworker housing section of the consultant reports fulfilling the proviso from the 2020 capital budget:

> $200,000 of the appropriation in this section is provided solely for the department to contract for a study regarding both available and needed affordable housing for farmworkers and Native Americans in Washington state. The study must include data to inform policies related to affordable housing for farmworkers and Native Americans and supplement the housing assessment conducted by the affordable housing advisory board created in chapter 43.185B RCW.

As directed by state statute, Commerce contracted with Berk Consulting for the report on farmworker housing needs. Commerce contracted with Big Water Consulting, supported by the Urban Institute and Akana, for the report on housing needs for Native Americans.

Due to pandemic staffing issues and stakeholder engagement challenges, these reports were delayed for final review and approval by the agency and governor's office. This delay should not create negative perceptions about the important and timely work conducted by the consultants to engage and review the needs of these populations.

Despite the delay in publication, both consultants shared findings and summaries with the state Legislature and at the 2021 Housing Washington Conference.

The agency reviewed the recommendations produced by the consultants and stakeholders, and will consider these recommendations in future housing discussion and proposals.

Signed,

Diane Klontz
Assistant Director
Community Services and Housing Division
Department of Commerce




# Washington Farmworker Housing Needs Assessment

January 2022

COMMUNITY SERVICES &
HOUSING DIVISION

Prepared by:
BERK Consulting

# Acknowledgements

Many members of the farmworker community, as well as Commerce staff, participated and contributed to the preparation of the Needs Assessment. Their participation and contributions are appreciated.

**Washington State Department of Commerce**
Community Services and Housing Division
Emily Grossman

**Catholic Community Services**
Gloria Velasquez Burton

**Invited Stakeholders**
April Clayton, *Red Apple Farms*
Jason Davidson, *Department of Commerce*
Jon Devaney, *Tree Fruit Association*
Bre Elsey, *Washington Farm Bureau*
Dan Fazio, *Wafla*
Kimberly Gierach, *Department of Health*
Korbie Haley, *Office of Rural and Farmworker Housing*
Bryan Ketcham, *Catholic Charities*
Lowel Krueger, *Yakima Housing Authority*
Marty Miller, *Office of Rural and Farmworker Housing*
Joshua Moll, *Employment Security Department*
Rosella Mosby, *Mosby Farms*
Erin Porter, *Department of Health*
CaraMia Stearns-Vance, *Yakima Housing Authority*
Brett Valicoff, *Valicoff Fruit Co.*
Nona White, *Department of Commerce*

**COFS Washington Study**
The COFS Washington study is being developed by a broad coalition of researchers and community-based organizers from across California, Oregon, and Washington.

Washington Partners include:
Our Valley, Our Future
CIELO
Community to Community Development
CAFÉ
El Proyecto Bienstar Northwest Communities Education Center (NCEC)/Radio KDNA

**Organizations**
Beacon Development
Washington State Housing Finance Commission
Washington State Department of Commerce
Beacon Development Group
Employment Security Department
Washington Department of Health
Office of Rural and Farmworker Housing
Washington State Department of Agriculture

**Washington Department of Commerce**
1011 Plum St. SE
P.O. Box 42525 Olympia, WA 98504-2525
http://www.commerce.wa.gov
For people with disabilities, this report is available on request in other formats. To submit a request, please call 360-725-4000 (TTY) 360-586-0772

# Contents

Exhibits vi

Executive Summary xiii

Overview xiii
Housing Needs and the Farmworker Housing Supply Gap xiv
Recommendations xv
- Funding Recommendations xv
- Housing Development Recommendations xvi
- Program Recommendations xvi
- Other Recommendations xvi

Project Introduction 1

Scope of the Project 1
Defining a Farmworker for this Project 1
Methods 1
- Data Sources 2
- Interviews 2
- Washington COFS (COVID Farmworker Survey) 3

Farmworker Housing Landscape 4
- Farmworker Housing Types 4
- Farmworker Housing Within the Context of the Growth Management Act (GMA) 5
- The Flow of Public Dollars to Farmworker Housing 6
- Farmworker Housing Funders 9
- Farmworker Housing Developers 10

Farmworkers and COVID-19 12

Background 12

Agricultural Work in Washington 15

History of Farmworkers in Washington 15
Statewide Trends in Farmworker Location and Industry 20
Statewide Demographic Information on Farmworkers 22
Language and Ethnicity 23
Employment Patterns 23
Income 28

Statewide Housing Inventory 31

Gap Analysis 33

County Profiles 34

Adams County 39
Benton County 51
Chelan County 65
Douglas County 77
Franklin County 89
Grant County 101
Okanogan County 113
Skagit County 124
Walla Walla County 136
Whatcom County 147
Yakima County 159

Stakeholder Engagement 173

Farmworkers 173
Housing Providers and Other Stakeholders 173
Employers 175

Summary & Recommendations 176

Housing Access and Affordability 176
Farmworker Preferences and Housing Situations 178
Challenges in Accessing Housing 178

Recommendations 179
Funding Recommendations 179
Housing Development Recommendations 182
Program Recommendations 183
Other Recommendations 183

Bibliography 185

# Exhibits

Exhibit 1: Clam digging near Port Townsend, 1910 15
Exhibit 2: Peeling bitterroot, 1955 16
Exhibit 3: Farmer in wheat field, Adams County 17
Exhibit 5: CWFLU founding members, 1933 18
Exhibit 6: Race of Washington Farmworkers, 1900-2000 20
Exhibit 7. Agricultural reporting areas in Washington 22
Exhibit 8: Statewide Average Annual Covered Employment, Year-Round and Migrant, 2008-2018 25
Exhibit 9: Statewide Annual Agricultural Employment by Type, 2008-2018 26
Exhibit 10: Washington Covered Farmworker Employment by County, 2018 27
Exhibit 11: Washington H-2A Farmworker Requests by County, 2018 27
Exhibit 12: Growth Rates since 2008, H-2A Requested Workers and Covered Employment in Washington 28
Exhibit 13: Annual Growth Rates for Annual Wages of Covered Agricultural Employment, 2013-2017 29
Exhibit 14: Estimate of Farmworker Housing by County, 2019 32
Exhibit 15: Washington Housing to Workers Comparison by Employment Type, 2018 33
Exhibit 16: Farmworker Employment for Profiled Counties as Percent of Total County Population, 2018 34
Exhibit 17: Farmworkers Searching for Housing in Local Markets, 2018 35
Exhibit 18: Housing Affordability for Farmworkers, 2020 36
Exhibit 19: Adams County Agricultural Land and Farmworker Housing Units, 2019 41
Exhibit 19: Adams County Historical and Projected Growth Rates, 2000-2040 42
Exhibit 20: Adams County Historical and Projected Population, 2000-2040 42
Exhibit 22: Adams County Population by Age Cohort, Historical and Projected 43
Exhibit 23: Adams County Household Sizes and Rental Housing Unit Sizes 44
Exhibit 24: Adams County Household Housing Tenure, 2018 45
Exhibit 25: Adams County GDP, All Industries 46
Exhibit 26: 2018 Agricultural Employment by Type, County versus State Averages 47

Exhibit 27: Adams County Farmworker Estimates by Employment Type, 2018 47
Exhibit 28: State and Adams County Household Income Brackets 48
Exhibit 29: Total Housing Units by Type, Adams County 2018 49
Exhibit 30: Adams County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018 50
Exhibit 31: Benton County Agricultural Land and Farmworker Housing Units, 2019 53
Exhibit 32: Benton County Historical and Projected Growth Rates, 2000-2040 54
Exhibit 33: Benton County Historical and Projected Population, 2000-2040 54
Exhibit 34: Benton County Population by Age Cohort, Historical and Projected 55
Exhibit 35: Benton County Household Sizes and Rental Unit Sizes 56
Exhibit 36: Benton County Housing Tenure by Household, 2018 57
Exhibit 37: Benton County GDP, All Industries 58
Exhibit 38: 2018 Agricultural Employment by Type, County versus State Averages 59
Exhibit 39: Benton County Farmworker Estimates by Employment Type, 2018 60
Exhibit 40: State and Benton County Household Income Brackets 60
Exhibit 41: Total Housing Units by Type, Benton County 2018 61
Exhibit 42: Benton County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018 63
Exhibit 43: Chelan County Agricultural Land and Farmworker Housing Units 67
Exhibit 44: Chelan County Historical and Projected Growth Rates, 2000-2040 68
Exhibit 45: Chelan County Historical and Projected Population, 2000-2040 68
Exhibit 46: Chelan County Population by Age Cohort, Historical and Projected 69
Exhibit 47: Chelan County Household Sizes and Rental Housing Unit Sizes 70
Exhibit 48: Chelan County Housing Tenure by Household, 2018 71
Exhibit 49: Chelan County GDP, All Industries 72
Exhibit 50: 2018 Agricultural Employment by Type, County versus State Averages 73
Exhibit 51: Chelan County Farmworker Estimates by Employment Type, 2018 73
Exhibit 52: State and Chelan County Household Income Brackets 74
Exhibit 53: Total Housing Units by Type, Chelan County 2018 75
Exhibit 54: Chelan County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018 75

Exhibit 55: Douglas County Agricultural Land and Farmworker Housing Units 80
Exhibit 56: Douglas County Historical and Projected Growth Rates, 2000-2040 81
Exhibit 57: Douglas County Historical and Projected Population, 2000-2040 81
Exhibit 58: Douglas County Population by Age Cohort, Historical and Projected 82
Exhibit 59: Douglas County Household Size and Rental Housing Unit Sizes 83
Exhibit 60: Douglas County Housing Tenure by Household, 2018 83
Exhibit 61: Douglas County GDP, All Industries 84
Exhibit 62: 2018 Agricultural Employment by Type, County versus State Averages 85
Exhibit 63: Douglas County Farmworker Estimates by Employment Type, 2018 85
Exhibit 64: State and Douglas County Household Income Brackets 86
Exhibit 65: Total Housing Units by Type, Douglas County 2018 87
Exhibit 66: Douglas County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018 88
Exhibit 67: Franklin County Agricultural Land and Farmworker Housing Units, 2019 91
Exhibit 68: Franklin County Historical and Projected Growth Rates, 2000-2040 92
Exhibit 69: Franklin County Historical and Projected Population, 2000-2040 92
Exhibit 70: Franklin County Population by Age Cohort, Historical and Projected 93
Exhibit 71: Franklin County Household Size 94
Exhibit 72: Franklin County Housing Tenure by Household, 2018 95
Exhibit 73: Franklin County GDP, All Industries 96
Exhibit 74: 2018 Agricultural Employment by Type, County versus State Averages 97
Exhibit 75: Franklin County Farmworker Estimates by Employment Types, 2018 97
Exhibit 76: Franklin County and State Household Income Brackets 98
Exhibit 77: Total Housing Units by Type, Franklin County 2018 99
Exhibit 78: Franklin County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018 100
Exhibit 79: Grant County Agricultural Land and Farmworker Housing Units, 2019 104
Exhibit 80: Grant County Historical and Projected Growth Rates, 2000-2040 105
Exhibit 81: Grant County Historical and Projected Population, 2000-2040 105
Exhibit 82: Grant County Population by Age Cohort, Historical and Projected 106
Exhibit 83: Grant County Household Size and Rental Housing Unit Sizes 107

Exhibit 84: Grant County Housing Tenure by Household, 2018 107
Exhibit 85: Grant County GDP, All Industries, 2001-2018 108
Exhibit 86: 2018 Agricultural Employment by Type, County versus State Averages 109
Exhibit 87: Grant County Farmworker Estimates by Employment Type, 2018 109
Exhibit 88: Grant County, Household Income Brackets 110
Exhibit 89: Total Housing Units by Type, Grant County 2018 111
Exhibit 90: Grant County, Percent Change for Farmworker Wages versus Housing Prices, 2012 to 2018 112
Exhibit 91: Okanogan County Agricultural Land and Farmworker Housing Units, 2019 115
Exhibit 92: Okanogan County Historical and Projected Growth Rates, 2000-2040 116
Exhibit 93: Okanogan County Historical and Projected Population, 2000-2040 116
Exhibit 94: Okanogan Population by Age Cohort, Historical and Projected 117
Exhibit 95: Okanogan County Household Size and Rental Unit Size, by Number of Bedrooms 118
Exhibit 96: Okanogan County Housing Tenure by Household, 2018 118
Exhibit 97: Okanogan County GDP, All Industries 119
Exhibit 98: 2018 Agricultural Employment by Type, County versus State Averages 120
Exhibit 99: Okanogan County Farmworker Estimates by Employment Type, 2018 120
Exhibit 100: State and County Household Income Brackets 121
Exhibit 101: Total Housing Units by Type, Okanogan County 2018 122
Exhibit 102: Okanogan County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018 123
Exhibit 103: Skagit County Agricultural Land and Farmworker Housing Units, 2019 126
Exhibit 104: Skagit County Historical and Projected Growth Rates, 2000-2040 127
Exhibit 105: Skagit County Historical and Projected Population, 2000-2040 127
Exhibit 106: Skagit County Population by Age Cohort, Historical and Projected 128
Exhibit 107: Skagit County Household Sizes and Rental Housing Unit Sizes 129
Exhibit 108: Skagit County Housing Tenure by Household, 2018 130
Exhibit 109: Skagit County GDP, All Industries 131
Exhibit 110: 2018 Agricultural Employment by Type, County versus State Averages 132
Exhibit 111: Skagit County Farmworker Estimates by Employment Type, 2018 132
Exhibit 112: State and County Household Income Brackets 133

Exhibit 113: Total Housing Units by Type, Skagit County 2018 134
Exhibit 114: Skagit County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018 135
Exhibit 115: Walla Walla County Agricultural Land and Farmworker Housing Units, 2019 138
Exhibit 116: Walla Walla County Historical and Projected Growth Rates, 2000-2040 139
Exhibit 117: Walla Walla County Historical and Projected Population, 2000-2040 139
Exhibit 118: Walla Walla County Population by Age Cohort, Historical and Projected 140
Exhibit 119: Walla Walla Household Sizes and Rental Housing Unit Size 141
Exhibit 120: Walla Walla County Housing Tenure by Household, 2018 141
Exhibit 121: Walla Walla County GDP, All Industries, 2001-2018 142
Exhibit 122: 2018 Agricultural Employment by Type, County versus State Averages 143
Exhibit 123: Walla Walla County Farmworker Estimates, 2018 143
Exhibit 124: State and County Household Income Brackets 144
Exhibit 125: Total Housing Units by Type, Walla Walla County 2018 145
Exhibit 126: Walla Walla County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018 146
Exhibit 127: Whatcom County Agricultural Land and Farmworker Housing Units, 2019 149
Exhibit 128: Whatcom County Historical and Projected Growth Rates, 2000-2040 150
Exhibit 129: Whatcom County Historical and Projected Population, 2000-2040 150
Exhibit 130: Whatcom County Population by Age Cohort, Historical and Projected 151
Exhibit 131: Whatcom County Household Size and Rental Unit Sizes 152
Exhibit 132: Whatcom County Housing Tenure by Household, 2018 153
Exhibit 133: Whatcom County GDP, All Industries 154
Exhibit 134: 2018 Agricultural Employment by Type, County versus State Averages 155
Exhibit 135: Whatcom County Farmworker Estimates, 2018 155
Exhibit 136: Whatcom County, Household Income Brackets 156
Exhibit 137: Total Housing Units by Type, Whatcom County, 2018 157
Exhibit 138: Whatcom County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018 158
Exhibit 139: Yakima County Agricultural Land and Farmworker Housing Units, 2019 161
Exhibit 140: Yakima County Historical and Projected Growth Rates, 2000-2040 162

Exhibit 141: Yakima County Historical and Projected Population, 2000-2040 162
Exhibit 142: Yakima County Population by Age Cohort, Historical and Projected 163
Exhibit 143: Yakima County Household Size and Number of Bedrooms in Rental Housing Units 164
Exhibit 144: Yakima County Housing Tenure by Household, 2018 165
Exhibit 145: Yakima County GDP, All Industries 166
Exhibit 146: 2018 Agricultural Employment by Type, County versus State Averages 167
Exhibit 147: Yakima County Farmworker Estimates by Employment Type, 2018 167
Exhibit 148: Yakima County, Household Income Brackets 168
Exhibit 149: Total Housing Units by Type, Yakima County 2018 169
Exhibit 150: Yakima County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018 169
Exhibit 151: Monthly Rent as a Percentage of Average Farmworker Wages, Yakima County, 2018 170
Exhibit 152: Housing Availability Highlights 176
Exhibit 153: Housing Affordability Highlights 177

# Executive Summary

## Overview

Washington is home to 35,600 farm operations across 15 million acres of farmland producing crops and food, accounting for approximately $20.1 billion in revenue. More than 300 agricultural commodities, including hops, cherries, apples, asparagus and raspberries, grant the state a global economic presence and employ tens of thousands of people. Thus, the Washington farmworker is a crucial link in the agricultural value chain. However, at an average of 40-60% of HUD-area Median Family Income (MFI), the average Washington state farmworker earns wages that often put decent, safe housing out of reach.

This report was developed for the Department of Commerce to help the Legislature understand and address the challenges of providing decent and affordable housing for farmworkers in Washington. This report meets the requirements related to farmworker housing in Sec. 1011 (9) of the 2020 capital budget:

> $200,000 of the appropriation in this section is provided solely for the department to contract for a study regarding both available and needed affordable housing for farmworkers and Native Americans in Washington state. The study must include data to inform policies related to affordable housing for farmworkers and Native Americans and supplement the housing assessment conducted by the affordable housing advisory board created in chapter 43.185B RCW.

The report summarizes funding available to develop farmworker housing, reviews agricultural work in Washington, estimates the current inventory compared with demand and makes preliminary recommendations to meet the challenge. All report findings and recommendations are based on publicly available employment and housing data and qualitative information gathered through engagement with stakeholders.

# Housing Needs and the Farmworker Housing Supply Gap

Current estimates indicate there are 33,016 units of publicly-funded farmworker accommodations, compared to an estimated 102,304 total farmworkers in Washington. This means up to an estimated 69,288 farmworkers are competing in local housing markets for rental or ownership housing options when those markets provide few options.[1] There is a general housing affordability crisis and an extremely competitive housing market for low-income households statewide, especially in rural areas where agricultural work is primarily located. Farmworkers face additional disadvantages in the private market, including limited or no English proficiency, unfamiliarity with local housing customs, and inability to make upfront payments, such as deposits. These dynamics can force farmworkers to live in overcrowded or substandard rental housing.

**From 2012-2018, statewide farmworker wages increased 19% while home values increased 52% and rent increased 57%.**

Sources: Washington ESD, 2020; Washington Center for Real Estate Research, 2019.

The Washington farmworker population includes resident year-round workers, migrant workers and H-2A visa guest workers, who have different housing preferences and experiences in the housing market. Year-round workers often prefer to live in permanent housing with amenities like schools and churches and work near a single farm or a range of local farms, depending on the season. Temporary migrant workers often prefer to be close to, or even located on, their worksites. Federal law requires employers of H-2A visa workers to provide housing for their H-2A employees at no cost.[2] However, H-2A workers represent only about 12% of all farmworkers in Washington, so this guarantee does not apply to most of the state's farmworkers. Non-H-2A migrant workers are most likely to live unsheltered or in unsafe or unhealthy housing situations because flexible, temporary housing is unavailable in the private market.

Housing is inextricable from health, particularly for agricultural workers in the time of COVID-19. Much temporary farmworker housing is in a congregate style, sharing sleeping quarters and common areas, and farm work often requires physical proximity and shared surfaces. As a result of the COVID-19 pandemic and for the first time in U.S. history, farmworkers have been declared essential workers, permitting them to work even in areas where stay-at-home orders are in place.[3] Where policies offer some protections to farmworkers, they often do not cover undocumented workers, who are the most vulnerable to losses of housing or employment and adverse health conditions.

[1] It is likely this estimate over counts the housing need, since publicly available data shows jobs instead of workers. See page 29 of the full report for discussion.
[2] 20 CFR 655.122(d)(1)
[3] Miriam Jordan, "Farmworkers, Mostly Undocumented, Become 'Essential' During Pandemic," *The New York Times*, (April 2, 2020), https://www.nytimes.com/2020/04/02/us/coronavirus-undocumented-immigrant-farmworkers-agriculture.html

# Recommendations

During this study, farmworkers, employers and community organizations alike highlighted the need for improved farmworker housing access and affordability. Though federal, state and local programs are dedicated to ensuring affordable housing for farmworkers, farmworker housing production has not kept up with the growth in need.

## Funding Recommendations

- **Evaluate increasing or restructuring funding for farmworker housing through the State Housing Trust Fund (HTF).** The HTF is a key resource for farmworker housing funding. Though the level of funding for farmworker housing has remained largely consistent since 1999, the total number of units and beds produced with those funds is lower in the last six years than in the program's first six years.
- **Establish a dedicated funding source for temporary housing.** Temporary units have higher operating costs and lower rents, which means that the private market is unlikely to build temporary housing for migrant workers. Establishing a dedicated funding source for temporary housing with a higher portion of funds available for maintenance and operations can alleviate temporary workers' challenges in local housing markets.
- **Implement the Joint Legislative Audit and Review Committee (JLARC) recommendation to retool the tax exemption for farmworker housing.** The exemption is not utilized to the extent it should be because its occupancy requirements differ from other funding sources. "Agricultural employee" is also defined differently for the exemption and other funding sources. This can limit housing providers that build farmworker housing from combining other funding sources with the exemption.
  In addition, the Department of Revenue (DOR) has a policy restricting the use of seasonal farmworker housing developed using the exemption for other purposes at any time during the year. This creates a situation where housing providers are forced to restrict farmworker beneficiaries from taking non-farm work in certain seasons. Another regulation requires facility managers to reserve 25% of beds for walk-ins, but there is no clarity about who qualifies as a walk-in.
- **Advocate changes to the USDA that make it easier to combine Rural Development (RD) funding with other sources**. USDA RD funds are a key source for funding for farmworker housing development in rural communities. However, this funding requires strict financing and operating conditions that make it challenging to combine funds.
- **Evaluate the Housing Trust Fund allocation of funding to rural versus urban areas and consider offering support to rural communities in applying for funding.** The HTF legislation (RCW 43.185.050) establishes a statutory target of at least 30% of the funds in any given funding cycle be awarded for the benefit of projects located in rural areas

of the state, yet this target is not consistently met. More technical assistance to rural communities could help increase successful applications.

## Housing Development Recommendations

- **Encourage cities to increase zoning and infrastructure investments for multi-family housing within urban growth areas.** Local regulations and discretionary processes tied to the approval of multifamily farmworker housing may create challenges for new development.
- **Remove barriers to the development of low-income rental housing.** Farmworkers seeking rental housing on the private market share major challenges with people with similar incomes. This includes an overall shortage of affordable units for individuals earning 40-60% MFI, and a significant shortage of rental homes, especially units large enough to accommodate families.
- **Evaluate eligibility requirements for subsidized housing and/or prioritization of subsidized housing funds.** As noted above, many domestic workers, both year-round and migratory, struggle to compete in local housing markets with low wages. Yet many farmworkers' incomes are not low enough to qualify for prioritization on subsidized housing waitlists.

## Program Recommendations

- **Establish housing navigators for farmworkers.** Farmworkers are more likely to be immigrants and to speak a language other than English than the statewide population. This can put them at a disadvantage when they try to find housing. Housing navigators can help address these barriers by providing services customized to meet families' needs during the preparation and early housing search phases, including helping households know fair housing rights.

## Other Recommendations

- **Evaluate reforms to the H-2A guest worker program.** From the farmworker perspective, working conditions for H-2A workers are often poor or unsafe. While housing is provided and is based on temporary housing standards, its quality varies significantly between employers. Growers value access to a stable workforce, which the H-2A program provides, but see significant room for improvement. The program is perceived among growers as cumbersome, time-consuming, expensive, and inflexible.

- **Advocate for immigration reform.** Undocumented immigrant farmworkers face many challenges. They are often unable or unwilling to advocate for better housing or conditions for fear of penalization for their immigration status. While state and local government assistance has been available to farmworkers during the pandemic, undocumented workers are ineligible for federal public benefits such as extra unemployment insurance or stimulus checks.

# Project Introduction

## Scope of the Project

This report was developed for the Department of Commerce to help the Legislature understand and address the challenges of providing decent and affordable housing for the farmworkers in Washington. The report summarizes funding available to develop farmworker housing, a brief overview of agricultural work in Washington, estimates of the current need and preliminary recommendations to meet the challenge.

## Defining a Farmworker for this Project

**For purposes of this study, we define a farmworker as someone whose employment is classified as Agriculture (11 NAICS[4]).** There are a few exceptions, such as forestry and logging (113), fishing, hunting, and trapping (114), and support activities for forestry (1153). Employment in these industries totals approximately 6% of statewide covered agricultural employment, or 6,000 workers. Forestry and logging employment estimates are highest in Clallam, Cowlitz and Lewis counties. These counties are not profiled in detail in this report due to overall low agricultural employment compared to all counties statewide. Fishing, hunting and trapping employment is highest in King County, followed by Pacific County. This definition is aligned with the Washington State Employment Security Department (ESD), as they are a primary source for farmworker data in Washington.

## Methods

This study approach includes industry analysis using publicly available data sources, a review of research on the topic, interviews with stakeholders, agricultural employers and advocates familiar with farmworker housing conditions in the state, and a survey of farmworkers. More details on these methods are presented below.

[4] North American Industry Classification System

## Data Sources

- Beacon Development Group records for permanent and seasonal farmworker housing stock
- Catholic Community Services/Catholic Housing Services of Western Washington for information on farmworker housing stock
- Employment Security Department (ESD) data was used to establish farmworker employment numbers and wages
- Department of Health (DOH) records for seasonal farmworker housing stock
- Office of Rural and Farmworker Housing (ORFH) records for permanent and seasonal farmworker housing stock
- United States Department of Labor data for H-2A visa requests
- Washington State Department of Commerce (Commerce) data for permanent and seasonal farmworker housing stock
- Washington State Department of Agriculture (WSDA) data for agricultural lands

## Interviews

We are grateful to all interviewees for their time and insights. The following interviews were conducted to enhance our understanding of the farmworker housing landscape in Washington:

- Gloria Velasquez Burton, Catholic Community Services
- Erin Porter and Kimberly Gierach, Washington Department of Health (Dec. 5, 2019)
- Jason Davidson and Nona White, Department of Commerce (Jan. 6, 2020)
- Joshua Moll, Employment Security Department (Jan. 8, 2020)
- Marty Miller and Korbie Haley, Office of Rural and Farmworker Housing (Jan. 17, 2020)
- CaraMia Stearns-Vance, Employment Security Department (Jan. 17, 2020)
- Dan Fazio, Wafla (Feb. 27, 2020)
- Lowel Krueger, Yakima Housing Authority (March 2, 2020)
- Brett Valicoff, Valicoff Fruit Co. (March 6, 2020)
- Bryan Ketcham, Catholic Charities (March 19, 2020)

- Bre Elsey, Washington Farm Bureau (June 11, 2020)
- April Clayton, Red Apple Farms (June 22, 2020)
- Jon Devaney, Tree Fruit Association (June 23, 2020)
- Rosella Mosby, Mosby Farms (July 7, 2020)
- Josh Koempel, Rock Island Farm (July 9, 2020)

## Washington COFS (COVID Farmworker Survey)

BERK is working with the Department of Health, University of Washington researchers and community partners on a survey of farmworkers across the state. The purpose of the survey is to gather information that can provide clear, consistent, transparent, linguistically appropriate and culturally intelligible statewide outreach and to farmworker communities about mitigating the current COVID-19 pandemic in Washington. Questions around housing needs and demographics will be especially relevant to this study.

The primary audiences for the survey include:

- Farm/agricultural workers
- Post-production workers (packing houses)
- Migrant farmworkers
- H-2A farmworkers
- Shellfish harvesters (aquaculture)
- Greenhouse and nursery workers
- Dairy workers

Surveys were conducted over the phone in August and September 2020 by promotoras and other trusted, locally-based farmworker community representatives. There was a quantitative survey and in-depth interview. Both methods were conducted in Spanish, with support for other languages as necessary. There were 217 respondents to the survey across the state. More information on the survey is available at this link: http://covid19farmworkerstudy.org/washington-2/

# Farmworker Housing Landscape

## Farmworker Housing Types

Farmworker housing falls into three broad categories:

1. Permanent housing
2. Temporary housing
3. Emergency housing

### *Permanent Housing*

Permanent housing for farmworkers includes rental units that are available year-round and owner-occupied housing units. Most rental and owner-occupied housing units targeted for farmworkers are developed, owned and managed by nonprofit organizations or local housing authorities. Permanent housing units include units for individuals and families.

In addition to affordable units targeted for farmworkers, farmworkers may also live in rental or owner-occupied housing available on the private market, particularly in areas where targeted farmworker housing is limited. When renting or buying on the private market, farmworkers compete against other renters and homeowners for units and face market-rate housing prices that are generally unaffordable.

### *Temporary Housing*

Temporary farmworker housing serves the needs of migrant workers and H-2A visa holders. It may take the form of single-family homes, apartments, dormitories, RVs or trailers, hotel or motel rooms, or other structures. In temporary housing, workers typically share rooms and other facilities. Beds in temporary housing facilities may be available on a nightly, seasonal or intermediate basis.[5]

Nonprofits, housing authorities, farm owners, and private market organizations operate temporary housing facilities for farmworkers. The Department of Commerce (Commerce)

[5] Washington State Farmworker Housing Trust, "2006 Farmworkers Survey," (May 2007).

indirectly provides a limited amount of temporary housing via its Rent-a-Tent program, allowing cherry growers to rent tents to house workers at a subsidized rate. The program is restricted to farmers housing cherry harvest workers.[6] Commerce also operates a trailer program at Monitor Park in Chelan County, which is managed by the county with operating funds from Commerce.

Traditionally, many farm operators provide temporary housing for migrant workers. However, state regulations designed to improve conditions in temporary farmworker housing have also increased costs for growers, leading some to stop providing housing.[7] A notable exception is housing for H-2A visa workers — farm operators are required to provide housing for these workers.

## Farmworker Housing Within the Context of the Growth Management Act (GMA)

Under the Growth Management Act, all counties in Washington must designate and conserve "natural resource lands of long term commercial significance." Nonagricultural accessory uses and activities, including new buildings, parking or supportive uses, must not be located outside the general area already developed for buildings and residential uses and shall not otherwise convert more than one acre of agricultural land to nonagricultural uses.[8] Washington's 29 "fully planning counties" must also adopt a rural element in their comprehensive plan. The GMA requires various rural densities for rural lands that are not of commercial significance, typically one unit up to five, 10 or 20 acres, and the county comprehensive plan must define and protect rural character.[9]

The GMA allows accessory dwelling units (ADUs) on rural parcels. Typically, attached ADUs are permitted locally because they likely share driveways, wells and septic systems with the primary residence and appear as single-family developments. Detached ADUs usually have more regulatory requirements to guard against the impacts on rural character and service demand.

If licensed by the Department of Health (DOH), temporary/migrant farmworker housing is exempt

[6] Washington State Department of Health, "Temporary Worker Housing (Migrant Farmworker)," (2020), https://www.doh.wa.gov/LicensesPermitsandCertificates/FacilitiesNewReneworUpdate/TemporaryWorkerHousing/PermittedLandUse/Tents; under RCW 70.114A.110, H-2A visa workers may not be housed under the state's cherry harvest temporary labor camp program since the H-2A regulations require that workers must be provided housing.
[7] Interview with Dan Fazio, Executive Director, Wafla, (Feb. 27, 2020).
[8] RCW 36.70A.170 requires designation. RCW 36.70A.177 allows innovative zoning techniques and accessory uses to support agricultural activities, but does not provide detail on additional residential uses. See also WAC 365-196-815
[9] RCW 36.70A.070(5)

from the density requirements of the GMA.[10] Temporary or migrant farmworker housing, which can be a permanent structure, must be located on a rural worksite and used for workers employed at the site. DOH licensing authority overrides local zoning regulations for licensed, temporary housing except for the building height, setback, and road access requirements for the local zone.[11]

There are many examples across the state of permanent structures used for temporary housing. Most permitted examples are on farms, but many counties are starting to see a shift to building or repurposing facilities within towns to be closer to services. Some of these builds are dormitory-style and were built under local permitting, then retrofitted for farmworker housing.

## The Flow of Public Dollars to Farmworker Housing

There are two main financial sources for farmworker housing: federal and state governments.

### *Federal Funding*

The federal government funds the production of farmworker housing through block grant programs, competitive direct grant/loan programs and tax credits.

The programs funding permanent farmworker housing are:

- The National Housing Trust Fund (HTF). Administered by the Department of Housing and Urban Development (HUD), the national HTF provides states with block grants to fund the production and preservation of affordable housing units. Commerce awards national HTF funds to specific projects in Washington through a competitive application process (see the section on state HTF funds below).[12] This program only funds permanent housing, including for farmworkers.
- Farm Labor Housing Direct Loans and Grants. The Section 514/516 Farm Labor Housing (FLH) program provides loans and grants to develop on- and off-farm housing. The U.S. Department of Agriculture (USDA) Office of Rural Development (RD) administers this

[10] RCW 70.114A.050; Washington State Department of Health, "Temporary Worker Housing (Migrant Farmworker)," (2020), https://www.doh.wa.gov/LicensesPermitsandCertificates/FacilitiesNewReneworUpdate/TemporaryWorkerHousing/FrequentlyAskedQuestions#13
[11] RCW 70.114A.050
[12] National Low Income Housing Coalition, "Getting Started: First Homes Being Built with 2016 National Housing Trust Fund Awards" (2018), https://nlihc.org/sites/default/files/NHTF_Getting-Started_2018.pdf

competitive loan and grant program. Farmers, farm associations, nonprofit organizations, state and local governments, and Tribal nations are eligible to receive these grants or low-interest loans to fund the construction of affordable, permanent housing for farmworkers.[13]

- Community Development Block Grants (CDBG). Jurisdictions may use CDBG funds for a range of programs benefitting low- and middle-income residents. While funds are not specifically for farmworker housing, projects that support the production and operation of housing for low-income farmworkers are eligible. Cities and counties that meet HUD's minimum population threshold receive CDBG entitlements directly, while the state distributes the remaining funds to lower-population jurisdictions on a competitive basis.[14] This program only funds permanent housing, including for farmworkers.
- Multi-family Housing Direct Loans. Under this competitive program administered by the USDA, developers may receive low-interest loans to fund affordable rental housing construction in rural areas.[15] This program only funds permanent housing, including for farmworkers.
- The Low Income Housing Tax Credit (LIHTC). The LIHTC is a federal program administered by HUD. HUD issues tax credits to states, which then can award them to developers to incentive the production of affordable housing for low-income tenants. This program funds only permanent housing, including for farmworkers.

### *State Funding*

Farmworker housing projects are eligible for the following two state funding:

- The state Housing Trust Fund (HTF) – funds both permanent and temporary/seasonal farmworker housing.
- The retail sales and use tax exemption on labor, services, and materials used to construct or improve farmworker housing – can apply to the construction of permanent and temporary/seasonal farmworker housing.

Each year, Commerce distributes state HTF, federal HTF and federal HOME dollars to qualified

[13] U.S. Department of Agriculture, "Farm Labor Housing Direct Loans & Grants," (2019), https://www.rd.usda.gov/programs-services/farm-labor-housing-direct-loans-grants
[14] Washington State Department of Commerce, "Community Development Block Grants – General Purpose Grants," (2020), https://www.commerce.wa.gov/serving-communities/community-development-block-grants/cdbg-general-purpose-grants/
[15] U.S. Department of Agriculture, "Multi-Family Housing Direct Loans," (2020), https://www.rd.usda.gov/programs-services/multi-family-housing-direct-loans

capital projects in Washington through a competitive funding process. Farmworkers are a priority population for HTF-funded projects, so the Washington State Legislature sets annual funding targets for farmworker housing projects. However, because the program is administered on a competitive funding basis, the state's ability to meet that target is affected by the quantity and quality of project applications for farmworker housing projects each year. The WSHFC distributes federal LIHTC dollars via a competitive process.[16]

In 2019, Commerce distributed $12 million in state and federal HTF funds to four farmworker housing projects, supporting the construction of a combined 226 units of permanent housing.[17]

The LIHTC and sales and use tax exemption programs take the form of foregone revenue. They are intended to incentivize private developers to build farmworker housing and, in the case of LIHTC, offer income-restricted units.

### *Funding Trends*

State funding for farmworker housing has increased over the last 30 years, though the production of new units and beds with those funds has slowed since 2014. When the state established the HTF in 1987, farmworker housing projects were eligible for loans and grants, but no funds were set aside specifically for this housing type. As a result, by 1998, the state had committed only $6.8 million to farmworker housing projects.

In 1999, former Gov. Gary Locke established the Washington State Farmworker Housing Program, a specific program within the HTF. For the first time, the Washington State Legislature set a goal for public funding of farmworker housing projects — $4 million per year. In its first six years of operation, the program distributed $48.4 million in competitive grant/loan funds. It funded the construction of facilities with 1,015 permanent housing units and 4,054 seasonal beds for farmworkers.[18]

In 2009, the Farmworker Housing Program was again folded under the state HTF, though the funding targets for farmworker housing remained in place. In its most recent six years of operation (2014-2019), the HTF awarded $48.0 million for farmworker housing.

Though the level of funding for farmworker housing has remained consistent since 1999, the total

[16] Washington State Housing Finance Commission, "Multifamily Housing," (2018), https://www.wshfc.org/mhcf/index.htm
[17] Washington State Department of Commerce, "2019 Capital Awards for Affordable Housing," (2019), https://deptofcommerce.app.box.com/s/9xm5sx1rrr1qw0njxo1o1srlm7vw3coa
[18] Washington State Department of Community, Trade and Economic Development, "Farmworker Housing in Washington State: Safe, Decent and Affordable," (March 2005).

number of units and beds produced with those funds is lower in the last six years than in the program's first six years. From 1999-2004, the program supported the production of 5,069 permanent units and seasonal beds. From 2014-2019, the HTF supported the production of 1,709 units and beds. This is likely due to two reasons:

1. A focus on permanent housing — 36% of the production in 2014-2019 was permanent units, compared with 20% in 1999-2004
2. Rising construction costs in Washington

### *Funding Gaps*

A major gap, particularly at the federal level, is funding for facilities that accept undocumented farmworkers. Nationally, nearly half of farmworkers (48%) are undocumented,[19] yet federal regulations prohibit facilities funded by the Farm Labor Housing and Multi-family Housing loan and grant programs from renting to undocumented individuals.[20] In addition, programs that support homeownership, like the federal HOME program, are less likely to support undocumented individuals, as many lending institutions will not grant mortgages to undocumented individuals.[21]

## Farmworker Housing Funders

In addition to federal and state programs, several nonprofit, social enterprise, and quasi-public organizations subsidize or support farmworker housing in Washington.[22] These include:

- Impact Capital. A community development financial institution that provides low-interest and flexible lending to nonprofit and public entities producing affordable housing.
- Federal Home Loan Banks. A national consortium of 11 regional banks that provide low-cost funding to financial institutions that support the production of affordable community housing.
- Rural Community Assistance Corporation. A nonprofit organization providing low-cost

[19] Farmworker Justice, "Farmworker Housing and Health in the United States: A General Introduction and Overview," (2014).
[20] Washington State Department of Community, Trade and Economic Development, "Farmworker Housing in Washington State: Safe, Decent and Affordable," (March 2005).
[21] Deyanira Del Río. "Mortgage Lending and Foreclosures in Immigrant Communities: Expanding Fair Housing and Fair Lending Opportunity Among Low Income and Undocumented Immigrants," (Kirwan Institute for the Study of Race and Ethnicity, The Ohio State University, 2010), 3-8, http://www.kirwaninstitute.osu.edu/reports/2010/02_2010_ForeclosuresandImmigrantComm_DelRio.pdf
[22] Washington State Department of Community, Trade and Economic Development, "Farmworker Housing in Washington State: Safe, Decent and Affordable," (March 2005).

financing for affordable housing projects and training and advising for rural communities.

- Washington Community Reinvestment Association. A consortium of financial institutions that provides low-interest loans to farmers and developers to establish on-farm housing.
- Washington State Housing Finance Commission. A self-funded state agency that provides tax-exempt financing and tax credits to developers and nonprofits to fund affordable housing projects.

## Farmworker Housing Developers

Most farmworker housing projects in Washington are developed by organizations that fall into one of four categories:

- Catholic charity and housing services organizations. Catholic housing services organizations have developed more than 60% of the state-funded permanent housing units for farmworkers since 2013. These organizations are regionally based and include Catholic Charities Housing Services - Diocese of Yakima, Catholic Housing Services of Eastern Washington - Diocese of Spokane, and Catholic Community Services/Catholic Housing Services of Western Washington - Diocese of Western Washington, among others. These organizations do not typically develop seasonal housing.[23]
- Local housing authorities. Housing authorities are independent public corporations and may be associated with a city, county or region. In Washington, housing authorities develop both permanent and seasonal farmworker housing. Major developers include the Yakima Housing Authority,[24] which owns 172 farmworker housing units, and the Housing Authority of Skagit County, which has developed 50 permanent units of farmworker housing and 112 seasonal beds since 2013.[25]
- Farmworker and farmer associations. Wafla (farmworkers) and the Washington Growers League (farm operators) develop farmworker housing, primarily seasonal facilities. Since 2013, they have developed state-funded housing facilities with more than 1,000 seasonal beds.[26]

[23] Washington State Department of Commerce, "Capital Awards for Affordable Housing," (2013-2019).
[24] Yakima Housing Authority, "Farmworker Housing," (2021), https://www.yakimahousing.org/services/farmworker-housing/
[25] Washington State Department of Commerce, "Capital Awards for Affordable Housing," (2013-2019).
[26] Ibid.

- Nonprofit housing services organizations. Compared to other developer categories, these organizations play a relatively minor role.[27] However, they may develop permanently affordable housing units available to, but not necessarily restricted to, farmworkers.

[27] Ibid.

# Farmworkers and COVID-19

The COVID-19 Farmworker Study (COFS) used a phone-based quantitative survey and in-depth interviews to bring farmworkers' voices into the public conversation about how to respond to the pandemic. In addition, the study brought together community-based organizations, researchers and advocates to learn about farmworkers who have been working during the COVID-19 pandemic.

According to the study:

- Thirty-six percent of workers stated that they carpooled to work. Most traveled in a regular vehicle and 14% traveled in a van or truck. Fifty-six percent of workers who carpooled traveled with the same people all the time. Among workers who carpooled with various people, 22% stated that they have traveled or worked with someone who presented symptoms of COVID-19.
- Sixty-six percent of workers reported changes in hygiene in the workplace. Seventy-three percent reported that their employers provided them with a mask. In addition, 5% reported an inadequate number of bathrooms in proportion to the number of workers, according to WAC 296-800-23020.
- Forty-nine percent of workers received at least one form of COVID-19 training, 18% received two forms of training, and 13% received three. Training on how to use personal protective equipment could be in the form of a presentation, pamphlet or video.
- Almost all workers took precautions to protect their families when they got home from work.
- Thirty-nine percent of workers indicated that lack of insurance or costs were barriers to receiving medical care. Other barriers to receiving care were loss of wages (23%), loss of work (20%), lack of sick leave (13%), fear of government authorities (6%), and lack of childcare (3%).
- Workers indicated that daily financial challenges include food (50%), rent (46%), utilities (47%), water (43%) and childcare (17%).

## Background

Washington was the first state to experience a major outbreak of COVID-19 in early 2020. Since

then, several Washington counties, including Okanogan[28] and Yakima,[29] have experienced documented outbreaks of the coronavirus among farmworkers.

Agricultural workers, particularly seasonal workers, may be at higher risk of contracting the disease than the general population. Farmworkers were declared essential workers during the pandemic, permitting them to work even in areas with stay-at-home orders.[30] In addition to risks that come with simply going to work during a pandemic, the conditions of agricultural work put farmworkers at particular risk.

Depending on the nature of the work, physical distancing while on the job may be impossible. For example, machines used for harvesting lettuce have fixed seats that are less than six feet apart. In addition, many workers are in enclosed work environments with insufficient ventilation (such as meat packing/processing plants). Limited facilities in fields and orchards also impede handwashing — workers at some farms in California have described overcrowded handwashing stations and soap that runs out.[31]

Outside of work, seasonal and migrant farmworkers face unique challenges in maintaining appropriate distance from others. According to the COFS survey, farmworkers often travel to worksites together, sitting in close proximity in vehicles and touching the same surfaces, both of which may increase disease spread. Migrant workers typically live in congregate housing, in which multiple workers shared a bedroom and common spaces. For H-2A visa workers in Washington, housing often consists of dormitory-style rooms with four workers per bedroom. Reporting from California suggests that some farmworker housing is even more crowded — a legal aid organization filed suit over a residence in central California where 18 to 20 workers shared two bedrooms.[32]

When farmworkers become sick, the environment often does not allow for effective isolation or adequate access to medical care. Because of the time-sensitive nature of harvests, workers feel pressured to work through illnesses. Congregate housing makes it difficult to isolate from other workers when ill.[33] In addition, most agricultural work occurs in rural areas, where the number of

[28] Hal Bernton, "Farmworker death draws state scrutiny in Okanogan County, where COVID-19 cases are spiking," *Seattle Times*, (July 25, 2020), https://www.seattletimes.com/seattle-news/health/farmworker-death-draws-state-scrutiny-in-okanogan-county-where-covid-19-cases-are-spiking/
[29] Jesse Newman, "Coronavirus Hits Nation's Key Apple, Cherry Farms," *Wall Street Journal*, (July 6, 2020), https://www.wsj.com/articles/coronavirus-hits-nations-key-apple-cherry-farms-11594027802
[30] Miriam Jordan, "Farmworkers, Mostly Undocumented, Become 'Essential' During Pandemic," *New York Times*, (April 2, 2020), https://www.nytimes.com/2020/04/02/us/coronavirus-undocumented-immigrant-farmworkers-agriculture.html
[31] David Bacon, "America's Farmworkers—Now 'Essential,' but Denied the Just-Enacted Benefits," *American Prospect*, (April 1, 2020), https://prospect.org/coronavirus/american-farmworkers-essential-but-unprotected/
[32] Ibid.
[33] Ibid.

health care providers is limited. This lack of access is compounded for undocumented agricultural workers, who are ineligible for many forms of health insurance coverage and may be limited to receiving care in emergency rooms or community clinics.[34]

Economic conditions and lost income from the pandemic have exacerbated inequities. Other reasons farmworkers report for lost work time include lack of demand in food supply chains, hiring fewer employees to prevent virus spread, childcare issues, and fear of exposure. Food insecurity is also a key health issue in the pandemic. While food banks and other community resources offer relief for food insecurity, some farmworkers face barriers to utilizing these supports. For example, the National Guard helped distribute food at food banks in some communities, which may deter farmworkers because of the military presence.

[34] California Institute for Rural Studies, "COVID-19 Farmworkers Study (COFS)," (2021), https://cirsinc.org/covid-19-farmworker-study/

# Agricultural Work in Washington

## History of Farmworkers in Washington

The history of agriculture in Washington is deeply entwined with the state's histories of colonization, land ownership, immigration, racism and social and economic justice. This section provides a brief overview of farm labor and agriculture history in Washington, emphasizing its connection to colonization, race and social justice.

Exhibit 1: Clam digging near Port Townsend, 1910



Source: Sam G. Morse, 1910; Washington State Library Photograph Collection, 2020

### *First Peoples*

Since time immemorial, the first peoples of the Pacific Northwest fished the area's rivers, streams, lakes and seas; hunted game in its forests and plains; and gathered wild plants. Fish, particularly salmon, were also central to the diet, culture and way of life for Native Americans in this area. Indigenous peoples were involved in active land management before the arrival of Europeans; they burned prairie lands to maintain healthy prairie ecosystems and allow the camas root to dominate, and planted crops in some areas.[35]

From the earliest exploration by Europeans of the area now known as Washington, owners and operators of farms have been almost exclusively European or white, while farm laborers have included Native Americans, immigrants from Asia, Europe, and Latin America, and whites.

[35] Denise Ranney, *Washington State History (Transitional Learning)* (Bellingham, WA: Whatcom Community College Press).

## *European Exploration*

**Farmers and Farmworkers**
**Farmers,** or **operators,** are individuals who own or manage a farm. Operators hire **farm workers** as laborers for wages. These arrangements are often seasonal, or limited to a specific task, such as the harvest of a crop.

The earliest European arrivals were Spanish, British, and Portuguese explorers who landed on the Pacific coast in the late 18th century hunting otters for the fur trade. These Europeans established settlements, forts, and trading posts in both Western and Eastern Washington. In 1792, Spaniard Salvador Fidalgo arrived at Neah Bay with 83 men and orders to build a military settlement, including the directive to enlist local Native Americans as laborers for the installment's farm. The settlement failed within months, but white settlement of the region experienced a resurgence 50 years later. [36]

Exhibit 2: Peeling bitterroot, 1955



Source: Unknown photographer, 1955; Washington State Library Photograph Collection, 2020

## *White Settlement*

Among the first white American settlers in the area was New York minister Marcus Whitman and his wife, Narcissa. They established a mission at Waiilatpu, near present-day Walla Walla, in 1836. The Whitmans attempted to hire the local Cayuse people as laborers to establish the mission's farms and construct its buildings but could not afford the wages (in the form of tobacco, gunpowder, and clothing) the Cayuse requested. Instead, the Whitmans hired Kanakas — native Hawaiian laborers[37] — and whites.[38] Marcus Whitman invested a significant amount of time in encouraging the Cayuse to adopt agricultural practices — he believed that doing so would lead them to abandon seasonal migration and subsequently provide him with more time to convert them to Christianity.[39]

## *Land Ownership*

Beginning in the mid-19th century, the federal government and Washington's government — territorial, then state — passed laws granting millions of acres of free land to white settlers and dispossessed Native Americans of the lands they inhabited. These included:

- The 1850 Oregon Donation Land Act, which granted 320 acres of free land to white male U.S. citizens in the Oregon Territory.[40]
- The 1862 Homestead Act, which granted 160 acres of land to any U.S. citizen 21 or older.
- A series of treaties with Tribal nations, through which the federal government took hundreds of thousands of acres of land and Native Americans were moved onto reservations.[41]

The result was that landowners — and subsequently farmers and farm operators — were almost exclusively white.

Exhibit 3: Farmer in wheat field, Adams County



Source: A.M. Kendrick, n.d.; Washington State Library Photograph Collection, 2020

## *19th Century Farming Operations*

From the 1850s to the 1880s, the state's major agricultural operations were concentrated in western Washington and included timber, hops, fruits and vegetables. While most farm workers were single white men, operators hired Native American men, women, children, and immigrant Chinese men to assist with harvests. In 1886, the completion of the Northern Pacific Railroad across the Cascades made large-scale crop farming feasible in Eastern Washington, predominately winter wheat. These Eastern Washington wheat farms employed the first known migratory farm workers in Washington — men who traveled between farms in Washington, Oregon and Idaho for the wheat harvest.[42]

[40] Kenneth R. Coleman, "White Man's Territory," (Oregon Humanities, 2018), https://www.oregonhumanities.org/rll/magazine/owe-spring-2018/white-mans-territory-kenneth-r-coleman/

[41] When the first Washington Territorial Legislature met in 1854, it carved out a single exception to the white monopoly on land ownership — the family of George Washington Bush, a free African American who settled in the Olympia area in 1846; Denise Ranney, *Washington State History (Transitional Learning),* (Bellingham, WA: Whatcom Community College Press); Tim Wright, "A History of Treaties and Reservations on the Olympic Peninsula, 1855-1898 "(Olympic Peninsula Community Museum, 2017).

[42] James N. Gregory, "Towards a History of Farmworkers in Washington State," (In *Farmworkers in Washington State,* Seattle Civil Rights & Labor History Project, 2009), http://depts.washington.edu/civilr/farmwk_ch1.htm#_edn3

## *20th Century Immigration*

Exhibit 4: Cannery Workers and Farm Laborer's Union founding members,



Source: Seattle Civil Rights & Labor History Project, 2020

In 1902, the U.S. Bureau of Reclamation began extensive irrigation projects in the Okanogan, Wenatchee and Yakima valleys, enabling these regions to produce the fruit and vegetable crops they are famous for today. The rise of these crops in central Washington led to an increased need for seasonal labor. By 1935, farmers in the Yakima Valley were hiring 33,000 workers for the harvest. In the early years of these harvests, whites and members of the Yakama Nation made up most of the workforce.[43]

Though white men made up the majority of Washington's farm workforce until the late 20th century, immigrants and people of color began to join agricultural work in large numbers as early as the 1880s. These included Chinese, Japanese and Indian immigrants. In the early 20th century, many Japanese families settled Bellevue, the Kent Valley, and portions of Pierce County, establishing productive farms and selling produce in Seattle. However, the success of Japanese farmers resulted in a racist backlash — white farmers led a two-year campaign to force Japanese families out of farming. In 1921, the Washington State Legislature passed the Alien Land Law, making it illegal for Japanese individuals to own or buy land in Washington. The farm acreage operated by Japanese families fell by more than 50% in just two years.[44]

After Congress passed the Immigration Act of 1924, barring all immigration from the Eastern Hemisphere to the U.S., the immigration patterns for farm work shifted. Soon, the largest groups of immigrant farm workers were Mexicans and Filipinos, who were exempt from the Immigration Act because the Philippines was a U.S. territory at the time. Because of their legal status, Filipino laborers were more aggressive in forming unions than previous immigrant groups had been. The Cannery Workers and Farm

**Farmers and Farmworkers**
**Farmers,** or **operators,** are individuals who own or manage a farm. Operators hire **farm workers** as laborers for wages. These arrangements are often seasonal, or limited to a specific task, such as the harvest of a crop.

[43] Maria Quintana and Oscar Rosales Castañeda, "Asians and Latinos Enter the Fields," (In *Farmworkers in Washington State,* Seattle Civil Rights & Labor History Project, 2009), http://depts.washington.edu/civilr/farmwk_ch4.htm#_edn8
[44] Maria Quintana and Oscar Rosales Castañeda, "Asians and Latinos Enter the Fields"

Laborer's Union (CWFLU), formed by Filipino immigrants in 1933 in Seattle, became one of the first American Federation of Labor (AFL) unions led by people of color. Despite violent responses by farm operators and white workers, Filipino laborers continued to organize, participate in strikes, and form new unions through the 1940s and 1950s.[45]

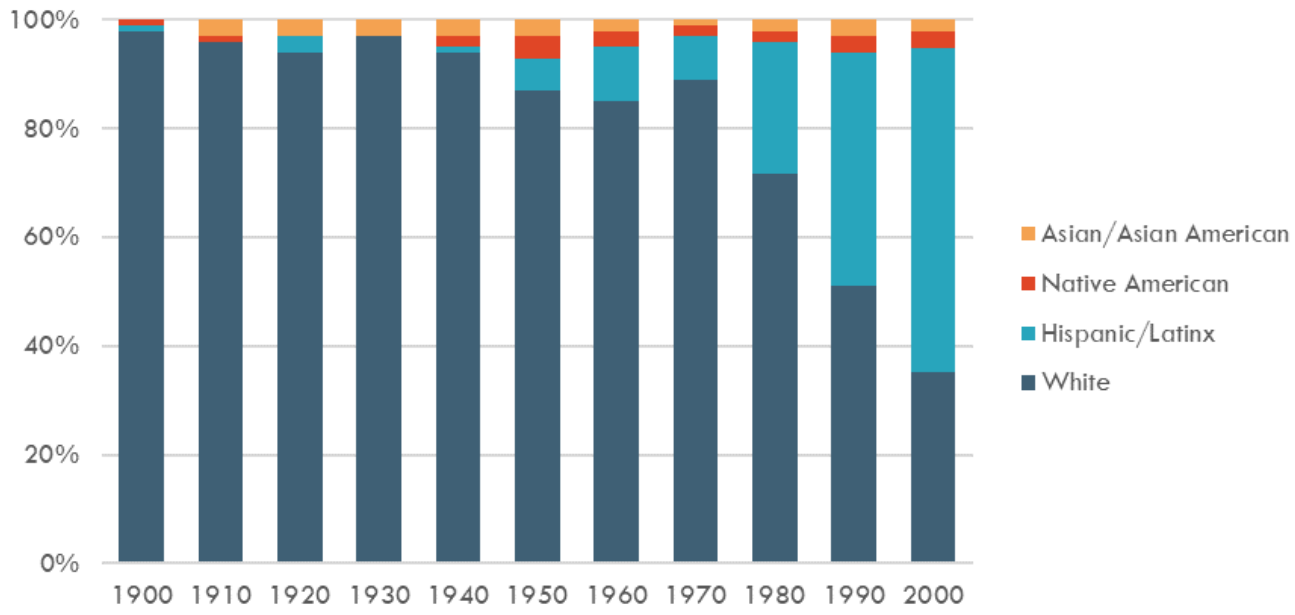
Facing labor shortages in World War II, the federal government authorized the Bracero Program, which granted Mexican laborers legal authorization to work in the U.S. on a temporary contract basis. More than 40,000 braceros were contracted to work for farms in the Pacific Northwest. Working conditions were poor and illnesses and injuries on the job were common, so braceros organized, authorizing a series of work stoppages throughout the 1940s. Farm operator frustration with the organization and work stoppages eventually led to the program's demise in the Pacific Northwest.[46]

## *Farmworkers in the 21st Century*

After the termination of the bracero program, many Mexican American, Mexican and other Hispanic/Latino immigrants settled in the Pacific Northwest, particularly in Eastern Washington farming communities, such as Yakima, Toppenish, Pasco and Othello.[47] Throughout the second half of the 20th century, the number of Hispanic/Latino farm workers in Washington increased steadily. In the 1990s, Hispanic/Latino workers became the majority ethnic group among Washington's farmworkers for the first time.

[45] Ibid.
[46] Maria Quintana and Oscar Rosales Castañeda, "Asians and Latinos Enter the Fields"
[47] Oscar Rosales Castañeda, "Mexican-American Struggles to Organize," (In *Farmworkers in Washington State,* Seattle Civil Rights & Labor History Project, 2009), http://depts.washington.edu/civilr/farmwk_ch5.htm

Exhibit 5: Race of Washington Farmworkers, 1900-2000




Source: U.S. Census Bureau, 2000; Gregory, 2009; BERK, 2020.

Since World War II, Hispanic/Latino workers centered in the Yakima Valley area led labor organizing among farm workers in Washington. In 1986, Cesar Chavez led a march of more than 2,000 farm workers from Granger to Yakima to protest low wages and poor working conditions. Later that year, workers formed the Washington chapter of the United Farm Workers (UFW).[48] Organizing by Hispanic/Latino farmworkers has continued into the 21st century. In 2006, organizers held a "Day without Immigrants" demonstration in Yakima that attracted more than 15,000 marchers.[49] In May 2020, more than 100 fruit packers went on strike in Selah, protesting the dangerous conditions resulting from COVID-19.[50]

## Statewide Trends in Farmworker Location and Industry

The Washington State Employment Security Department divides Washington into six agricultural

[48] Oscar Rosales Castañeda, "The Creation of the Washington State UFW in the 1980," (In *Farmworkers in Washington State,* Seattle Civil Rights & Labor History Project, 2009), http://depts.washington.edu/civilr/farmwk_ch9.htm
[49] Oscar Rosales Castañeda, "The Struggle Continues," (In *Farmworkers in Washington State,* Seattle Civil Rights & Labor History Project, 2009), http://depts.washington.edu/civilr/farmwk_ch10.htm
[50] Enrique Perez de la Rosa, "Are Their Apples Worth More Than Our Lives?': Yakima Valley Fruit Workers Strike," *Oregon Public Broadcasting*, (May 22, 2020), https://www.opb.org/news/article/farmworker-strike-yakima-valley-fruit/

reporting areas, as shown in Exhibit 6. In 2018, more than half of the total average annual covered employment in agriculture stemmed from two reporting areas spanning most of Central Washington, described below. These two regions also had the highest variable (seasonal) employment in 2018.[51] Population data for the counties below are from the American Community Survey.

South Central Area 2 is north east of the Columbia River in south-central Washington. It includes Klickitat and Yakima counties.

- Klickitat County had an estimated population of 22,107 in 2018. The county primarily produces fruits, tree nuts and berries, as well as some cattle.
- Yakima County had an estimated population of 251,446 in 2018. The county produces the most apples, sweet cherries and pears of any county in Washington and the most hops of any U.S. county.

North Central Area 3 is in north-central Washington, directly north of South-Central Area 2, and borders Canada. This region includes Chelan, Douglas, Kittitas and Okanogan counties.

- Chelan County had an estimated population of 77,036 in 2018. Chelan County produces fruits, tree nuts and berries almost exclusively.
- Douglas County had an estimated population of 42,907 in 2018. The county primarily produces apples, wheat and cattle. Agriculture employs one-third of the county workforce, the most workers of any industry sector.
- Kittitas County had an estimated population of 47,364 in 2018. The region grows excellent grass, and its major agricultural industries are hay and cattle.
- Okanogan County had an estimated population of 42,132 in 2018. In 2017, agriculture – mostly tree fruits and wheat – provided more jobs countywide than any other industry sector.

[51] Gustavo Avilés, Josh Moll, Toby Paterson, and Zoe Zadworny, "2017 Agricultural Workforce Report," (Washington State Employment Security Department, September 2019).

Exhibit 6. Agricultural reporting areas in Washington




Source: Washington State Employment Security Department, 2019

In 2017, apple orchards were the largest agricultural industry by employment, employing 25,074 covered farmworkers).[52] However, farm workers do not typically work only within a single agricultural industry or crop. Throughout 2016, more than 40% of agricultural employees worked in a different agricultural industry than in the prior quarter, compared to less than 22% of employees in all other sectors.[53]

## Statewide Demographic Information on Farmworkers

According to the COVID Farmworker Survey (COFS) study:

- Among Washington farmworkers, 23% of families speak English and Spanish at home, and 70% of families who speak an indigenous language also speak Spanish.

  Farmworkers' needs and preferences, as well as housing situations, vary. The COFS study found that farmworkers live in various housing types, including homes, apartments and

[52] Gustavo Avilés, Josh Moll, Toby Paterson, and Zoe Zadworny, "2017 Agricultural Workforce Report," (Washington State Employment Security Department, September 2019).
[53] Gustavo Avilés, Daegoon Lee, Ph.D; Alex Roubinchtein, Ph.D., Zoe Zadworny," 2016 Agricultural Workforce Report," (Washington State Employment Security Department, 2018).

trailers.

- Housing is generally considered affordable if households spend no more than 30% of their incomes on housing.[54]
- The COFS study found that close to 20% of farmworkers surveyed spend more than half their monthly income on housing.
- About 37% of survey respondents spend between 25-50% of their incomes on housing.

## Language and Ethnicity

According to 2008 data:[55]

- Farmworkers primarily speak Spanish, and many have limited English proficiency. In 2006, 94% of farmworkers surveyed by the Washington State Farmworker Housing Trust indicated that they speak Spanish as a primary language at home. Only 1% of farmworkers surveyed indicated speaking English at home, and more than three-quarters indicated they could neither read nor write in English.
- Farmworkers' native language varies by location. For example, in Skagit County, many farmworkers speak a first language other than Spanish, with the two primary languages being Mixteco and Triqui, two indigenous languages from Mexico. Many farmworkers also speak regional variations of both languages.
- In 2006, nearly all farmworkers described themselves as ethnically Mexican or Central American. Ninety-five percent of farmworkers surveyed described themselves as "Mexican" or "Mexican American," and the remaining 5% identified as "Indigenous Mexican" or "Central American."[56]

## Employment Patterns

Seasonality is a key feature of agricultural employment. Farmworkers are often qualified as migrant or year-round workers, depending on their residence. Migrant farmworkers travel for work

[54] U.S. Department of Housing and Urban Development, "Glossary of Terms to Affordable Housing," https://archives.hud.gov/local/nv/goodstories/2006-04-06glos.cfm
[55] Washington State Farmworker Housing Trust, "A Sustainable Bounty: Investing in our Agricultural Future," (Washington State Farmworker Housing Trust), 2008.
[56] IBID.

for at least part of the year. On the other hand, a year-round farmworker lives in the same community and may work for different growers. For example, year-round workers typically work for a period with one grower on cherries and may later work on apples and pears for a different grower in a different season.

Workers who arrive with H-2A foreign worker visas comprise a third category of employees for the statewide agricultural sector. Given labor shortages due to a shrinking and aging workforce, immigration policy changes, the voluntary return of many Mexican people, and lower numbers of domestic migrant workers from California and Texas, growers have increasingly turned to this seasonal guest-worker program to augment and access a stable supply of labor.

Employment type definitions:

- *Year-round covered employment:* Year-round (or "stable," as used by ESD) agricultural jobs (not workers)
- *Migrant covered employment:* Seasonal, or "variable," agricultural jobs (not workers) still covered by unemployment insurance
- *Migrant H-2A employment:* Based on number of H-2A visas requested by employers, adjusted down to 75% reflecting requests versus actual workers who arrive. Annual total, reported by the ESD, adjusted to monthly seasonal rates by federal Department of Labor reporting.

Sources: Washington ESD, 2019; U.S. Department of Labor, 2020; BERK, 2020

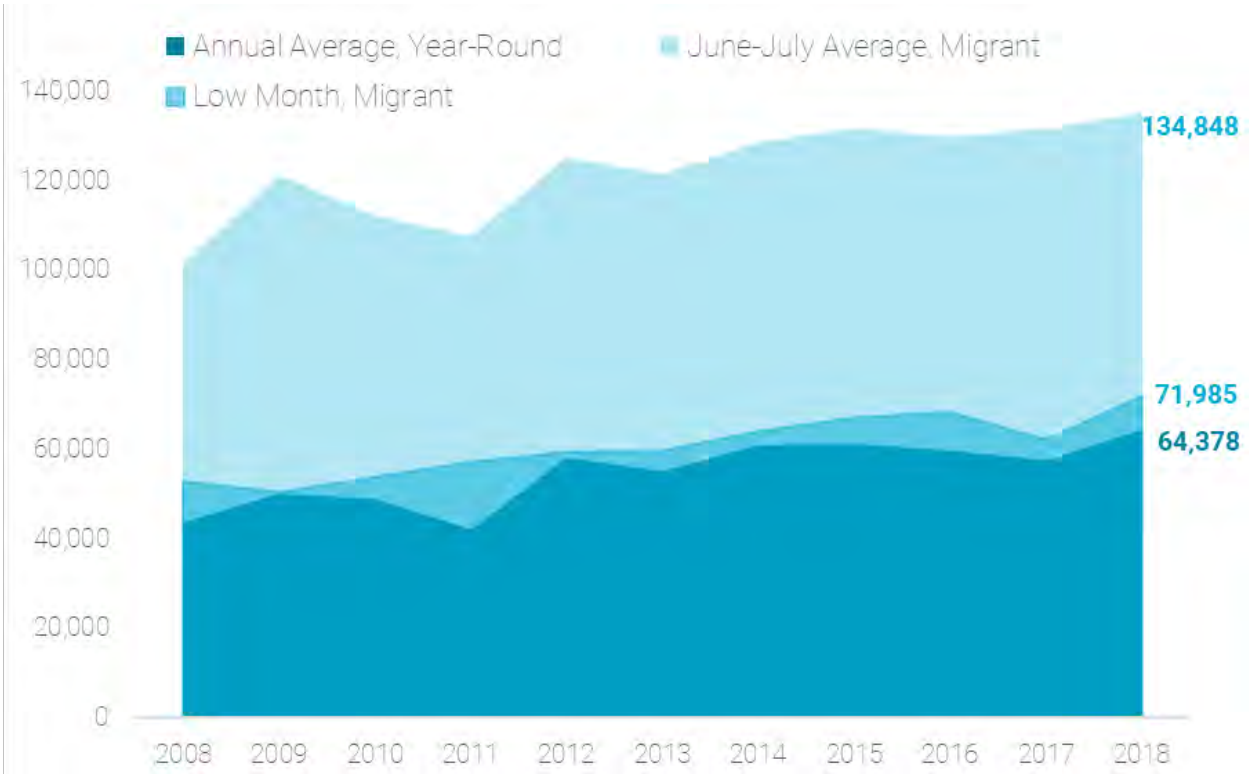
The seasonality of the workforce and the number of jobs that a single worker can hold makes the quantification of agricultural jobs very challenging. The best available source for employment information is the Employment Security Department's Agricultural Workforce Report. ESD categorizes agricultural sector jobs as variable (migrant workers) and stable (workers who may live in one area and work almost year-round). H-2A workers are not included in this dataset. ESD maintains annual counts of H-2A visa requests in Washington but does not report further detail on these reports.

The federal Department of Labor publishes a database of H-2A worker requests by farm location and months of the request. This information can be used to understand what percentage of

ESD's total H-2A visa request count is distributed across Washington's counties throughout the year. This count is then discounted to reflect the reality that request counts are higher than actual H-2A workers are.

In 2018, the total covered farmworker employment was 134,848, as shown in Exhibit 7. Of this count, year-round employment included 64,378 jobs, while the migrant employment counts range from 7,607 in January to 73,616 in July.[57]

Exhibit 7: Statewide Average Annual Covered Employment, Year-Round and Migrant, 2008-2018



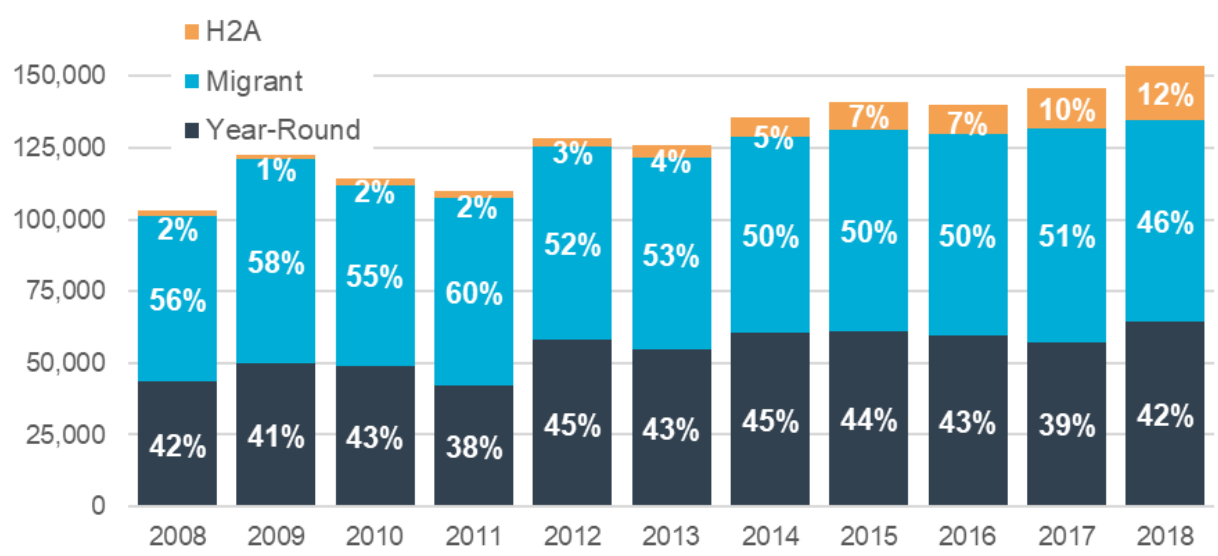

Sources: Employment Security Department/LMEA, 2019; U.S. Bureau of Labor Statistics, QCEW, 2019; BERK, 2020

Agricultural employment has grown from 2008 to 2018. The makeup of this workforce, however, has changed by employment type. Year-round employment has remained relatively stable as a proportion of the workforce, while domestic migrant employment has decreased in its share of total farmworker employment from 56% to 46%. Foreign workers through the H-2A visa program have increased to fill this gap. As shown in Exhibit 8, H-2A workers have increased from 2% to

[57] U.S. Department of Labor, "Performance Data," https://www.dol.gov/agencies/eta/foreign-labor/performance

12% over the same period – an increase of almost 17,000 workers.

Exhibit 8: Statewide Annual Agricultural Employment by Type, 2008-2018

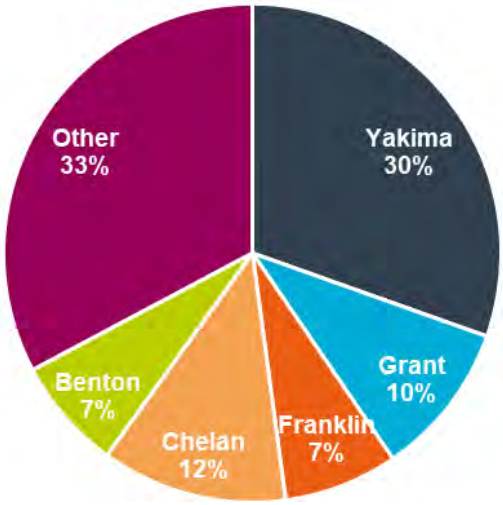



Sources: Employment Security Department/LMEA, 2019; U.S. Bureau of Labor Statistics, QCEW, 2019; BERK, 2020

Note: H-2A workers requested reduced by 75% to reflect trends of actual workers arrived; migrant and year-round employment numbers based on June-July average employment estimates.

Yakima County represents nearly one-third of statewide agricultural employment, with a much higher proportion of domestic employment than H-2A workers. See Exhibit 9 and Exhibit 10. H-2A worker distribution varies in geography. Counties in central Washington, such as Grant, Okanogan and Benton, rely much more heavily on H-2A workers. Qualitative input from grower interviews suggests that this may be related to the rural nature of these counties. These rural areas require long transportation times to access remote farmland, which makes it difficult to attract domestic labor, so H-2A workers help fill this gap.

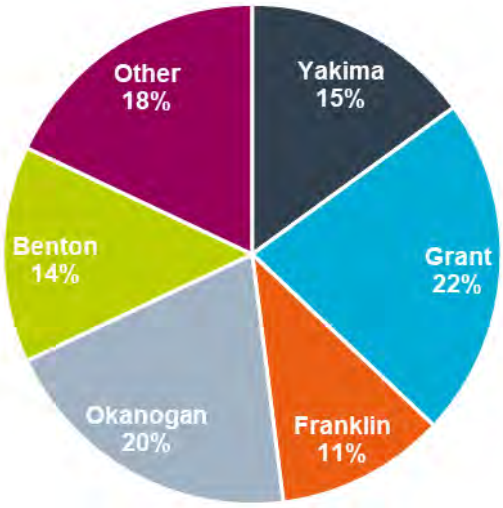
Exhibit 9: Washington Covered Farmworker Employment by County, 2018




Note: Based on three-year average June-July average employment estimates

Sources: Employment Security Department/LMEA; U.S. Bureau of Labor Statistics, QCEW; BERK, 2020

Exhibit 10: Washington H-2A Farmworker Requests by County, 2018

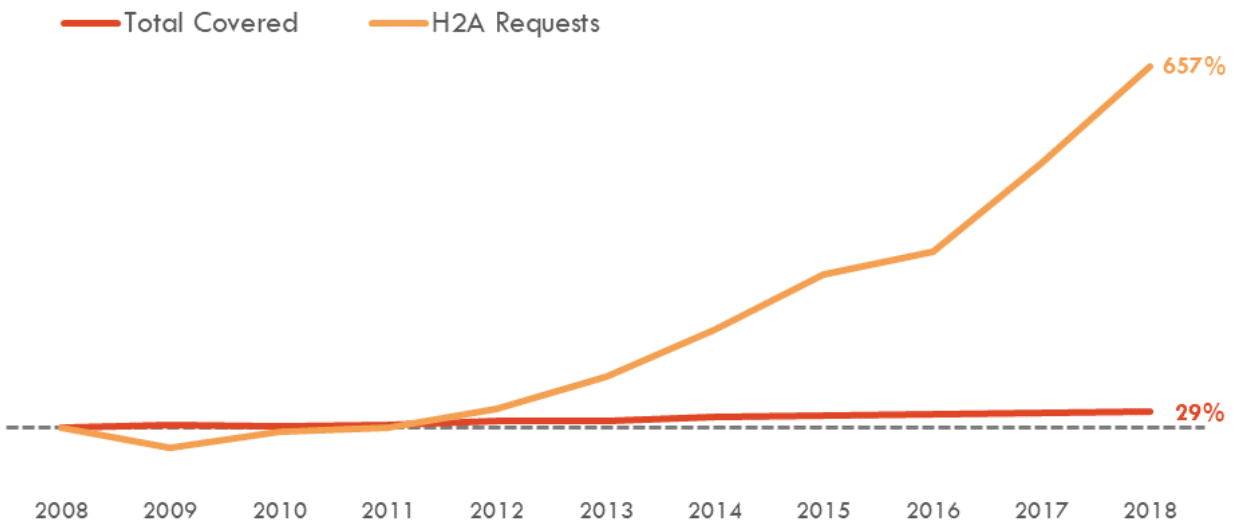



Sources: Department of Labor, Foreign Labor Certification Program, 2019; BERK, 2020

The 2006 Washington State Farmworker Housing Trust survey found that more than 75% of farmworkers were permanent Washington residents and 70% did not travel away from home for work. Of farmworkers surveyed, nearly 60% had worked in Washington agriculture for at least five years and 35% planned to continue to work in agriculture in Washington for at least five more

years. In addition, 1% reported working for the same employer or employers each year.[58] Since 2006, there has been an increase in H-2A applications in Washington, from 42 applications in 2008 to over 260 applications in 2018 (See Exhibit 11).[59]

Exhibit 11: Growth Rates since 2008, H-2A Requested Workers and Covered Employment in Washington




Sources: Employment Security Department, Employment Connections Division - Foreign Labor Certification Program; BERK, 2020

## Income

Annual agricultural wages vary dramatically by county, in part due to the nature of the farm work that counties offer. For example, in 2017, farmworkers in north-central Washington (Chelan, Douglas, Kittitas and Okanogan counties) earned an average of $25,711, while those in the south-central area (Klickitat and Yakima counties) earned 20% more, on average, at $30,721. See Exhibit 6 for a map of counties by region.[60]

Despite this regional variation, statewide farmworker wages have grown over the past five years. When adjusted for inflation, average annual wages for covered farmworkers increased from $25,143 in 2012 to $28,991 in 2017.

[58] Washington State Farmworker Housing Trust, "A Sustainable Bounty: Investing in our Agricultural Future," (Washington State Farmworker Housing Trust), 2008.
[59] Washington State Employment Security Department, Employment Connections Division - Foreign Labor Certification Program.
[60] Washington State Employment Security Department, Agricultural Workforce Report.

Exhibit 12: Annual Growth Rates for Annual Wages of Covered Agricultural Employment, 2013-2017

| Area | 2013 | 2014 | 2015 | 2016 | 2017 | Overall | YoY Avg. Annual |
|---|---|---|---|---|---|---|---|
| Western | 3.1% | 2.1% | -0.8% | 0.0% | 4.3% | 9.0% | 1.8% |
| South Central | 2.2% | 3.3% | 0.8% | 2.5% | 7.6% | 17.2% | 3.2% |
| North Central | 2.6% | 1.5% | 2.6% | 3.6% | 7.6% | 19.0% | 3.6% |
| Columbia Basin | -0.7% | 4.4% | 1.3% | 2.0% | 5.3% | 12.6% | 2.4% |
| South Eastern | 1.3% | 5.3% | 1.7% | 1.9% | 4.7% | 15.7% | 3.0% |
| Eastern | 3.0% | -2.1% | -6.0% | 2.1% | 7.2% | 3.8% | 0.9% |
| **Statewide** | **1.8%** | **3.1%** | **1.1%** | **2.3%** | **6.2%** | **15.3%** | **2.9%** |

Sources: ESD Agricultural Workforce Report, 2019; BERK, 2020

For foreign farmworkers employed through the H-2A program, the Adverse Effect Wage Rate (AEWR), or the effective minimum wage for this population, was $13.38 per hour in 2017 in Washington.[61]

**Regardless of this increase, wages in the agricultural sector remain low.** A few factors compound farmworkers' low wages. Even during peak employment, most farmworkers work less than 40 hours per week.[62] Further, many migrant farmworkers have added expenses of supporting a family at home in addition to living expenses near their work sites (Abbett, 2005, p. 7).

[61] Gustavo Avilés, Josh Moll, Toby Paterson, and Zoe Zadworny, "2017 Agricultural Workforce Report," (Washington State Employment Security Department, September 2019).
[62] Janet Abbett," Farmworker Housing in Washington State: Safe, Decent and Affordable," (Washington State Department of Community, Trade and Economic Development), 2005.

# Statewide Housing Inventory

In Washington, housing for agricultural workers is counted by units for year-round employment and by beds for migrant workers, including covered employment and H-2A workers.

Year-round agricultural workers are assumed to occupy stable housing in their primary community's housing inventory. Certain groups in Washington provide subsidized housing specifically for farmworkers and their families. Outside of these specified units, farmworkers must compete in ownership and rental markets with all other residents.

Migrant farmworkers have less permanent housing needs. Often these accommodations are single-room occupancy buildings or congregate housing/bunkhouses and may be located on the farm or within cities or populated areas. Housing providers may be employers, nonprofits or housing authorities. As part of the H-2A worker program, employers must provide housing for their foreign workers, whether on-site or nearby. This means that available beds will first go to H-2A workers, then to covered migrant and year-round employees. Temporary worker accommodations are licensed through the state Department of Health.

In 2019, an estimated 30,359 beds were provided for migrant or H-2A farmworkers and 2,657 housing units were set aside for year-round farmworker households. Reflective of H-2A visa geographic distribution shown in Exhibit 10, Okanogan and Grant counties have the highest number of seasonal beds while Yakima County has the most permanent housing units. **Overall, these 33,016 accommodations compare to an estimated 102,304 total farmworkers in Washington, meaning that a potential 69,288 farmworkers compete in local housing markets for rental or ownership housing options.** This estimate likely over-counts housing need, since it is based on an employee-to-job ratio from national survey results. Housing needs are further complicated because households come in different sizes and makeups. The estimates assume that each employee represents a unique household, but in reality a single family may include multiple farmworkers and unrelated coworkers may choose to live together rather than individually.

*The National Agricultural Workers Survey (NAWS) is an employment-based, random sample survey conducted by the U.S. Department of Labor. Results from the Northwest region in 2018 suggest that farmworkers typically hold more than one job, with migratory workers working more jobs than year-round employees.*

*Year-round workers: 1.26 jobs*
*Migratory workers: 1.95 jobs*

*Source: https://www.dol.gov/agencies/eta/national-agricultural-workers-survey*

Exhibit 13: Estimate of Farmworker Housing by County, 2019

| | Seasonal Beds | Permanent Units | Projects |
|---|---|---|---|
| Total | 30,359 | 2,657 | 565 |
| Grant | 7,276 | 462 | 118 |
| Okanogan | 5,132 | 77 | 93 |
| Yakima | 4,637 | 948 | 102 |
| Chelan | 2,521 | 146 | 48 |
| Franklin | 2,506 | 145 | 40 |
| Benton | 2,363 | 89 | 39 |
| Douglas | 2,308 | 26 | 44 |
| Whatcom | 1,162 | 84 | 14 |
| Adams | 1,134 | 84 | 20 |
| Klickitat | 482 | 20 | 9 |
| Skagit | 461 | 240 | 19 |
| Walla Walla | 204 | 59 | 4 |
| King | 105 | 0 | 3 |
| Clark | 35 | 0 | 1 |
| Pacific | 17 | 0 | 2 |
| Snohomish | 16 | 0 | 2 |
| Asotin | 0 | 0 | - |
| Clallam | 0 | 0 | - |
| Columbia | 0 | 0 | - |
| Cowlitz | 0 | 138 | 4 |
| Ferry | 0 | 0 | - |
| Garfield | 0 | 0 | - |
| Grays | 0 | 0 | - |
| Grays Harbor | 0 | 0 | - |
| Lewis | 0 | 139 | 3 |
| Mason | 0 | 0 | - |
| Pierce | 0 | 0 | - |
| Spokane | 0 | 0 | - |
| Whitman | 0 | 0 | - |

Sources: Washington State Housing Finance Commission, 2019; Department of Health, 2019; Office of Rural and Farmworker Housing, 2020; BERK, 2020

# Gap Analysis

Exhibit 14 estimates the quantity of stable and covered migratory farmworkers in Washington who must locate housing in the private market. In 2019, an estimated 30,359 beds were provided for migrant or H-2A farmworkers, and 2,657 housing units were set aside for year-round farmworker households. Overall, these 33,016 accommodations compare to an estimated 102,304 total farmworkers in Washington, meaning that a potential 69,288 farmworkers compete in local housing markets for rental or ownership housing options.

Our county profile summaries dive deeper into the income and housing cost ratios across the state to assess how well private markets meet the needs of these households.

Exhibit 14: Washington Housing to Workers Comparison by Employment Type, 2018

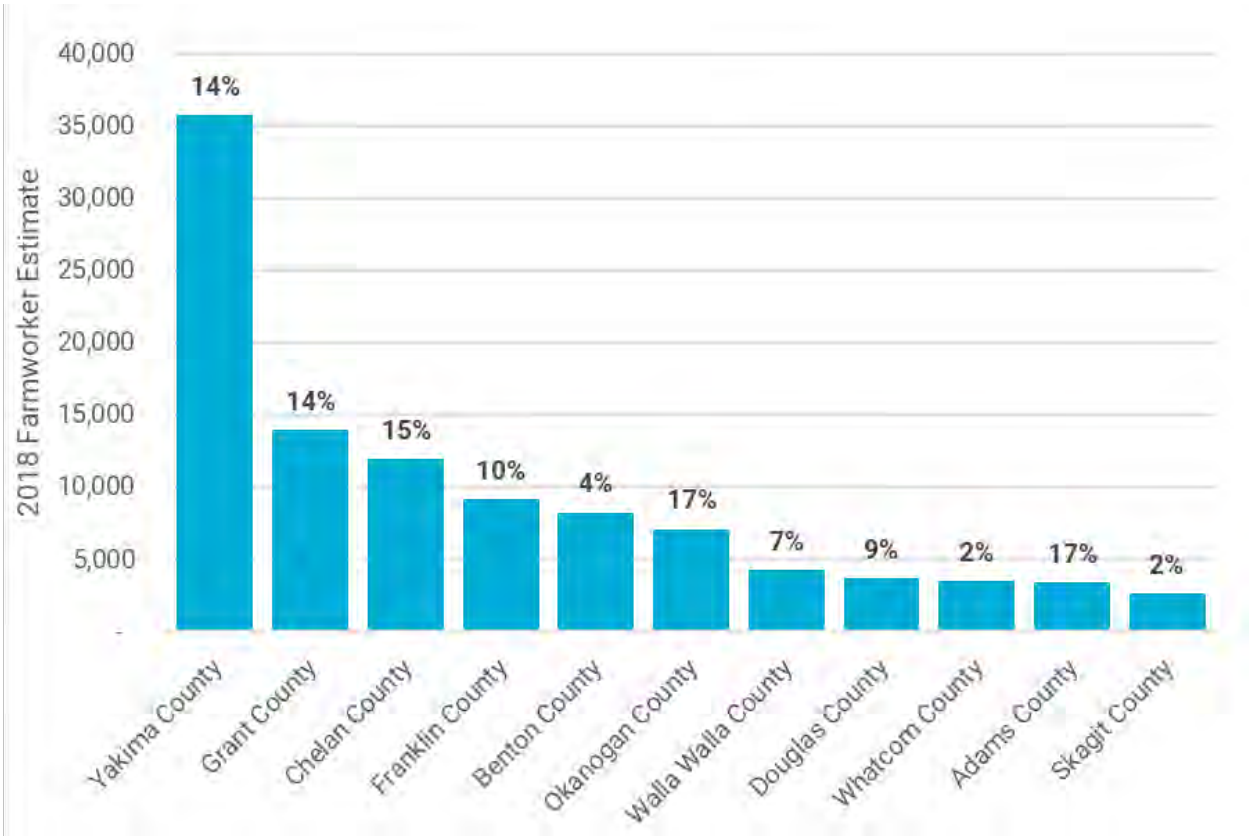
| Employment Type | Estimated 2018 Jobs | Estimated 2018 Workers | Estimated 2018 Accommodations | Estimated 2018 Gap |
|---|---|---|---|---|
| Stable, Covered (Annual Average) | 64,378 | 51,094 | 2,657 units | 48,437 |
| Migrant, Covered (Jun-Jul Average) | 70,470 | 36,139 | 30,359 beds for variable and H-2A | 20,851 |
| H-2A Visa (Jun-Jul Average) | 15,071 | 15,071 | | Mandatory provision |

Note: These numbers assume that 75% of total H-2A worker requests are fulfilled. Job to employee estimates are based on the number of employers per worker, as found in the 2018 NAWS Survey by Northwest respondents

# County Profiles

The following sections profile counties with the highest agricultural production and employment levels in Washington (see Exhibit 15). They cover all six ESD reporting regions and vary in size, crops produced and types of workers employed. Each profile summarizes key trends as they relate to housing needs for the particular region.

Exhibit 15: Farmworker Employment for Profiled Counties as Percent of Total County Population, 2018




Sources: OFM, 2019; Washington State ESD, 2019; U.S. Department of Labor, 2020; BERK, 2020

Exhibit 16 summarizes the total number of employees left to search in local markets for year-round and migratory housing options. Estimates for year-round covered employees begin with the total number of covered farm jobs, adjust for 1.26 jobs per worker, and subtract the number of farmworker-specific housing units. Migratory employment figures begin with the average number of jobs in June and July, adjust for 1.96 jobs per worker, and then subtract seasonal housing units beyond those provided to H-2A workers. **The highest numbers of domestic farmworkers searching locally for housing units are in Yakima and Chelan counties.**

Exhibit 16: Farmworkers Searching for Housing in Local Markets, 2018

| County | Year-Round, Covered Employees | Migratory, Covered Employees | Rental Vacancy Rate |
|---|---|---|---|
| Adams | 990 | 712 | Insufficient data |
| Benton | 2,754 | 2,716 | 2.6% |
| Chelan | 5,222 | 3,305 | 1.4% |
| Douglas | 1,202 | 70 | 1.4% |
| Franklin | 2,204 | 2,936 | 2.6% |
| Grant | 3,889 | 437 | Insufficient data |
| Okanogan | 1,475 | 170 | Insufficient data |
| Skagit | 1,138 | 238 | 0.5% |
| Walla Walla | 1,646 | 1,313 | 0.2% |
| Whatcom | 960 | 602 | 0.2% |
| Yakima | 15,425 | 8,620 | 1.4% |

*Based on average monthly wages by region and countywide average rental rates for a 2-bedroom apartment. HUD considers households cost-burdened when 30% or more of income goes toward housing.

Sources: Covered employment and wage estimates from Washington ESD, 2018. Farmworker housing counts from Washington State Housing Finance Commission, 2019; Department of Health, 2019; and Office of Rural and Farmworker Housing, 2020. Average rents and vacancy rates as reported by Washington Center for Real Estate Research, 2018. BERK, 2020

Rental vacancy rates are an effective metric for estimating tightness in a real estate market.

Nationally, rental vacancy rates have averaged 5-10% in the past 50 years.[63] Lower vacancy rates make it more challenging for workers who earn less or need specialty lease agreements to compete for available units (such as shorter periods, which migratory workers are likely to request). Vacancy rates are low across all counties profiled, particularly in Walla Walla, Whatcom and Skagit. The stock of rental units is too low to calculate in Adams, Grant and Okanogan counties.

Housing affordability is a statewide concern. From 2012-2018, housing costs increased 52% and rents increased 57% statewide.[64] These increases vary across communities, but income growth has not kept pace with housing costs. **For profiled counties, estimated wages are least compatible with average rents in Chelan and Douglas counties.** Exhibit 17 summarizes these trends. The third column calculates the percent of the estimated farmworker income required to rent an average apartment in the area. The higher the percentage, the lower the remaining budget for other needs such as food, transportation or healthcare. In Chelan and Douglas counties, farmworkers spend an estimated two-thirds of their income on housing.

Exhibit 17: Housing Affordability for Farmworkers, 2020

| County | Farmworker Wages as a Percent of HUD-area MFI | Percent of Income Spent to Afford Average Apartment* |
|---|---|---|
| Adams | 57% | n/a |
| Benton | 41% | 36% |
| Chelan | 40% | 66% |
| Douglas | 40% | 66% |
| Franklin | 41% | 36% |
| Grant | 50% | n/a |
| Okanogan | 52% | n/a |
| Skagit | 44% | 39% |
| Walla Walla | 46% | 34% |

[63] Lincoln Land Institute, "The Empty House Next Door," (2018), https://www.lincolninst.edu/publications/policy-focus-reports/empty-house-next-door
[64] Washington Center for Real Estate Research, "Q4 Housing Reports and Spring Apartment Surveys," (2012, 2018).

| | | |
|---|---|---|
| Whatcom | 39% | 42% |
| Yakima | 58% | 31% |

Sources: Farmworker wage estimates from Washington ESD, 2019. HUD-area MFI as reported by Washington Housing Finance Commission, 2020. Rental rates from Washington Center for Real Estate Research, 2020. BERK, 2020.
*Average 2-bedroom, 1-bathroom apartment

# Adams County

## *Key Takeaways*



**As many as 1,702 farmworker households search for housing through local, market rate options in Adams County.**




**Forty-two percent (42%) of this need is for migratory workers,** who have more unique and potentially term-limited housing needs. This is complicated by the reality that there is a very limited stock of multifamily housing in Adams County, fewer than 1,000 units countywide. It is likely that many of these workers are living in less permanent forms of housing, such as mobile homes, as these comprise a quarter of the local housing stock.

**In 2018, Adams County had...**



**1,353 year-round agricultural jobs.**

Farmworker housing resources in the area offered housing units to 8% of estimated workers.

*Permanent Housing (units)*

1,074 Estimated Workers
– 84 Provided Units
990 Estimated Gap



**3,087 migratory jobs available during peak months.**

Provided housing covers 45% of estimated local workers. The remaining 712 competed for housing in the rental market along with 2,151 renter households of Adams County.

*Seasonal Housing (beds)*

1,846 Estimated Workers
– 1,134 Provided Beds
712 Estimated Gap



**Housing affordability is a challenge for farmworkers.** Average annual wages for farmworkers are below the median family income for all household sizes, at 57% MFI overall. The average home value results in cost burden for farmworker wages.




It is likely that many farmworker households are renters. **There are very few rental units in the area that can accommodate families with 4+ people, a common household size in Adams County.** Farmworker families may struggle to secure adequate accommodation at an affordable rate.

## *Introduction*

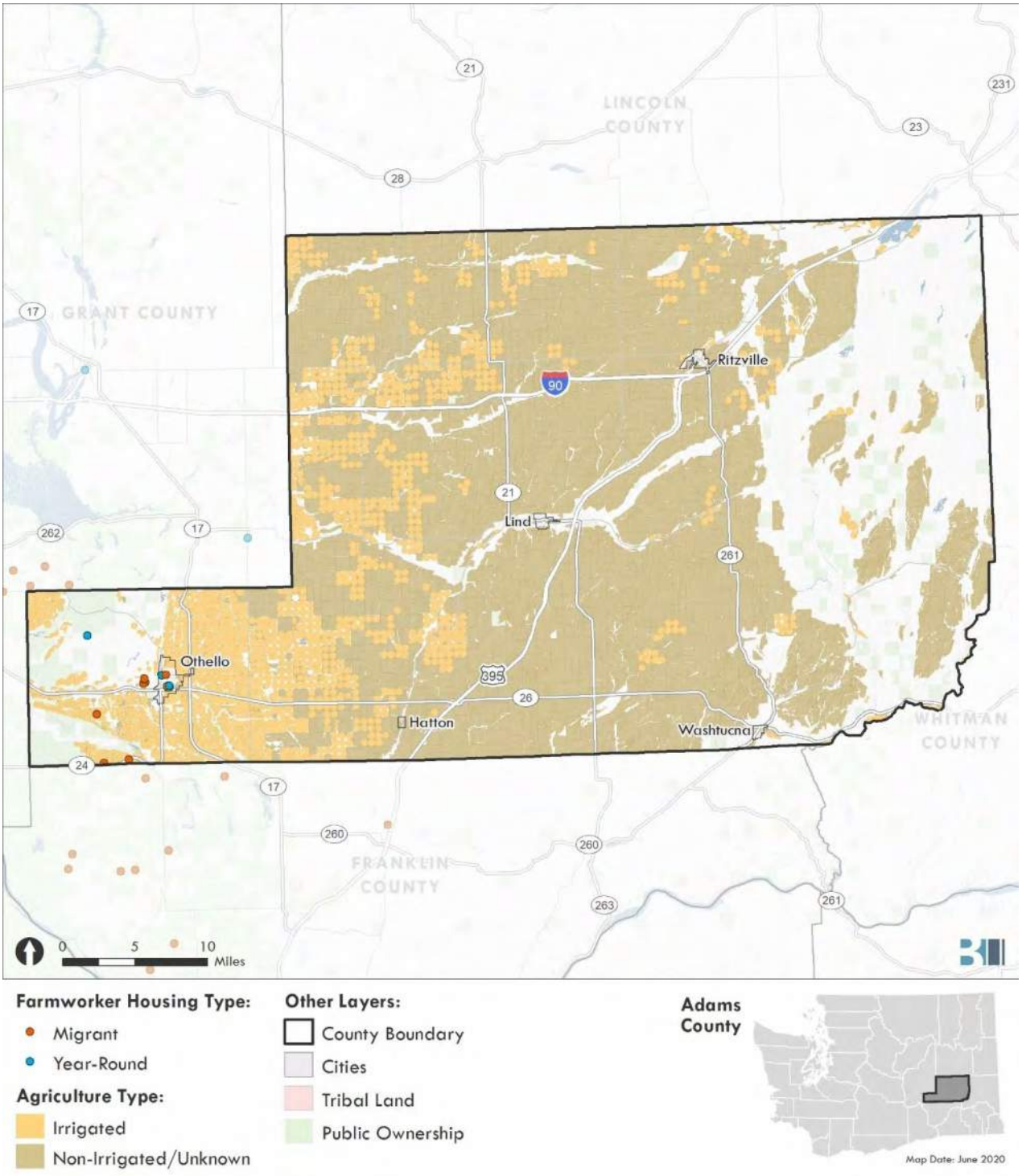
Adams County is part of the Columbia Basin reporting area, situated between Grant and Whitman counties to the west and east, respectively, and Lincoln and Franklin counties to the north and south. Interstate 90 and Highway 395 are two primary transportation routes through the county, connecting many of the incorporated areas. There are 586 farms and more than 842,000 acres of agricultural lands spanning Adams County, with irrigated crops primarily in the west.[65]

Adams County is Washington's seventh most productive county for agriculture, measured by the value of production, and is ranked 11th for year-round agricultural employment. Major crops grown include potatoes, wheat and apples.[66] Other major sectors of employment are government services and manufacturing.[67]

The county has a population of 20,150, with almost half of its residents living in unincorporated areas.[68] Othello is the largest city, with more than 40% of the county population and three-quarters of incorporated residents. The county seat and second-largest city by population is Ritzville. Farmworker housing units are clustered in and around Othello, which is on the western side of the county. This is likely helpful for residents that are more permanent who need to access amenities in the town centers. However, it may result in long commutes to farming operations on the east side of the county.

[65] Washington State Department of Agriculture, "Washington Agriculture Snapshot," (October 2021), https://cms.agr.wa.gov/WSDAKentico/Documents/Pubs/641-WSDAAgInfographic-WEB.pdf?/641-WSDAAgInfographic-WEB
[66] Washington State Department of Agriculture, 2012.
[67] ESD, Average annual employment by 2-digit NAICS codes, 2018.
[68] Office of Financial Management, 2019.

Exhibit 18: Adams County Agricultural Land and Farmworker Housing Units, 2019




Sources: Housing Data from Washington DOH, 2019; Washington State Housing Finance Commission, 2019; Office of Rural and Farmworker Housing, 2019; WSDA, 2019

## *Population Summary*

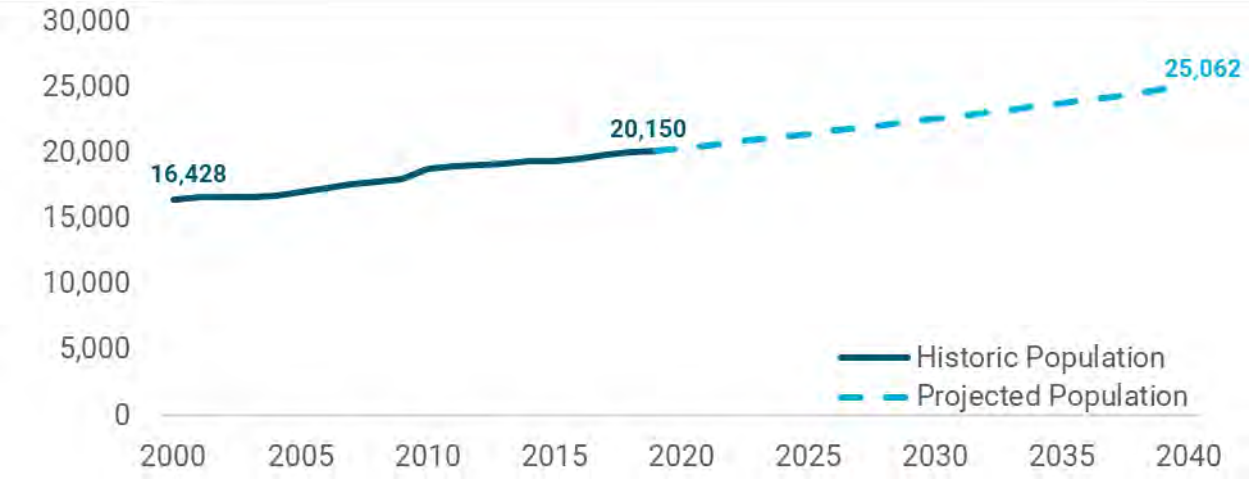
Adams County has a population of 20,150, a 23% increase since 2000. Medium OFM population projections estimate continued growth patterns to 2040, as shown in Exhibit 19 and Exhibit 20. Demographic projections for Adams County estimate a relatively stable proportion of age cohorts, with slightly higher proportions of adults 45 and older offset by 4% fewer youth aged 0-19. A higher proportion of the population at or above retirement age may represent higher demand for healthcare services, mobility assistance and ADA-compliant home design features. The primary age group for farmworkers, 20-44, is predicted to remain relatively stable as a proportion of the population throughout this period.

Exhibit 19: Adams County Historical and Projected Growth Rates, 2000-2040

| Average Annual Growth | 2000-2019 | 2019-2040 Projected |
|---|---|---|
| Individuals | 196 | 234 |
| Percentage | 1.2% | 1.2% |

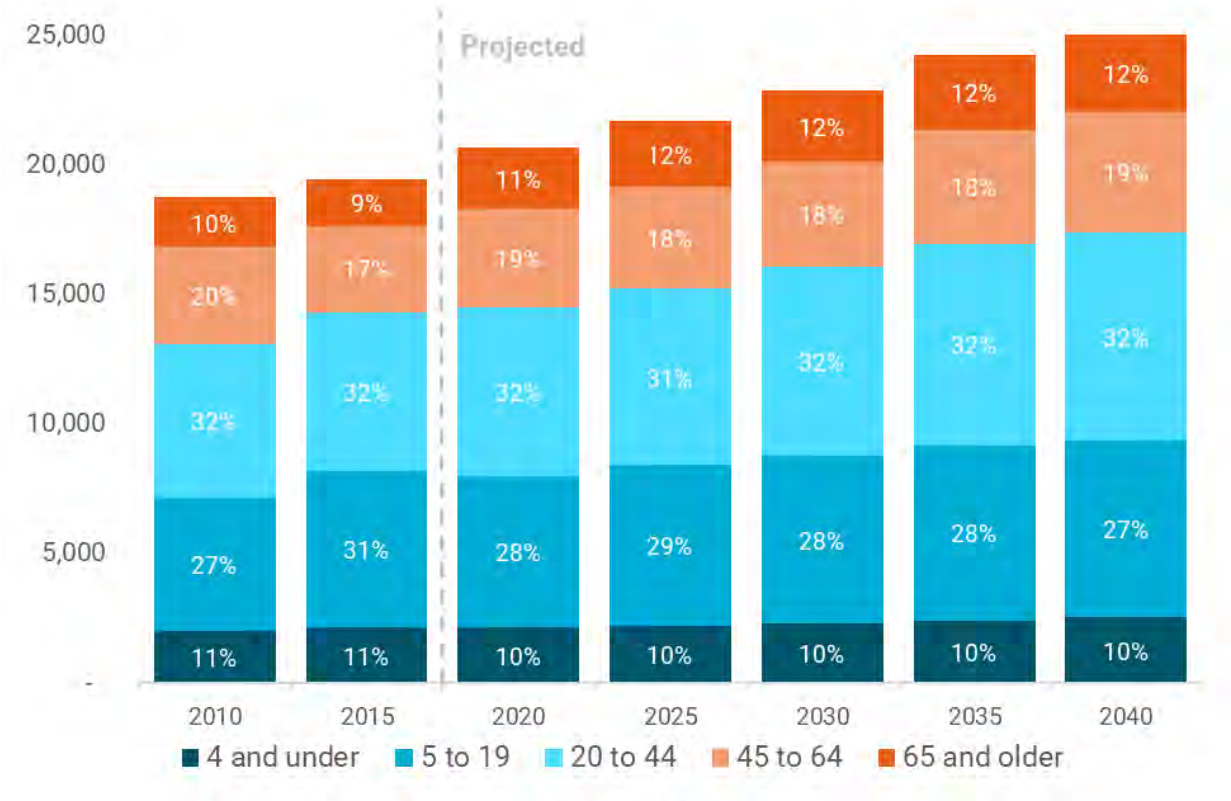
Sources: Washington Office of Financial Management, 2019; BERK, 2020

Exhibit 20: Adams County Historical and Projected Population, 2000-2040




Sources: Washington Office of Financial Management, 2019; 2017 GMA Projections, Medium Series; BERK, 2020

Exhibit 21: Adams County Population by Age Cohort, Historical and Projected




Sources: Washington Office of Financial Management, 2018; BERK, 2019

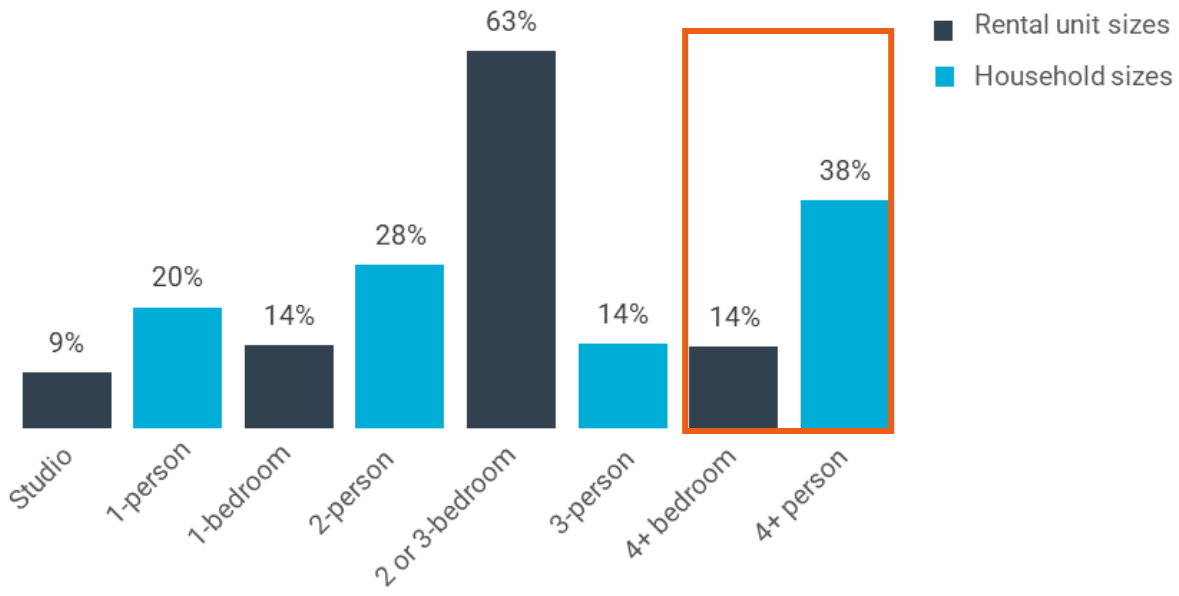
## *Household Population*

The average household size in Adams County is 3.3 individuals.[69] Almost 40% of Adams County households, or 2,151 households, are renters. Survey data suggests that this rate is higher among the farmworker population whose migratory patterns and lower annual earnings (see Exhibit 27) are more compatible with rental housing. This may result in a mismatch of household size and housing stock for agricultural workers who rent and live with children or extended family members, further explored in Exhibit 22. Two- and three-bedroom units represent the majority of rental units available in Adams County. **However, 38% of households have four or more members and may desire housing with more bedrooms. Larger multifamily units with 4+ bedrooms are limited in the rental market (in Adams County, only 14% of rental units are this size), increasing the likelihood of overcrowding and "bunking up" arrangements if households cannot afford to**

[69] American Community Survey, Table DP02 5-year Estimates, 2014-2018.

purchase a home.[70]

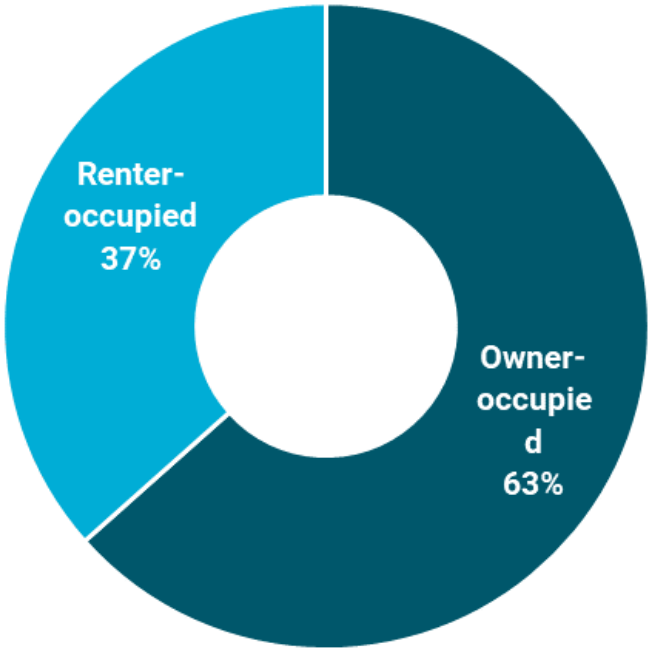
Exhibit 22: Adams County Household Sizes and Rental Housing Unit Sizes




Sources: American Community Survey S2501 and S2504 5-Yr Estimates, 2014-2018; BERK, 2020.

[70] American Community Survey, Table S2504 5-year Estimates, 2014-2018.

Exhibit 23: Adams County Household Housing Tenure, 2018




Sources: American Community Survey Table S2501 5-year Estimates, 2014-2018; BERK, 2020

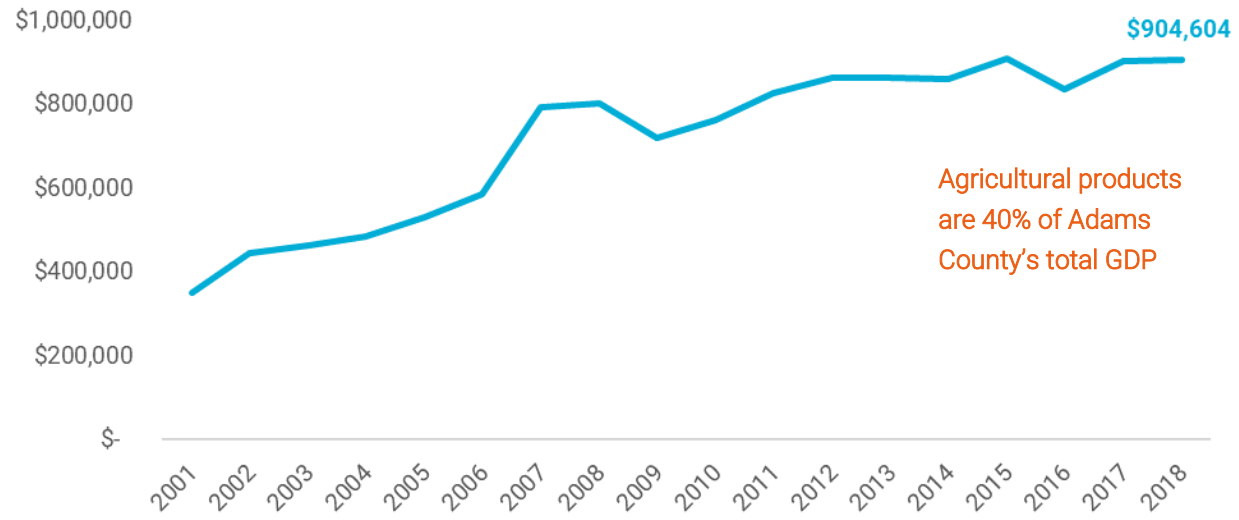
## *County Economy*

In Adams County, covered farmworkers make up **15% of the labor force**. Agricultural products, however, comprise 40% of total gross domestic product (GDP). This is a large percentage compared to other counties.

- Adams County is one of two counties in ESD's Columbia Basin Area where workers earn less than the statewide average annual farmworker wages.
- Top employers for Adams County include McCain Foods, Othello School District, Simplot French Fries and Columbia Basin Health Association.[71]

[71] Adams County Development Council, "Leading Industries," (2013), https://growadamscounty.com/leading-industries/

Exhibit 24: Adams County GDP, All Industries

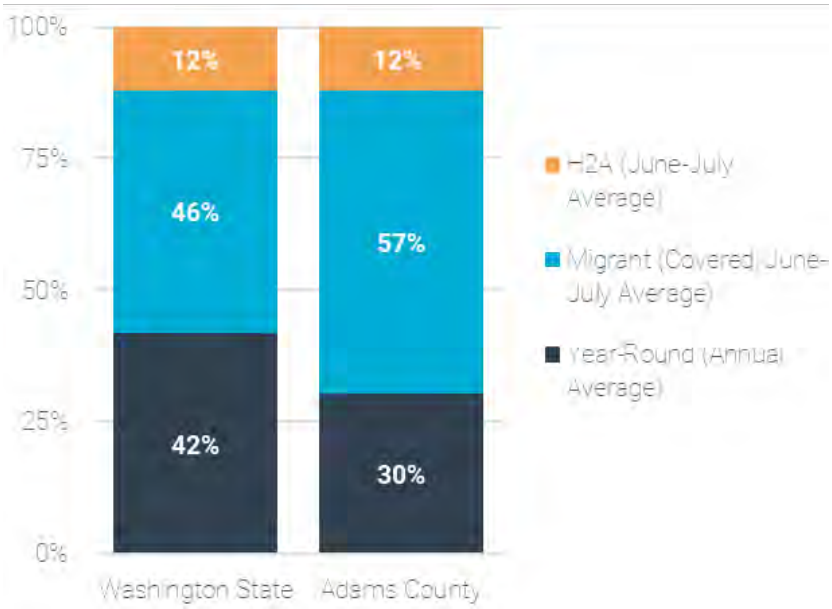



Sources: U.S. Bureau of Economic Analysis (BEA) SAGDP9N series, 2001-2018; BERK, 2020

## *Farmworker Population*

As of 2018, Adams County is home to an estimated **1,353 year-round and covered agricultural jobs**. This number more than triples during the peak months for migrant employment, which is April through October. Compared to statewide averages, Adams County relies more on migrant workers and less on year-round employment. These workers may struggle the most to secure adequate housing during the peak months for labor.

Exhibit 25: 2018 Agricultural Employment by Type, County versus State Averages




Sources: Washington Employment Security Department, 2019; U.S. Department of Labor, 2020; BERK, 2020

Exhibit 26: Adams County Farmworker Estimates by Employment Type, 2018

| Employment Type | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year-round | 1,257 | 1,275 | 1,292 | 1,310 | 1,327 | 1,345 | 1,362 | 1,380 | 1,397 | 1,414 | 1,432 | 1,449 |
| Migrant covered | 347 | 603 | 808 | 1,427 | 1,852 | 2,808 | 2,285 | 2,294 | 2,338 | 1,644 | 532 | 110 |
| Migrant H-2A* | 208 | 283 | 291 | 354 | 599 | 615 | 465 | 358 | 255 | 16 | 0 | 0 |
| **Total estimated monthly employment** | **1,812** | **2,161** | **2,391** | **3,091** | **3,778** | **4,768** | **4,112** | **4,032** | **3,990** | **3,074** | **1,964** | **1,559** |

*Statewide requests provided by ESD and discounted 75% to reflect actual versus requested workers; County estimates based on Department of Labor percentages of worker requests by county

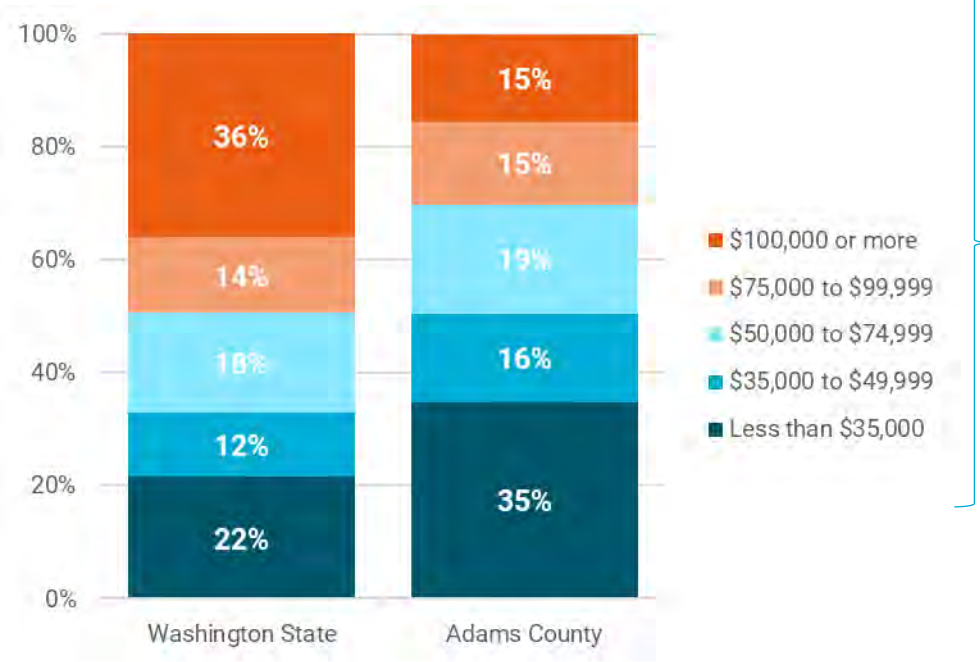
Sources: Employment Security Department, Employment Connections Division - Foreign Labor Certification Program; BERK, 2020

## *Income Summary*

Adams County households have lower incomes than state averages. There is both a higher percentage of households earning less than $50,000 per year and a lower percentage of households earning greater than $100,000 per year. Based on ESD income and wages reporting, farmworker households are likely to earn less than $35,000 per year without additional income

contributed from secondary employment or other household members. This income level is also well below the HUD-area median family income for 2018, which was $52,400.

Exhibit 27: State and Adams County Household Income Brackets




Over one third of Adams County households earn less than $35,000 annually. Many farmworker households are likely to be included in this group, as the 2018 regional average annual salary for agricultural workers was $29,861.

Sources: American Community Survey S1901 5-Yr Estimates, 2014- 2018; BERK, 2020

Estimated wages for farmworkers are below the median family income (MFI) for Adams County at any family size. **A single-person household earning the regional average for farmworkers earns 57% of MFI in Adams County, classified as low-income (50-79% MFI).**

- Median family income for Adams County (2018 - HUD): $52,400
- Average annual income for Columbia Basin farmworkers (2018):[72] $29,861

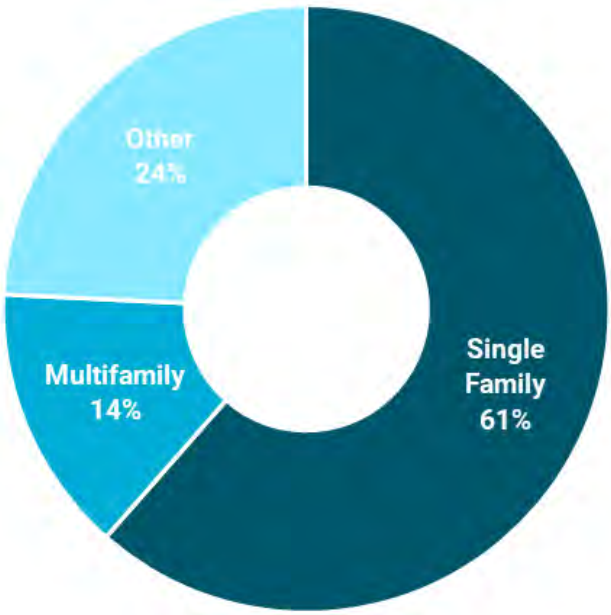
## *Housing Inventory*

There are 7,762 housing units in Adams County. Twenty-four percent of these are classified as "other," including mobile homes and other special housing types, compared to a statewide average of 8%. This high percentage may correlate to the high number of farmworkers living in

[72] 2018 average wages projected based on average annual growth rates over five years, as reported by ESD, 2019.

more temporary housing types in the county. There are less than 1,000 units of multifamily housing available in the county. If no other households competed for these units, they would still only cover 24% of year-round and migratory covered farmworker jobs during peak season.

Exhibit 28: Total Housing Units by Type, Adams County 2018




Sources: Washington State OFM, 2018; BERK, 2020

**Given the regional average annual wages for farmworkers, housing is considered affordable at rates of $747 per month or less.** However, in recent years, housing prices in Adams County have risen 47%, while regional farmworker incomes have increased 15%. See Exhibit 29. This trend has intensified affordability issues for these residents.

Exhibit 29: Adams County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018




Sources: Washington ESD, 2020; Washington Center for Real Estate Research, 2012 & 2018; BERK, 2021

## Rental Housing

There are not enough rental housing units in Adams County for inclusion in Washington Center for Real Estate Center's bi-annual reporting.

## Home Ownership

**The median price of a home in Adams County is $190,000.[73] For a farmworker household earning annual average wages, the estimated mortgage payment on this price of a home results in a cost burden, and the family may not be approved for a loan in the first place.** A more affordable range of ownership housing on farmworker income would be $160,000 or less, assuming the ability to save for a $32,000 (20%) down payment. Approximately 42% of Adams County housing units are available in this price range. However, this down payment will be out of reach for many families, and as down payment size decreases, monthly mortgage payments increase.

[73] Ibid.

# Benton County

## *Key Takeaways*



**As many as 5,470 farmworker households search for housing through local, market rate options in Benton County.**




**Fifty percent (50%) of this need is for migratory workers,** who have more unique and potentially term-limited housing needs.

**In 2018, Benton County had...**



**3,583 year-round agricultural jobs.**

Farmworker housing resources in the area offer housing units to 3% of estimated workers.



**8,085 migratory jobs available during peak months.**

Provided housing covers 14% of estimated local workers. The remaining 2,716 compete in the local housing market, where affordability is a major challenge and the rental vacancy rate is low.

*Permanent Housing (units)*

2,843 Estimated Workers
– 89 Provided Units
**2,754 Estimated Gap**

*Seasonal Housing (beds)*

5,079 Estimated Workers
– 2,363 Provided Beds
**2,716 Estimated Gap**



**Housing affordability is a challenge for farmworkers.** Average annual wages for farmworkers are well below the median family income for all household sizes. Households with 3+ members would be considered very low-income by regional standards. The average home value results in severe cost burden for farmworker wages and very few rental or ownership units are within an affordable range.




It is likely that many farmworker households are renters. **There are very few rental units in the area that can accommodate families with 4+ people, a common household size in Benton County, and even 1-bedroom units would result in cost burden for farmworker wages.** Farmworker families may struggle to secure adequate accommodation at an affordable rate.

## *Introduction*

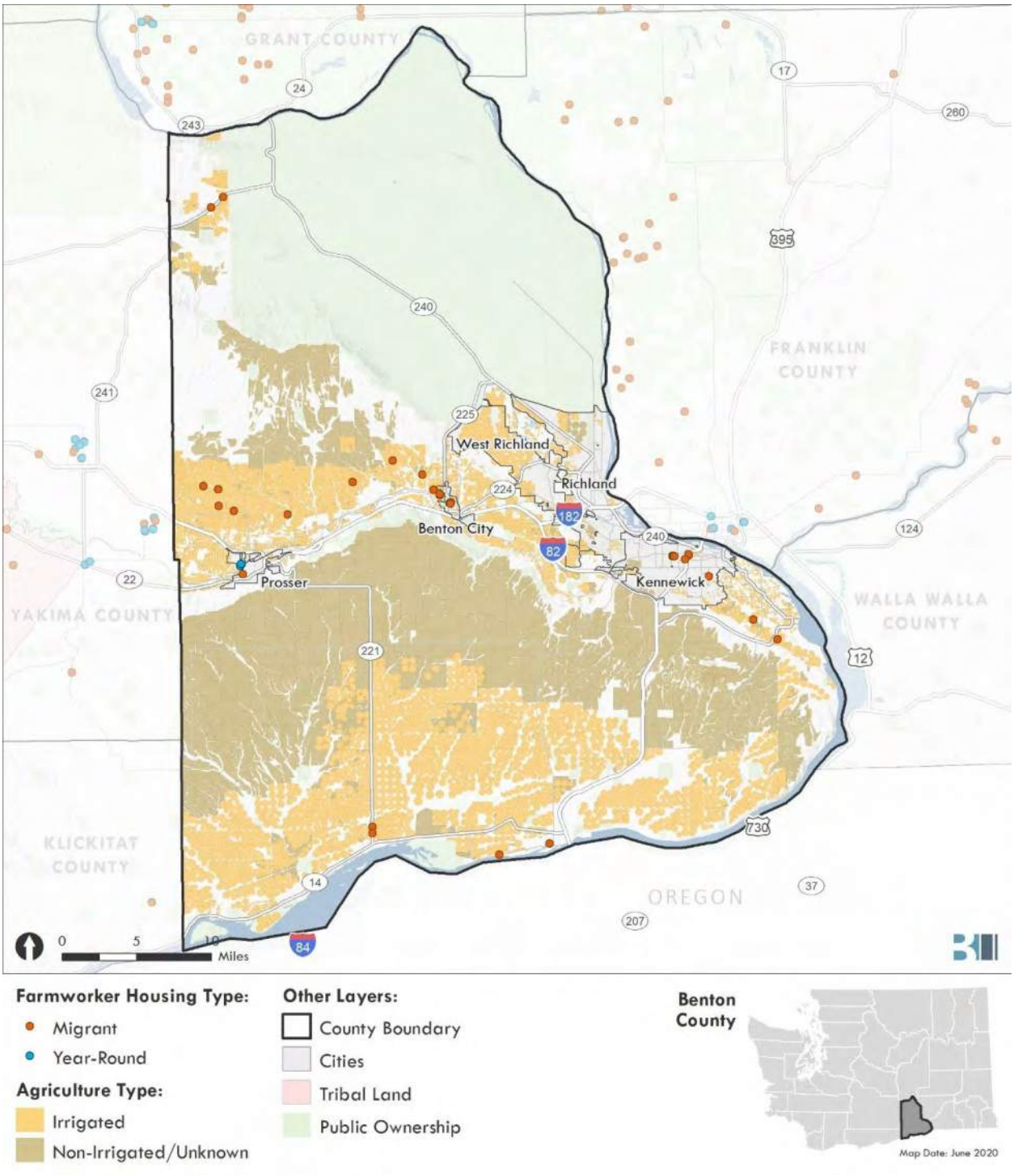
Benton County is part of the southeastern reporting area, wrapped on three sides by the Columbia River and bordered by Yakima and Klickitat counties to the west. Interstate 82 and Highway 240 are the primary routes through the county, connecting many incorporated areas. There are 1,520 farms and over 479,000 acres of agricultural lands, most prevalent in the southern part of the county.[74]

Benton County is Washington's third most productive county for agriculture, measured by the value of production, and is ranked fourth for year-round agricultural employment. The most prevalent crops grown include potatoes, apples and grapes.[75] Other major employment sectors are government services, healthcare and social assistance, and administrative and waste services.[76] Waste services employment is largely tied to the Hanford Nuclear Site outside Richland.

The county population is 201,800.[77] Kennewick and Richland are the largest population centers, combining to house more than 70% of the county's population. Prosser is the county seat.

[74] Washington State Department of Agriculture, "Washington Agriculture Snapshot," (October 2021)
[75] Washington State Department of Agriculture, 2012.
[76] Washington State Employment Security Department, Average annual employment by 2-digit NAICS codes, 2018.
[77] Office of Financial Management, 2019.

Exhibit 30: Benton County Agricultural Land and Farmworker Housing Units, 2019




Sources: Housing data from Washington DOH, 2019; Washington Housing Finance Commission, 2019; Office of Rural and Farmworker Housing, 2019; WSDA, 2019

## *Population Summary*

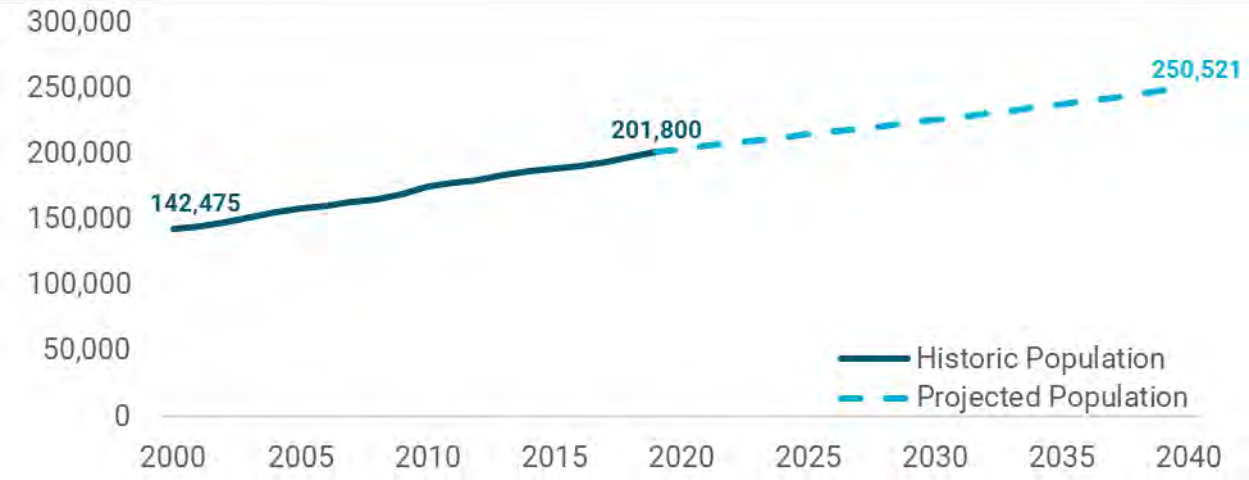
Benton County has experienced dramatic growth over the past decade, with a 42% population increase from 2000 to 2019. Medium OFM population projections estimate continued growth, although at a decelerated pace, to 2040, as shown in Exhibit 139 and Exhibit 140. Demographic projections for Benton County forecast an increased proportion of older adults (65+) as the Baby Boomer generation retires, with slightly lower proportions of all other age cohorts, except infants and young children (4 years old and younger). A higher proportion of the population at or above retirement age may represent greater demand for healthcare services, mobility assistance and ADA-compliant home design features. The primary age group for farmworkers, 20-44, is predicted to decrease slightly (2%) as a proportion of the population throughout this period.

Exhibit 31: Benton County Historical and Projected Growth Rates, 2000-2040

| Average Annual Growth | 2000-2019 | 2019-2040 Projected |
|---|---|---|
| Individuals | 3,122 | 2,320 |
| Percentage | 2.2% | 1.1% |

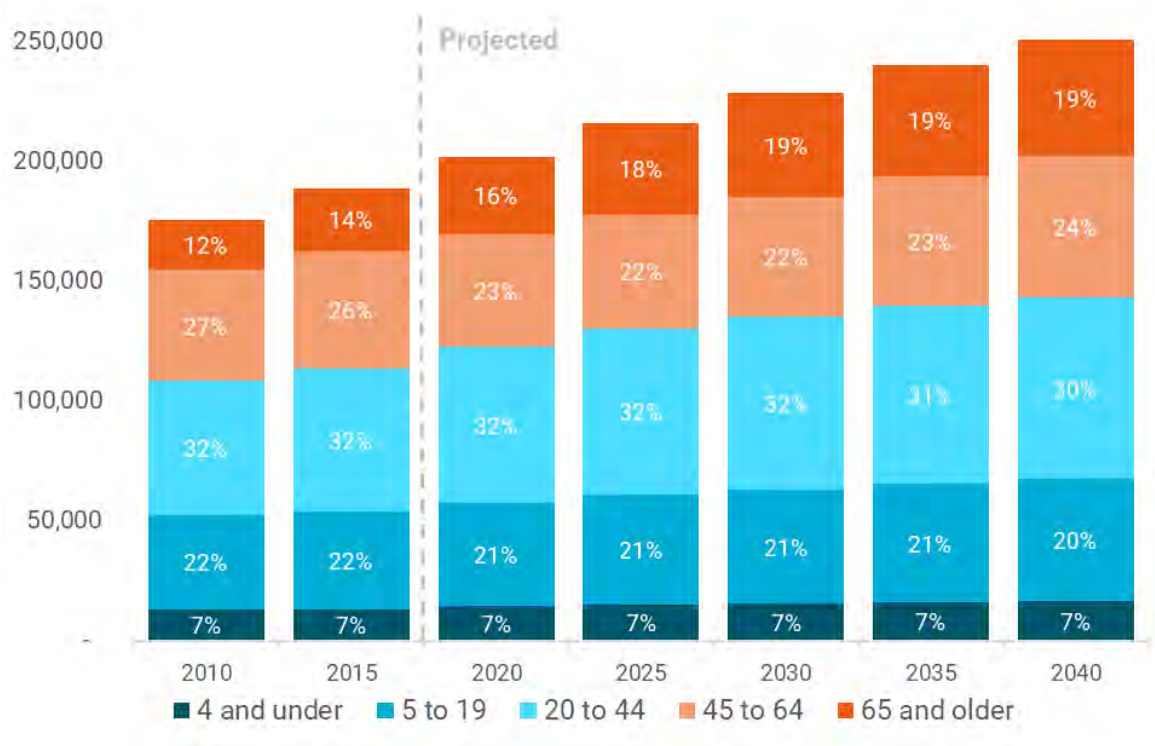
Sources: Washington State Office of Financial Management, 2019; BERK, 2020

Exhibit 32: Benton County Historical and Projected Population, 2000-2040




Sources: Washington State Office of Financial Management, 2019; GMA 2017 Projections, Medium Series; BERK, 2020

Exhibit 33: Benton County Population by Age Cohort, Historical and Projected




Sources: Washington Office of Financial Management, 2018; BERK, 2020

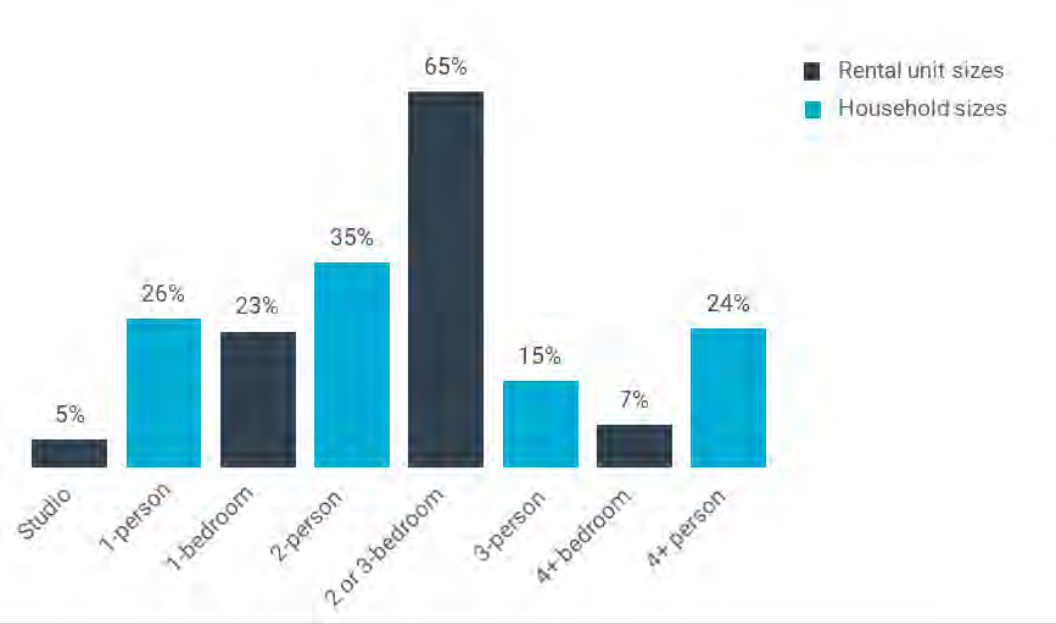
## *Household Population*

The average household size in Benton County is 2.7 people.[78] Farmworker households are likely to reflect the general overall trend of household sizes in Benton County. One-third (32%) of Benton County households, or 22,461 households, are renters. Survey data suggests that this rate is higher among the farmworker population, whose migratory patterns and lower annual earnings (see Exhibit 39) are more compatible with rental housing. This may result in a mismatch of household size and housing stock for agricultural workers who rent and live with children or extended family members, further explored in Exhibit 34. Two- and three-bedroom units represent the majority of rental units available in Benton County. **One quarter (24%) of the population, however, will desire more space to accommodate four or more household members. Larger multifamily units with 4+ bedrooms are limited in the rental market (in Benton County, only 7% of rental units are this size), increasing the likelihood of overcrowding and "bunking up"**

[78] American Community Survey, Table DP02 5-year Estimates, 2014-2018.

arrangements if households cannot afford to purchase a home.[79]

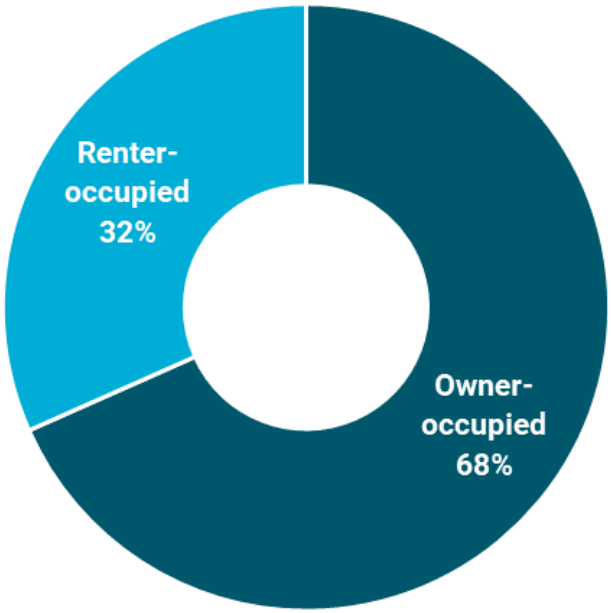
Exhibit 34: Benton County Household Sizes and Rental Unit Sizes




Sources: American Community Survey S2501 and S2504 5-Yr Estimates, 2014-2018; BERK, 2020

[79] American Community Survey, Table S2504 5-year Estimates, 2014-2018.

Exhibit 35: Benton County Housing Tenure by Household, 2018




Sources: American Community Survey Table S2501 5-year Estimates, 2014-2018; BERK, 2020

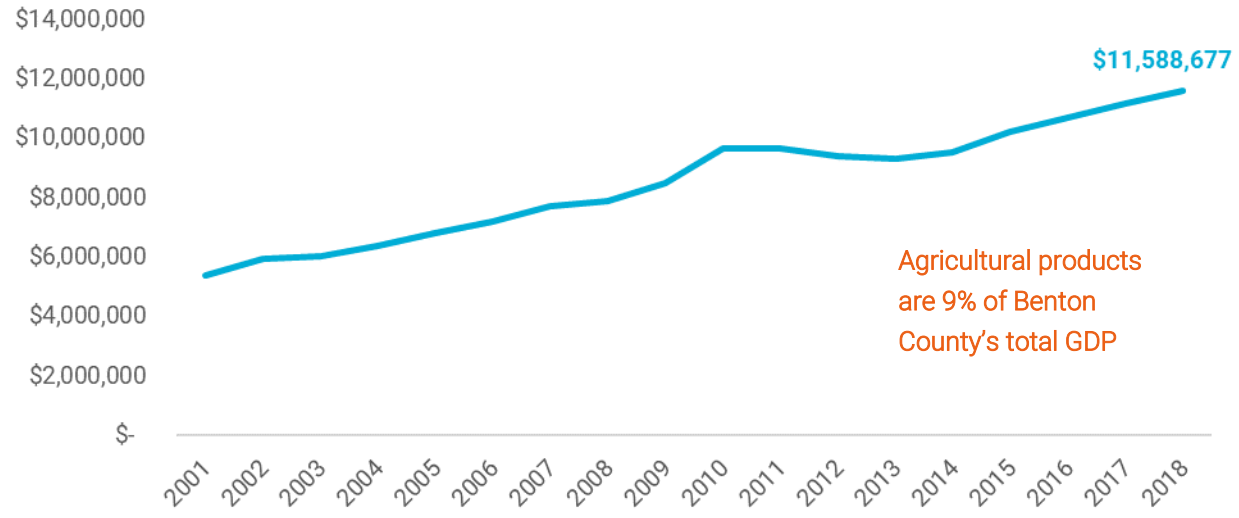
## *County Economy*

Agriculture is smaller proportionally to Benton County's overall economy, as many top employers focus on energy and engineering tied to the Hanford site. Agricultural employment makes up **4% of the labor force,** and agricultural products are valued at 9% of total GDP.

- Benton County is one of three counties in ESD's south eastern area, along with Franklin and Walla Walla counties. Farmworker earnings here are slightly above the statewide average for annual farmworker wages in Washington.
- Top employers include Pacific Northwest National Laboratory, Aecom, Kadlec Medical Center and Bechtel National.[80]

[80] Benton-Franklin Council of Governments, "Major Employers Report," (2014), http://www.prosser.org/wp-content/uploads/2014/11/BFCOG-2014-Major-Employers.pdf
Tri-City Herald, "Aecom finalizes $6-billion URS purchase," (2014), https://www.tri-cityherald.com/news/local/hanford/article32202939.html

Exhibit 36: Benton County GDP, All Industries

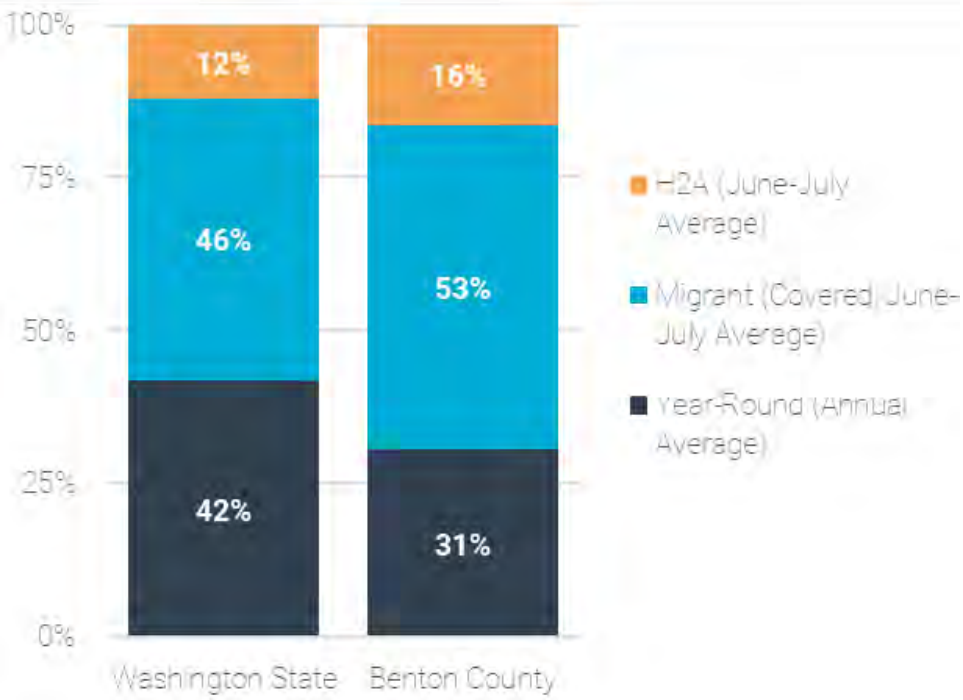



Sources: U.S. Bureau of Economic Analysis (BEA) SAGDP9N series, 2001-2018; BERK, 2020

## *Farmworker Population*

As of 2018, Benton County is home to an estimated **3,583 year-round and covered agricultural jobs**, which more than doubles during the peak months for migrant employment in March through August. Compared to statewide averages, Benton County relies heavily on migrant employment, particularly H-2A workers.

Exhibit 37: 2018 Agricultural Employment by Type, County versus State Averages




Sources: Washington Employment Security Department, 2019; U.S. Department of Labor, 2020; BERK, 2020

Exhibit 38: Benton County Farmworker Estimates by Employment Type, 2018

| Employment Type | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year-round | 3,515 | 3,528 | 3,541 | 3,554 | 3,566 | 3,578 | 3,590 | 3,601 | 3,612 | 3,624 | 3,635 | 3,646 |
| Migrant covered | 852 | 1,799 | 1,967 | 2,694 | 2,714 | 8,014 | 4,326 | 3,623 | 3,321 | 2,734 | 1,155 | 724 |
| Migrant H-2A* | 999 | 1,062 | 2,412 | 2,192 | 2,278 | 2,292 | 1,538 | 1,339 | 132 | 4 | 4 | 1 |
| **Total estimated monthly employment** | **5,366** | **6,389** | **7,920** | **8,440** | **8,558** | **13,884** | **9,454** | **8,563** | **7,065** | **6,362** | **4,794** | **4,371** |

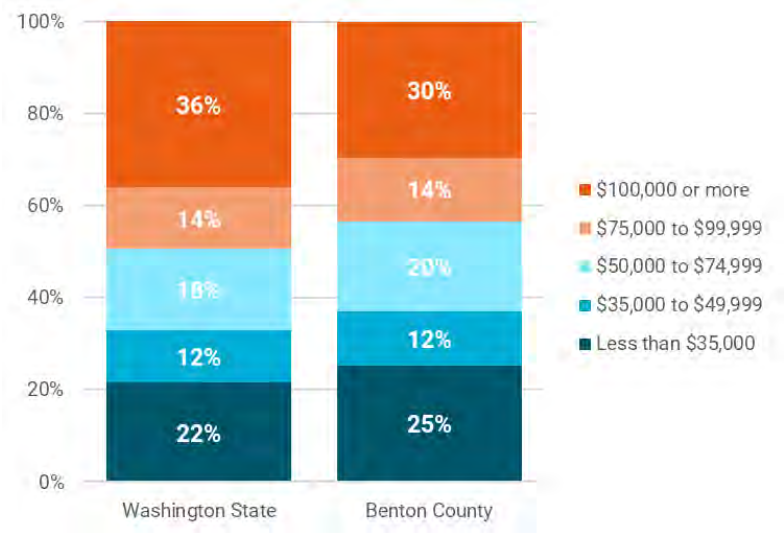
*Statewide requests provided by ESD and discounted 75% to reflect actual versus requested workers; County estimates based on Department of Labor percentages of worker requests by county

Sources: Employment Security Department, Employment Connections Division - Foreign Labor Certification Program; BERK, 2020

## *Income Summary*

Benton County household incomes largely mimic statewide trends. There is a slightly higher percentage of households earning less than $35,000 per year and a slightly lower percentage of households earning more than $100,000 per year. Based on ESD income and wages reporting, farmworker households are likely to earn less than $35,000 per year without additional income contributed from secondary employment or other household members. This income level is less than half of the HUD-area median family income for 2018: $72,800.

Exhibit 39: State and Benton County Household Income Brackets




One quarter of Benton County households earn less than $35,000 annually. Many farmworker households are likely to be included in this group, as the 2018 regional average annual salary for agricultural workers was $30,133.

Sources: American Community Survey S1901 5-Yr Estimates, 2014- 2018; BERK, 2020

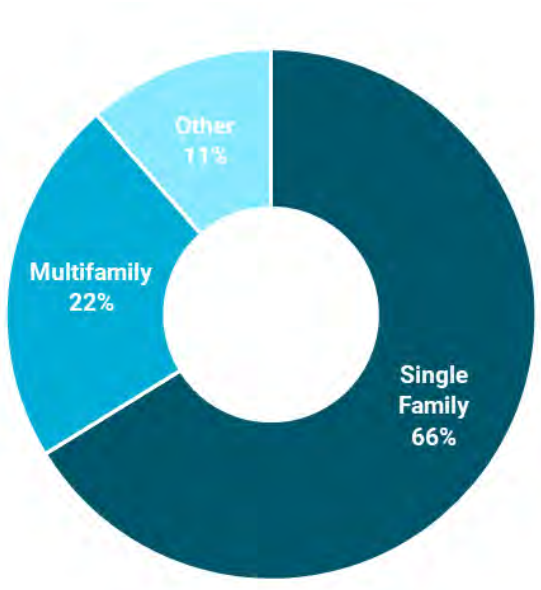
Estimated wages for farmworkers are below the median family income (MFI) for Benton County, at any family size. **A household earning the regional average for farmworkers earns 41% of MFI in Benton County, classified as very low-income (30-49% MFI) with three or more members and low-income for a single person or 2-person household.**

- Median family income for Benton County (2018 - HUD): $72,800
- Average annual income for south-central farmworkers (2018):[81] $30,133

## *Housing Inventory*

There are 77,512 housing units in Benton County. Sixty-six percent are single-family, which roughly correlates with the proportion of owner-occupied units in the county. Housing affordability is likely a significant challenge for farmworker households in this area, as average rental rates are not affordable for farmworker wages, even for 1-bedroom units. There is a low rental vacancy rate, 2.6% here compared to 4.3% statewide, indicating a tight and competitive rental market. Ninety-four percent of homes for sale are also at rates unaffordable for farmworker wages.

Exhibit 40: Total Housing Units by Type, Benton County 2018



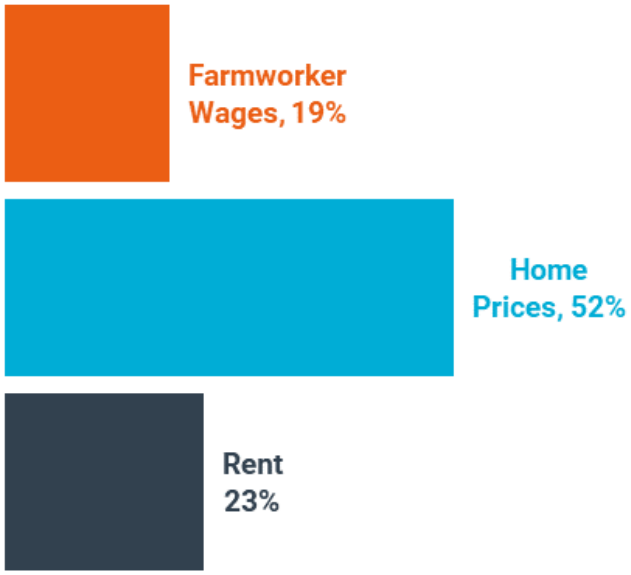

[81] 2018 average wages projected based on average annual growth rates over 5 years, as reported by ESD, 2019.

Sources: Washington State OFM, 2018; BERK, 2020

**Given the regional average annual wages for farmworkers, housing is considered affordable at rates of $753 per month or less.** However, housing prices in Benton County have risen much faster than regional farmworker incomes in recent years, 52% for ownership and 23% for rent, while farmworker wages have increased 19%. See

Exhibit 41. This trend has intensified affordability issues for these residents.

Exhibit 41: Benton County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018




Sources: Washington ESD, 2020; Washington Center for Real Estate Research, 2012 & 2018; BERK, 2021

Rental Housing

Average rents in Benton County (2018):[82]

- $835 for 1-bedroom
- $899 for 2-bedroom
- The rental vacancy rate in Benton County is 2.6%

Home Ownership

**The median price of a home in Benton County is $278,500.[83] For a farmworker household earning annual average wages, the estimated mortgage payment on this price of a home results in a severe cost burden, and the family is unlikely to be approved for a loan in the first place.** A more affordable average home cost is on farmworker income is $160,000 or less, assuming the ability to save for a $32,000 (20%) down payment. Approximately 6% of Benton County housing units are available in this price range. This down payment will be out of reach for many families, and as

[82] Washington Center for Real Estate Research, "Apartment Market Survey, Fall 2018," (2018), http://realestate.washington.edu/wp-content/uploads/sites/6/2019/01/2018FallApartmentMarketReport.pdf
[83] Ibid.

down payment size decreases, monthly mortgage payments increase.

# Chelan County

## *Key Takeaways*



**As many as 8,527 farmworker households search for housing through local, market rate options in Chelan County.**




**Thirty-nine percent (39%) of this need is for migratory workers,** who have more unique and potentially term-limited housing needs. This is complicated by the reality that rental vacancy is very low in Chelan County, and average rental rates are substantially higher than farmworker wages can afford.

**In 2018, Chelan County had...**



**6,764 year-round agricultural jobs.**

Farmworker housing resources in the area offer housing units to 3% of estimated workers.



**10,652 migratory jobs available during peak months.**

Provided housing covers 35% of estimated local workers. The remaining 3,305 compete for rental housing units alongside year-round workers and all other Chelan County renter households.

| *Permanent Housing (units)* | | *Seasonal Housing (beds)* | |
|---|---|---|---|
| | 5,368 Estimated Workers | | 5,826 Estimated Workers |
| – | 146 Provided Units | – | 2,521 Provided Beds |
| | **5,222 Estimated Gap** | | **3,305 Estimated Gap** |



**Housing affordability is a challenge for farmworkers.** Average annual wages for farmworkers are below the median family income for all household sizes. The average home value results in severe cost burden for farmworker wages. Less than 12% of housing units for sale will be affordable with farmworker wages.




It is likely that many farmworker households are renters. **Rental units are largely unaffordable for farmworkers. An average 1-bedroom unit results in severe cost burden for average farmworker wages, and the rental vacancy rate in Chelan County is very low (1.4%).** Farmworker families, particularly those with 2+ members, are classified as very-low income and likely struggle to secure adequate accommodation at an affordable rate.

## *Introduction*

Chelan County is part of the north-central state reporting area. Much of the county is public land, including the Okanogan-Wenatchee National Forest and the Lake Chelan National Recreation Area. Highways 2 and 97 are the primary transportation routes through the county. There are 835 farms and over 31,000 acres of agricultural lands, most prevalent in the eastern part of the county.[84]

Chelan County is Washington's 11th most productive county for agriculture, measured by the value of production, but is ranked second for year-round agricultural employment. Major crops grown include apples, cherries and pears.[85] Other major employment sectors are government service, healthcare and social assistance, and accommodation and food services.[86]

The county has a total population of 78,420. Wenatchee is the county seat and population hub, with 44% of the total population.[87] An additional 42% of the population lives in unincorporated areas of Chelan County.

[84] Washington State Department of Agriculture, "Washington Agriculture Snapshot," (October 2021)
[85] Washington State Department of Agriculture, 2012.
[86] Washington State Employment Security Department, Average annual employment by 2-digit NAICS codes, 2018.
[87] Office of Financial Management, 2019.

Exhibit 42: Chelan County Agricultural Land and Farmworker Housing Units




Sources: Housing Data from Washington DOH, 2019; Washington State Housing Finance Commission, 2019; Office of Rural and Farmworker Housing, 2019; WSDA, 2019

## *Population Summary*

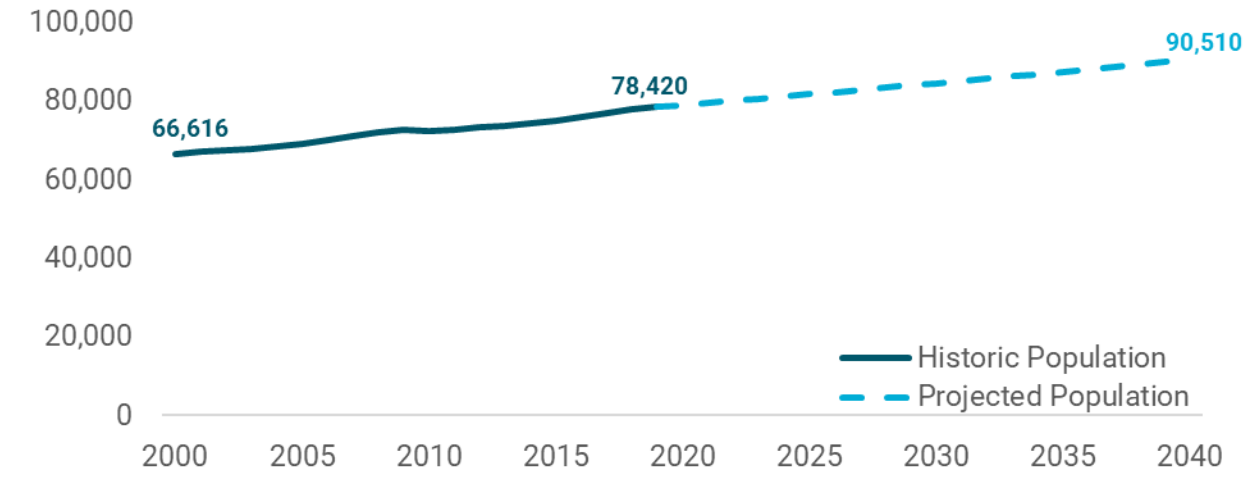
Chelan County has a population of 78,420, which represents an 18% increase since 2000. Medium OFM population projections estimate continued, moderate growth patterns to 2040, as shown in Exhibit 139 and Exhibit 140. Demographic projections estimate a substantial increase in the proportion of adults over 65 as the Baby Boomer generation ages. This is offset by a reduction in the 45-64 cohort. The primary age group for farmworkers, 20-44, is predicted to remain relatively stable as a proportion of the population throughout this period. A higher proportion of the population at or above retirement age may represent higher demand for healthcare services, mobility assistance and ADA-compliant home design features.

Exhibit 43: Chelan County Historical and Projected Growth Rates, 2000-2040

| Average Annual Growth | 2000-2019 | 2019-2040 Projected |
|---|---|---|
| Individuals | 621 | 576 |
| Percentage | 0.9% | 0.7% |

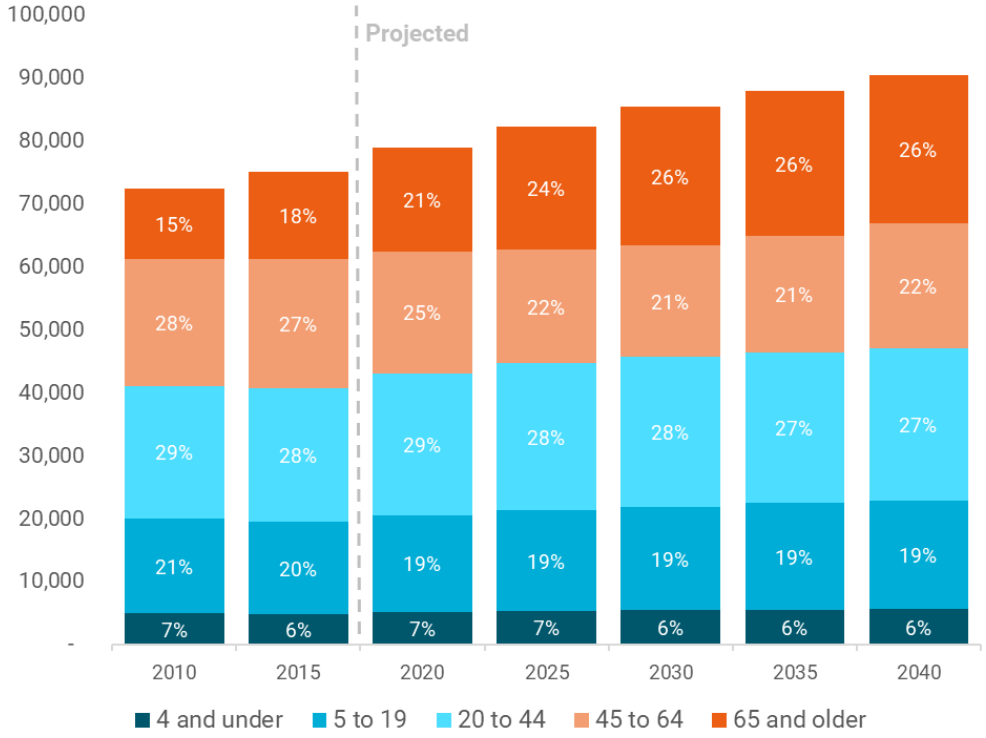
Sources: Washington OFM, 2019; BERK, 2020

Exhibit 44: Chelan County Historical and Projected Population, 2000-2040




Sources: Washington OFM, 2019; GMA 2017 Projections, Medium Series; BERK, 2020

Exhibit 45: Chelan County Population by Age Cohort, Historical and Projected




Sources: Washington OFM, 2018; BERK, 2019

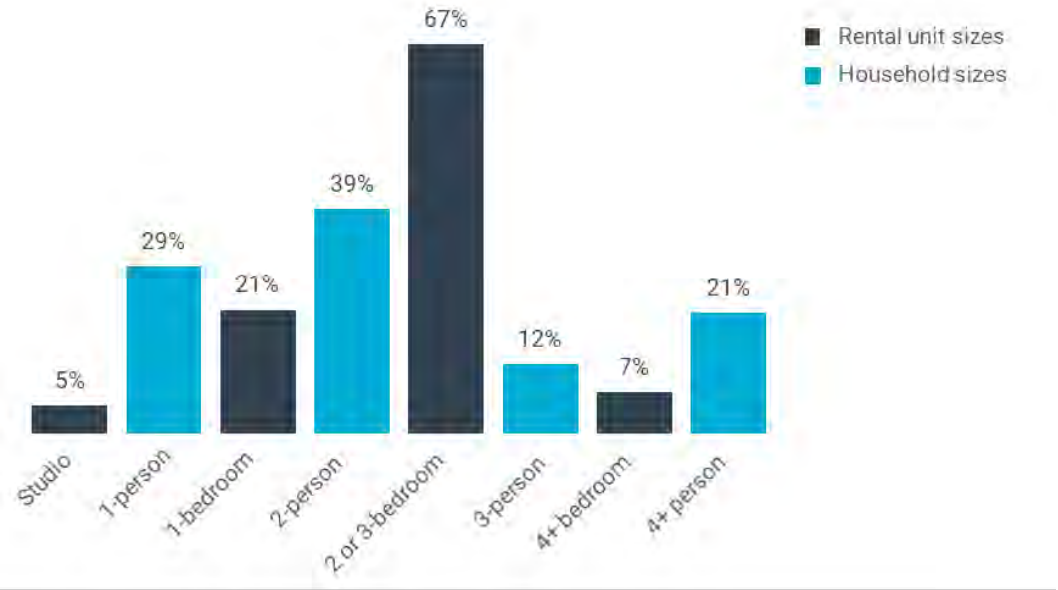
## *Household Population*

The average household size in Chelan County is 3.3 individuals.[88] Farmworker households are likely to reflect the general overall trend of household sizes in Chelan County. One-third (34%) of Chelan County households, or 9,584 households, are renters. Survey data suggests that this rate is higher among the farmworker population, whose migratory patterns and lower annual earnings (see Exhibit 51) are more compatible with rental housing. This may result in a mismatch of household size and housing stock for agricultural workers who rent and live with children or extended family members, further explored in Exhibit 46. Two- and three-bedroom units represent the majority of rental units available in Chelan County. **However, 21% of the population may need more space to accommodate four or more household members. Larger multifamily units with 4+ bedrooms are limited in the rental market (in Chelan County, only 7% of rental units are this size), increasing the likelihood of overcrowding and "bunking up" arrangements if larger households**

[88] American Community Survey, Table DP02 5-year Estimates, 2014-2018.

cannot afford to purchase a home.[89]

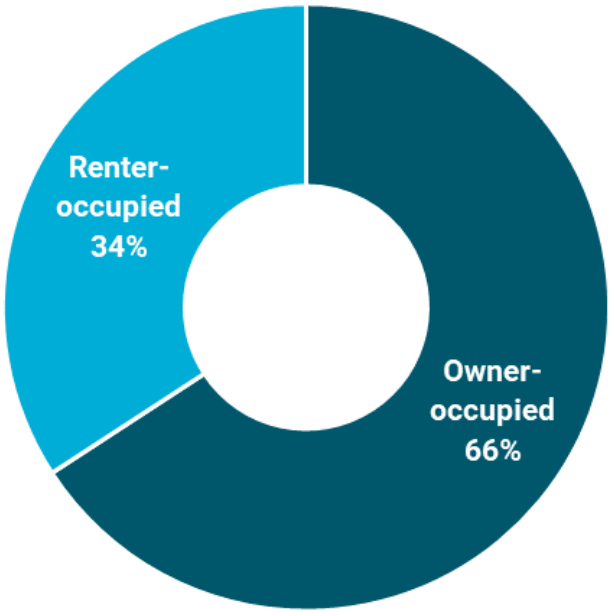
Exhibit 46: Chelan County Household Sizes and Rental Housing Unit Sizes




Sources: American Community Survey S2501 and S2504 5-Yr Estimates, 2014-2018; BERK, 2019

[89] American Community Survey, Table S2504 5-year Estimates, 2014-2018.

Exhibit 47: Chelan County Housing Tenure by Household, 2018




Sources: American Community Survey Table S2501 5-year Estimates, 2014-2018

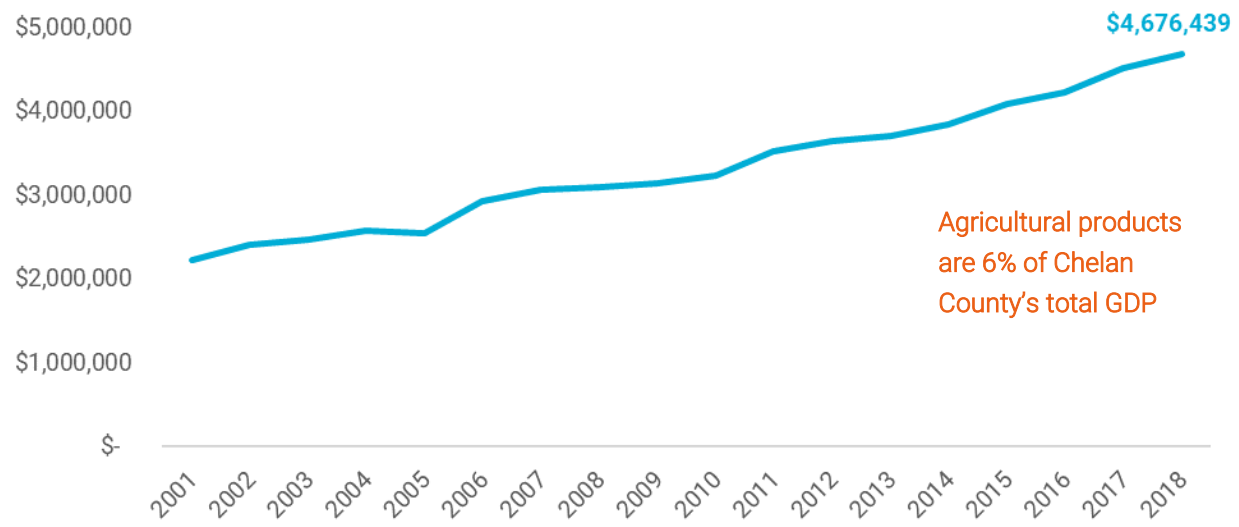
## *County Economy*

In Chelan County, covered farmworkers make up **16% of the labor force**. Agricultural products, however, comprise only 6% of total GDP. This ratio is reversed from many counties where agricultural value will be a higher percentage of total GDP than employment as a percentage of the labor force.

- Chelan County is one of three counties in ESD's north-central area, along with Okanogan and Douglas Counties. This region has the lowest estimate for annual average farmworker wages in Washington.
- Top industries include agriculture, health services, local government and retail.[90]

[90] Chelan County, "Chelan County Comprehensive Plan," (2017), http://www.co.chelan.wa.us/files/community-development/documents/comps_plan/2017%20Comp%20Plan/Attachment%20A%20-%202017-27%20Comprehensive%20Plan.pdf

Exhibit 48: Chelan County GDP, All Industries

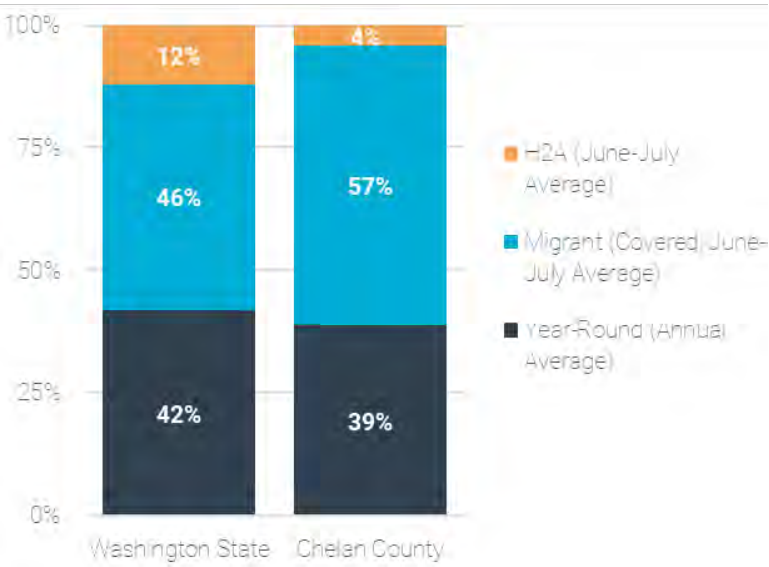



Sources: U.S. Bureau of Economic Analysis (BEA) SAGDP9N series, 2001-2018; BERK, 2020

## *Farmworker Population*

As of 2018, Chelan County has an estimated **6,764 year-round and covered agricultural jobs,** which almost triples during the peak months for migrant employment, in June through October. Compared to statewide averages, Chelan County relies less on H-2A workers and more on migrant, covered employment. These are the workers most likely to struggle to secure adequate accommodations.

Exhibit 49: 2018 Agricultural Employment by Type, County versus State Averages




Sources: Washington ESD, 2019; U.S. Department of Labor, 2020; BERK, 2020

Exhibit 50: Chelan County Farmworker Estimates by Employment Type, 2018

| Employment Type | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year-round | 6,658 | 6,677 | 6,696 | 6,716 | 6,735 | 6,754 | 6,773 | 6,793 | 6,812 | 6,831 | 6,850 | 6,869 |
| Migrant covered | 568 | 1,198 | 2,077 | 1,988 | 2,171 | 7,348 | 12,465 | 7,478 | 5,778 | 3,699 | 994 | 556 |
| Migrant H-2A* | 474 | 661 | 761 | 1,002 | 764 | 784 | 708 | 504 | 98 | 5 | 0 | 0 |
| **Total estimated monthly employment** | **7,700** | **8,536** | **9,534** | **9,706** | **9,670** | **14,886** | **19,946** | **14,775** | **12,688** | **10,535** | **7,844** | **7,425** |

*Statewide requests provided by ESD and discounted 75% to reflect actual versus requested workers; County estimates based on Department of Labor percentages of worker requests by county

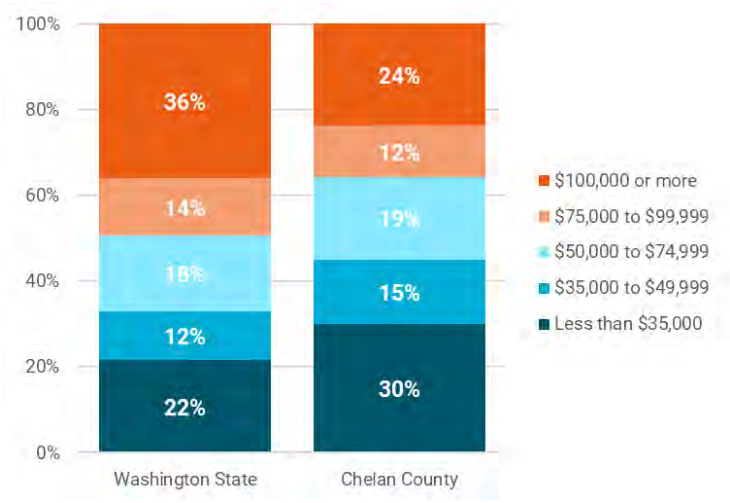
Sources: ESD, Employment Connections Division - Foreign Labor Certification Program; BERK, 2020

## *Income Summary*

Chelan County households have lower incomes than state averages. There is both a higher percentage of households earning less than $50,000 per year and a lower percentage of households earning greater than $100,000 per year. Based on ESD income and wages reporting,

farmworker households are likely to earn less than $35,000 per year without additional income from secondary employment or other household members. This income level is well below the HUD-area median family income for 2018, $56,135.

Exhibit 51: State and Chelan County Household Income Brackets




Thirty percent of Chelan County households earn less than $35,000 annually. Many farmworker households are likely to be included in this group, as the 2018 regional average annual salary for agricultural workers was $26,625.

Sources: American Community Survey S1901 5-Yr Estimates, 2014-2018; BERK, 2020

Estimated wages for farmworkers are below the median family income (MFI) for Chelan County, at any family size. **A household earning the regional average for farmworkers earns 40% of MFI in Chelan County, 2+ person households would be classified as very low-income (30-49% MFI), and a single person household would be low-income (50-79%MFI).**

- Median family income for Chelan County (2018 - HUD): $67,100
- Average annual income for north central farmworkers (2018):[91] $26,625

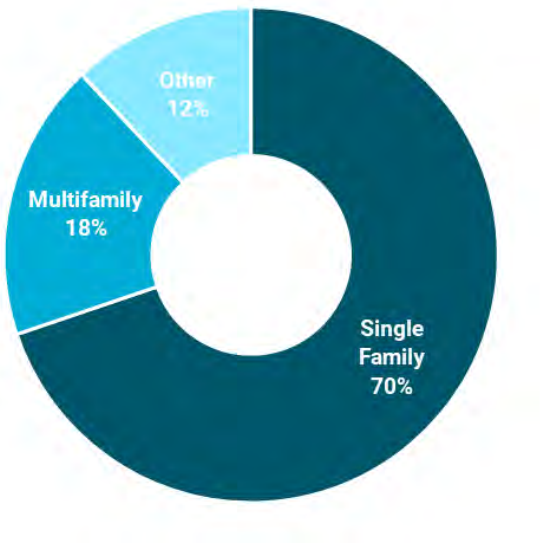
## *Housing Inventory*

There are 38,303 housing units in Chelan County. A notably high percentage (70%) of these are single-family, compared to the statewide average of 64%. Rental rates in Chelan County are remarkably high, particularly when compared to average farmworker wages. Even 1-bedroom units almost double the monthly amount considered affordable to farmworker wages. The low rental vacancy rate (1.4% compared to the statewide rate of 4.3%) indicates high competition for

[91] 2018 average wages projected based on average annual growth rates over 5 years, as reported by ESD, 2019.

available rental units. This may contribute to the high average rental costs.

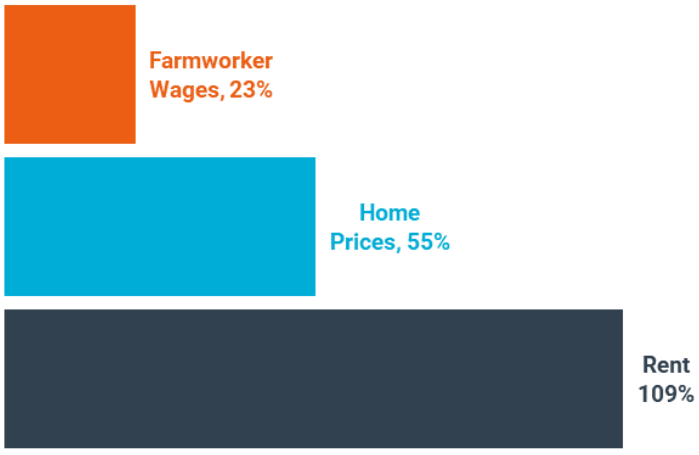
Exhibit 52: Total Housing Units by Type, Chelan County 2018




Sources: Washington OFM, 2018; BERK, 2020

In recent years, housing prices in Chelan County have risen faster than regional farmworker incomes, rising 55% for ownership and 109% for rent, versus 23% for wages. See Exhibit 53. This trend has intensified affordability issues for these residents. **Given the regional average annual wages for farmworkers, housing is considered affordable at rates of $666 per month or less.**

Exhibit 53: Chelan County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018



Sources: Washington ESD, 2020; Washington Center for Real Estate Research, 2012 & 2018; BERK, 2021

## Rental Housing

Average rents in Chelan County (2018):[92]

- $1,143 for 1-bedroom
- $1,474 for 2-bedroom
- The rental vacancy rate in Chelan County is 1.4%

## Home Ownership

**The median price of a home in Chelan County is $343,000.[93] For a farmworker household earning annual average wages, the estimated mortgage payment on this price of a home results in a severe cost burden.** A more affordable home price on a farmworker income is $80,000 or less, assuming the ability to save for a $16,000 (20%) down payment. Very few Chelan County housing units are available in this price range. This down payment will be out of reach for many families, and as down payment size decreases, monthly mortgage payments increase.

[92] Washington Center for Real Estate Research, Apartment Market Survey, Fall 2018.
[93] Ibid.

# Douglas County

## *Key Takeaways*



**As many as 1,272 farmworker households search for housing through local, market rate options in Douglas County.**




**Five percent (5%) of this need is for migratory workers,** who have more unique and potentially term-limited housing needs. This is complicated by the reality that most housing is unaffordable with farmworker wages. It is likely that many of these workers are living in less permanent forms of housing, such as mobile homes, as these comprise 19% of the local housing stock.

**In 2018, Douglas County had...**



**1,548 year-round agricultural jobs.**

Farmworker housing resources in the area offer housing units to 2% of esimated workers.



**4,394 migratory jobs available during peak months.**

Provided housing covers 97% of estimated local workers. The remaining 70 compete in a rental housing market where even 1-bedroom units result in severe cost burden. Very low rental vacancy increases competition for the limited stock of units which might be available.

| | | | |
|---|---|---|---|
| *Permanent Housing (units)* | 1,228 Estimated Workers | *Seasonal Housing (beds)* | 2,378 Estimated Workers |
| | – 26 Provided Units | | – 2,308 Provided Beds |
| | 1,202 Estimated Gap | | 70 Estimated Gap |



**Housing affordability is a challenge for farmworkers.** Average annual wages for farmworkers are significantly below the median family income for all household sizes. The average home value results in severe cost burden for farmworker wages. Less than 7% of homes for sale are within an affordability range for farmworker wages.




It is likely that many farmworker households are renters. **Less than 10% of rental units in the area are sized for families with 4+ people, a common household size in Douglas County.** Farmworker families are likely to struggle securing adequate accommodations at an affordable rate.

## *Introduction*

Douglas County is part of the north-central state reporting area, situated between Chelan County to the west, Okanogan County to the north, and Grant County to the south and east. Highway 2 and State Routes 172 and 17 are the main routes through the county, connecting many of the

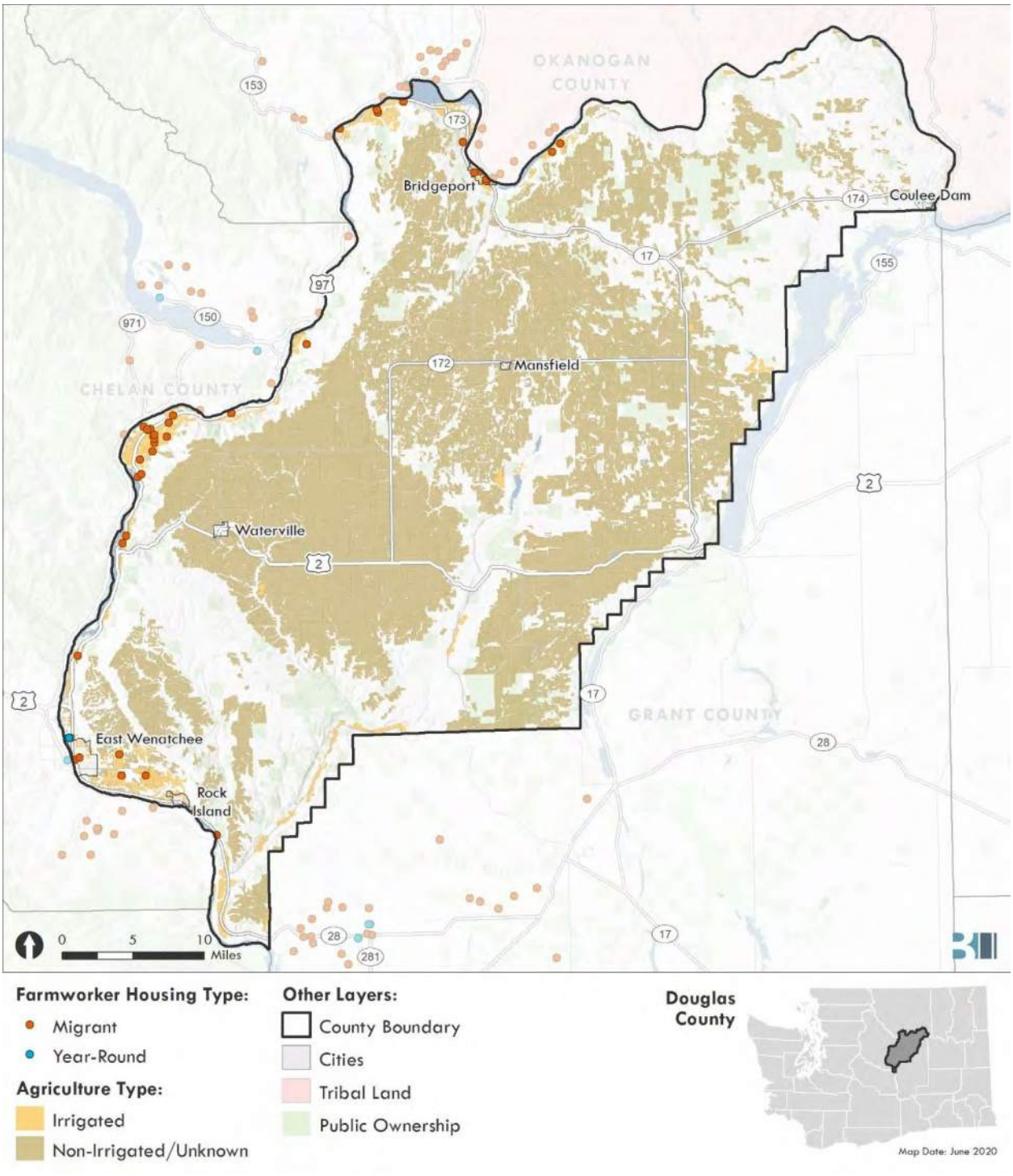
incorporated areas. There are 729 farms and more than 550,000 acres of agricultural lands spread throughout the county, with irrigated farmland along the western perimeter.[94]

Douglas County is Washington's 12th most productive county for agriculture, measured by the value of production, and is ranked ninth for year-round agricultural employment. Major crops grown include apples, wheat and pears.[95] Other major sectors of employment are government services, retail trade, and accommodation and food services.[96] Retail and food service highlight Douglas County's tourism economy.

The county has a total population of 42,820.[97] Many residents are rural, as more than half (55%) of Douglas County's population lives in unincorporated areas. East Wenatchee is the largest city, with 32% of the county population and almost three-quarters of incorporated residents. The county seat is Waterville, near the western border with Chelan County.

[94] Washington State Department of Agriculture, "Washington Agriculture Snapshot," (October 2021)
[95] Washington State Department of Agriculture, 2012.
[96] Washington State Employment Security Department, Average annual employment by 2-digit NAICS codes, 2018.
[97] Office of Financial Management, 2019.

Exhibit 54: Douglas County Agricultural Land and Farmworker Housing Units




Sources: Housing data from Washington DOH, 2019; Washington State Housing Finance Commission, 2019; Office of Rural and Farmworker Housing, 2019; WSDA, 2019

## *Population Summary*

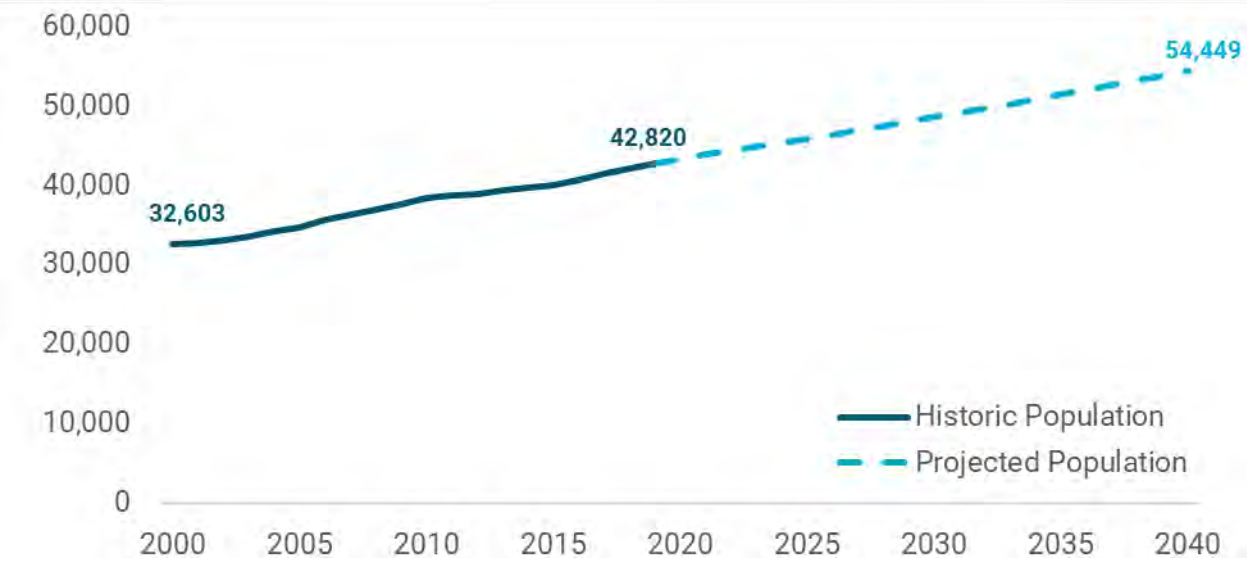
Douglas County has a population of 42,820, which represents a 31% increase since 2000. Medium OFM population projections estimate similar growth patterns through 2040, as shown in Exhibit 139 and Exhibit 140. Demographic projections estimate an increased proportion of residents 65 and older as the Baby Boomer generation ages, while adults aged 45-64 decrease as a proportion of the total population. The primary age group for farmworkers, 20-44, is predicted to remain relatively stable as a proportion of the population throughout this period.

Exhibit 55: Douglas County Historical and Projected Growth Rates, 2000-2040

| Average Annual Growth | 2000-2019 | 2019-2040 Projected |
|---|---|---|
| Individuals | 538 | 554 |
| Percentage | 1.6% | 1.3% |

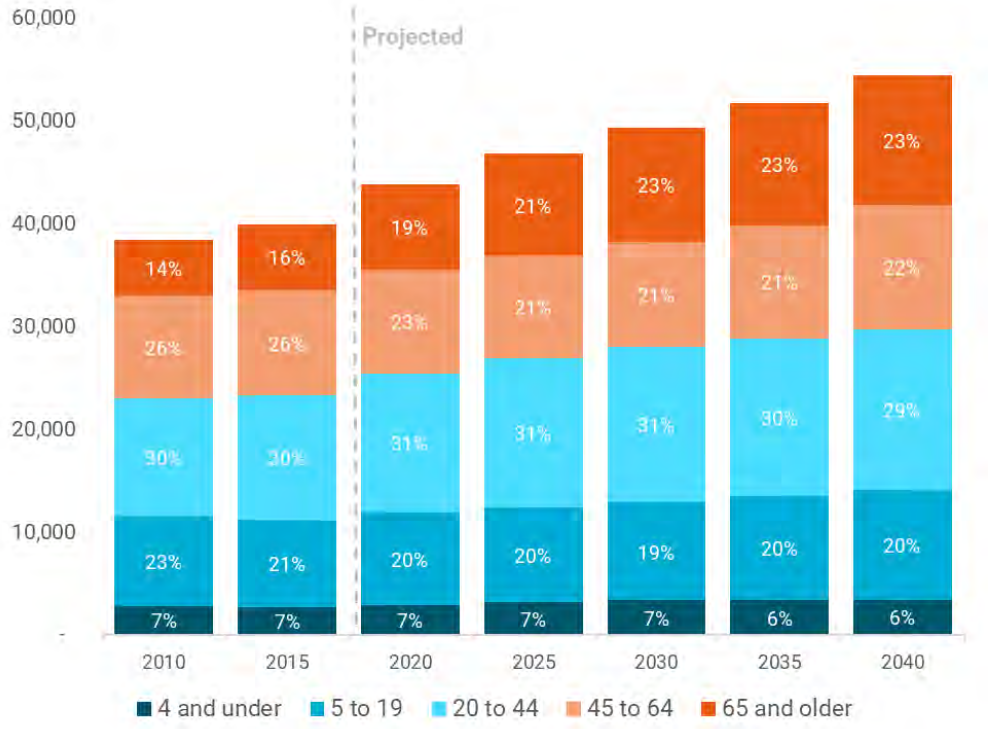
Sources: Washington State Office of Financial Management, 2019; BERK, 2020

Exhibit 56: Douglas County Historical and Projected Population, 2000-2040




Sources: Washington OFM, 2019; Yakima County Horizon 2040 Comprehensive Plan; BERK, 2019

Exhibit 57: Douglas County Population by Age Cohort, Historical and Projected



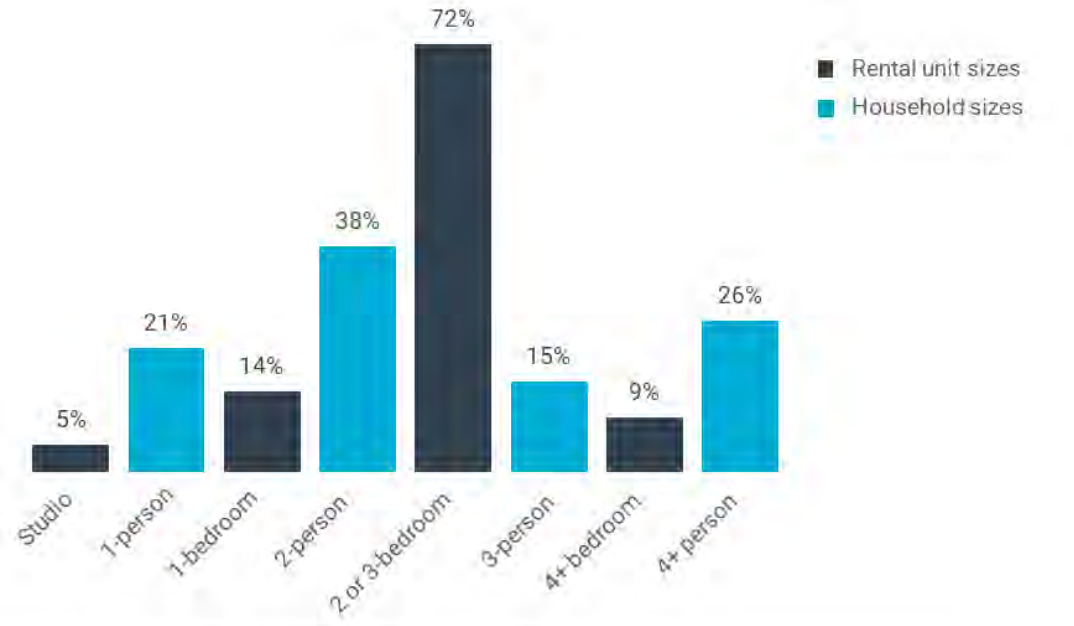

Sources: Washington OFM, 2018; BERK, 2019

## *Household Population*

The average household size in Douglas County is 2.7 individuals.[98] Farmworker households are likely to reflect the general overall trend of household sizes. Thirty percent of Douglas County households, or 4,559 households, are renters. Anecdotal data from interviews suggests that this rate may be higher among the farmworker population. This may result in a mismatch of household size and housing stock for agricultural workers who rent and live with children or extended family members. Two- and three-bedroom units represent the majority of rental units available in Douglas County. **However, 26% of the population has larger households. Larger multifamily units with 4+ bedrooms are limited in the rental market (in Douglas County, only 9% of rental units are this size), increasing the likelihood of overcrowding and "bunking up" arrangements if households cannot afford to purchase a home.**[99]

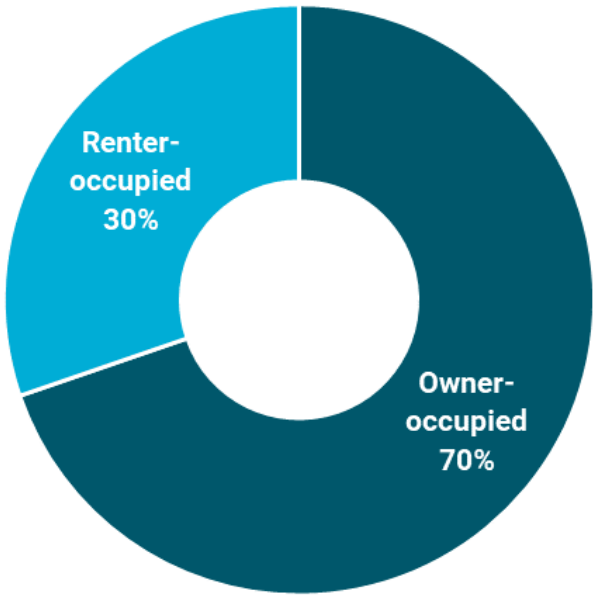
[98] American Community Survey, Table DP02 5-year Estimates, 2014-2018.
[99] American Community Survey, Table S2504 5-year Estimates, 2014-2018.

Exhibit 58: Douglas County Household Size and Rental Housing Unit Sizes




Sources: American Community Survey S2501 and S2504 5-Yr Estimates, 2014-2018; BERK, 2020

Exhibit 59: Douglas County Housing Tenure by Household, 2018



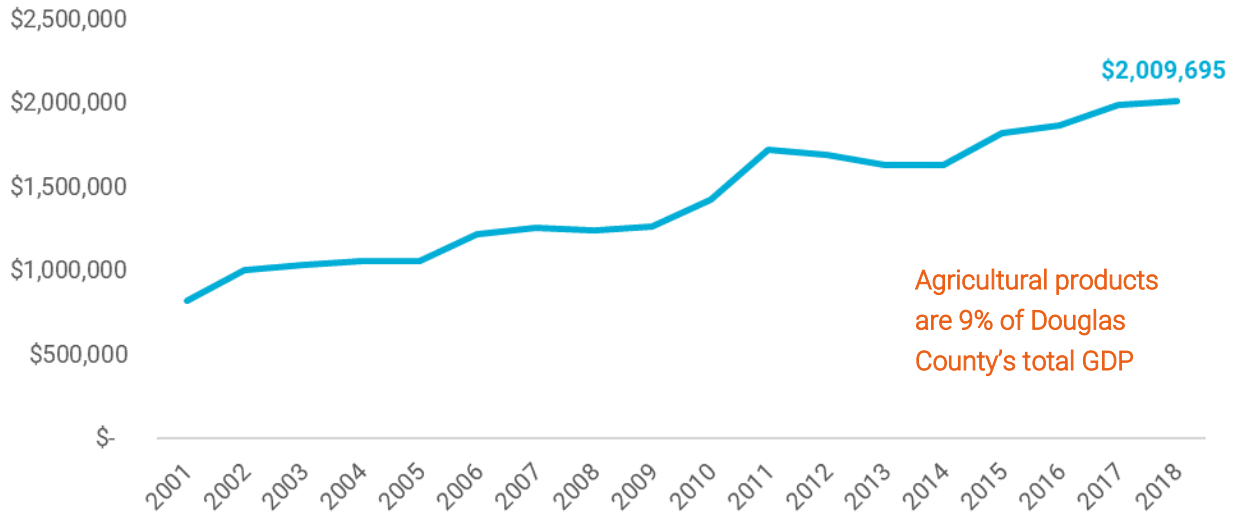

Sources: American Community Survey Table S2501 5-year Estimates, 2014-2018; BERK, 2020

## *County Economy*

Covered agricultural employment makes up **8% of the labor force,** and agricultural products comprise 9% of total GDP.

- Douglas County is one of three counties in ESD's north-central area, along with Chelan and Okanogan counties. Farmworker wages are the lowest of the six Washington reporting areas.
- Top Douglas County employment industries include agriculture, local government, retail trade and health services.[100]

Exhibit 60: Douglas County GDP, All Industries



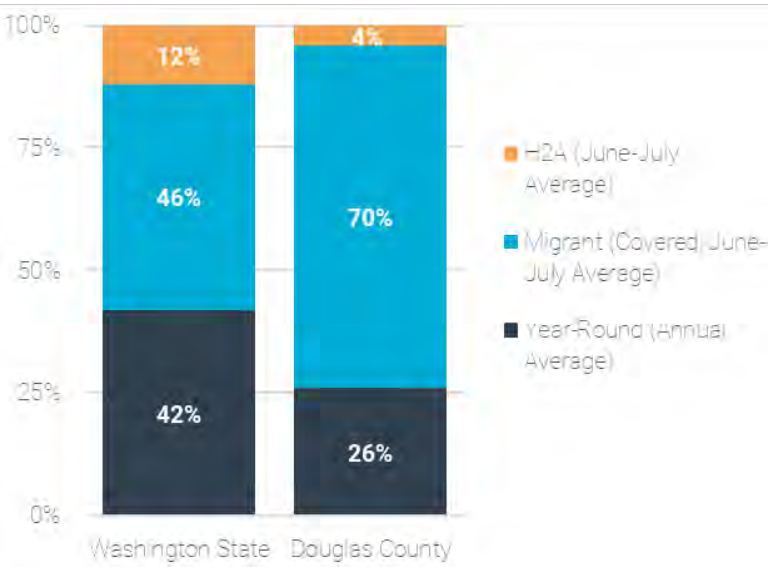

Sources: U.S. Bureau of Economic Analysis (BEA) SAGDP9N series, 2001-2018; BERK, 2020

## *Farmworker Population*

As of 2018, Douglas County is home to an estimated **1,548 year-round and covered agricultural jobs**, which more than triples during the peak months for migrant employment, in June through September. Compared to statewide averages, Douglas County relies less on year-round and H-2A workers and much more upon covered migrant employment. These workers are likely to struggle most when securing adequate housing.

[100] Chelan County, "Chelan County Comprehensive Plan, 2017-2037," (2017), http://www.co.chelan.wa.us/files/community-development/documents/comps_plan/2017%20Comp%20Plan/Attachment%20A%20-%202017-27%20Comprehensive%20Plan.pdf.

Exhibit 61: 2018 Agricultural Employment by Type, County versus State Averages




Sources: Washington ESD, 2019; U.S. Department of Labor, 2020; BERK, 2020

Exhibit 62: Douglas County Farmworker Estimates by Employment Type, 2018

| Employment Type | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year-round | 1,525 | 1,530 | 1,534 | 1,539 | 1,543 | 1,547 | 1,550 | 1,554 | 1,558 | 1,561 | 1,565 | 1,568 |
| Migrant covered | 610 | 736 | 1,065 | 1,680 | 1,449 | 3,255 | 5,022 | 2,011 | 2,253 | 1,539 | 853 | 382 |
| Migrant H-2A* | 165 | 169 | 283 | 291 | 291 | 299 | 212 | 189 | 118 | 110 | 110 | 110 |
| **Total estimated monthly employment** | **2,300** | **2,435** | **2,882** | **3,510** | **3,283** | **5,101** | **6,784** | **3,754** | **3,929** | **3,210** | **2,528** | **2,060** |

*Statewide requests provided by ESD and discounted 75% to reflect actual versus requested workers; County estimates based on Department of Labor percentages of worker requests by county

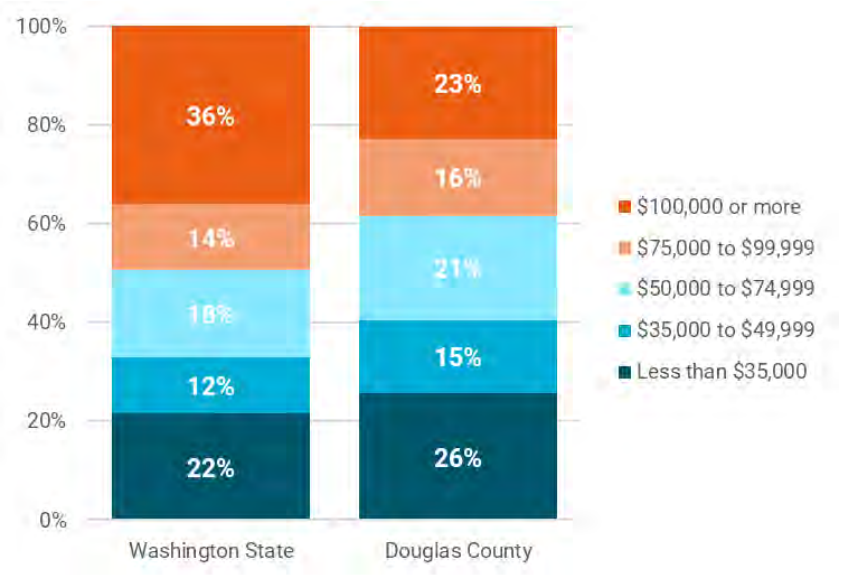
Sources: ESD, Employment Connections Division - Foreign Labor Certification Program; BERK, 2020

## *Income Summary*

Douglas County households have lower incomes than state averages. There is both a higher percentage of households earning less than $50,000 per year and a lower percentage of households earning greater than $100,000 per year. Based on ESD income and wages reporting, farmworker households are likely to earn less than $35,000 per year without additional income

from secondary employment or other household members. This income level is well below the HUD-area median family income for 2018, $67,100.

Exhibit 63: State and Douglas County Household Income Brackets




One quarter of Douglas County households earn less than $35,000 annually. Many farmworker households are likely to be included in this group, as the 2018 regional average annual salary for agricultural workers was $26,625.

Sources: American Community Survey S1901 5-Yr Estimates, 2010 & 2018; BERK, 2020

Estimated wages for farmworkers are below the median family income (MFI) for Douglas County at any family size. **A household earning the regional average for farmworkers earns 40% of MFI in Douglas County, classified as very low-income for households with three or more members (30-49% MFI) or low-income for single or two-person households (50-79% MFI).**

- Median family income for Douglas County (2018 - HUD): $67,100
- Average annual income for north central farmworkers (2018):[101] $26,625

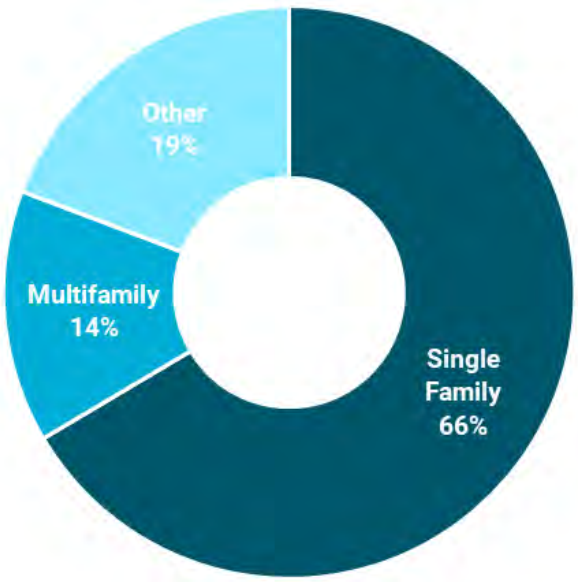
## *Housing Inventory*

There are 17,211 housing units in Douglas County. A high percentage (19% compared to 8% statewide) of these are classified as 'other,' including mobile homes and other special housing types. This high percentage may correlate to the high number of farmworkers living in temporary housing types. Average rental rates lead to a severe cost burden for farmworker wages in

[101] 2018 average wages projected based on average annual growth rates over 5 years, as reported by ESD, 2019.

Douglas County, as does the estimated mortgage for an average home.

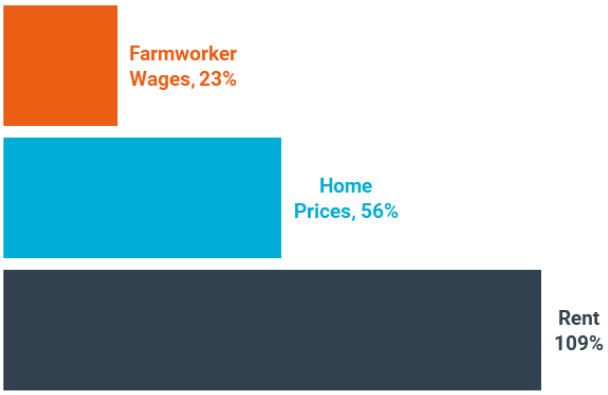
Exhibit 64: Total Housing Units by Type, Douglas County 2018




Sources: Washington State OFM, 2018; BERK, 2020

Housing prices in Douglas County have risen much faster than regional farmworker incomes in recent years, 56% for ownership and 109% for rent versus 23% for farmworker wages. See Exhibit 65. This trend has intensified affordability issues for these residents. Given the regional average annual wages for farmworkers, housing is considered affordable at rates of $666 per month or less.

Exhibit 65: Douglas County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018




Sources: Washington ESD, 2020; Washington Center for Real Estate Research, 2012 & 2018; BERK, 2021

## Rental Housing

Average rents in Douglas County (2018):[102]

- $1,143 for 1-bedroom
- $1,474 for 2-bedroom
- The rental vacancy rate in Douglas County is 1.4%

## Home Ownership

**The median price of a home in Douglas County is $316,700.[103] For a farmworker household earning annual average wages, the estimated mortgage payment on this price of a home results in a severe cost burden.** A more affordable home price is $80,000 or less, assuming the ability to save for a $16,000 (20%) down payment. Approximately 2% of Douglas County housing units are available in this price range. This down payment will be out of reach for many families, and as down payment size decreases, monthly mortgage payments increase.

[102] Washington Center for Real Estate Research, Apartment Market Survey, Fall 2018.
[103] Ibid.

# Franklin County

## *Key Takeaways*



**As many as 5,140 farmworker households search for housing through local, market rate options in Franklin County.**




**Fifty-seven percent (57%) of this need is for migratory workers,** who have more unique and potentially term-limited housing needs. This is complicated by the reality that there is a limited stock of multifamily housing in Franklin County, and much of the rental housing is not affordable with farmworker wages.

**In 2018, Franklin County had...**



**2,960 year-round agricultural jobs.**

Farmworker housing resources in the area offer housing units to 6% of estimated workers.

*Permanent Housing (units)*

2,349 Estimated Workers
– 145 Provided Units
**2,404 Estimated Gap**



**8,709 migratory jobs available during peak months.**

Provided housing covers 14% of estimated local workers. The remaining 2,936 compete in the rental market, where low vacancy and high rental rates limit available options for migratory workers.

*Seasonal Housing (beds)*

5,442 Estimated Workers
– 2,506 Provided Beds
**2,936 Estimated Gap**



**Housing affordability is a challenge for farmworkers.** Average annual wages for farmworkers are below the median family income for all household sizes. The average home value results in severe cost burden for farmworker wages.




It is likely that many farmworker households are renters. An average 1-bedroom apartment results in cost burden with farmworker wages. Farmworkers with children will struggle further, as **there are very few rental units in the area that can accommodate families with 4+ people, a common household size in Franklin County.**

## *Introduction*

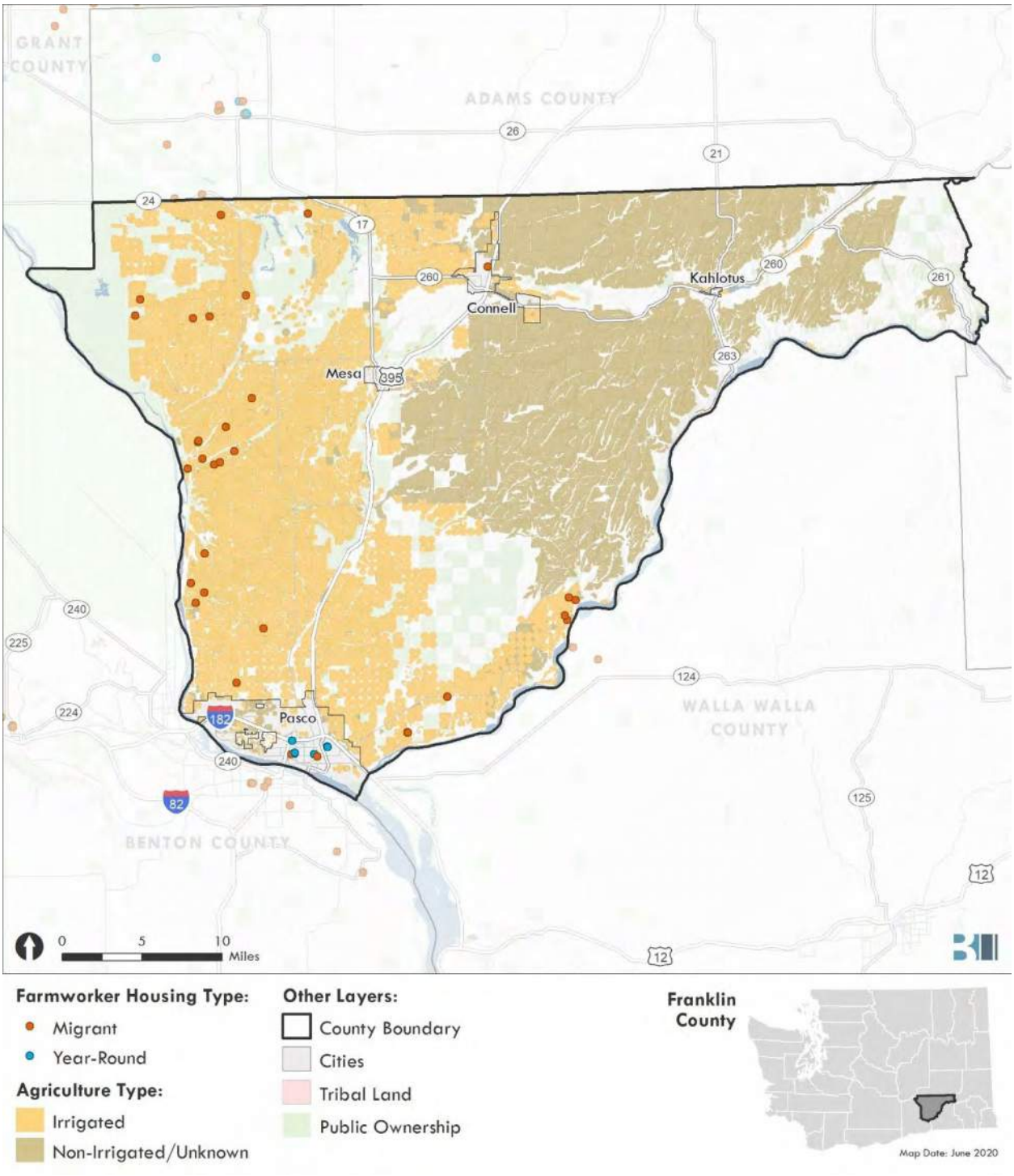
Franklin County is part of the southeastern reporting area, situated with Adams County to the north, Benton County to the west and Walla Walla County to the east. The Snake and Columbia rivers form most of Franklin County's southern, eastern and western borders. Highway 395 and State Route 260 are the primary transportation routes through the county, connecting many of the incorporated areas. There are 772 farms and more than 473,000 acres of agricultural lands distributed throughout the county, with irrigated farmland to the west and non-irrigated land to the east.[104]

Franklin County is Washington's 12th most productive county for agriculture, measured by the value of production, and ranked ninth for year-round agricultural employment. Major crops include potatoes, apples and hay.[105] Other major sectors of employment are government services, manufacturing and retail trade.[106]

The county has a population of 94,680. Pasco is the county seat and major population hub, housing 80% of Franklin County residents.[107]

[104] Washington State Department of Agriculture, "Washington Agriculture Snapshot," (October 2021).
[105] Washington State Department of Agriculture, 2012.
[106] Washington State Employment Security Department, Average annual employment by 2-digit NAICS codes, 2018.
[107] Office of Financial Management, 2019.

Exhibit 66: Franklin County Agricultural Land and Farmworker Housing Units, 2019




Sources: Housing Data from Washington DOH, 2019; Washington State Housing Finance Commission, 2019; Office of Rural and Farmworker Housing, 2019; WSDA, 2019

## *Population Summary*

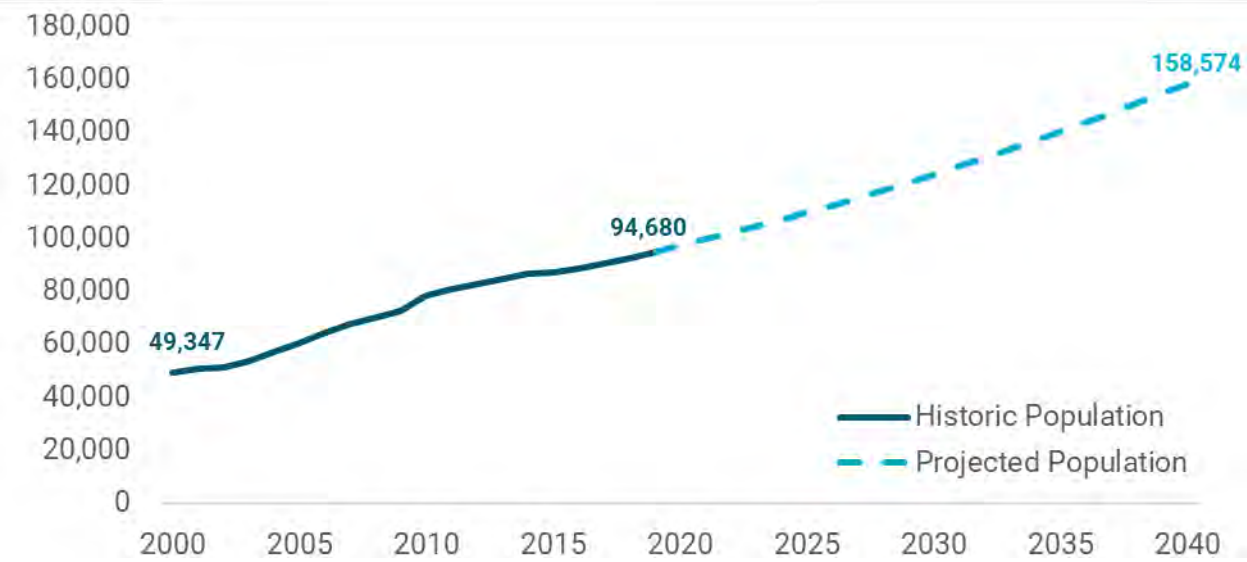
Franklin County's population increased 31% from 2000 to 2019. Medium OFM population projections estimate continued, although slightly decelerated, growth patterns to 2040, as shown in Exhibit 139 and Exhibit 140. Demographic projections for Franklin County estimate an increasing proportion of adults over 65 as the Boomer generation ages. This is coupled with decreasing proportions of people aged 20-44, the primary age group for farmworkers, which is expected to decrease from 36% to 33% of the population by 2040.

Exhibit 67: Franklin County Historical and Projected Growth Rates, 2000-2040

| Average Annual Growth | 2000-2019 | 2019-2040 Projected |
|---|---|---|
| Individuals | 2,386 | 3,043 |
| Percentage | 4.8% | 3.2% |

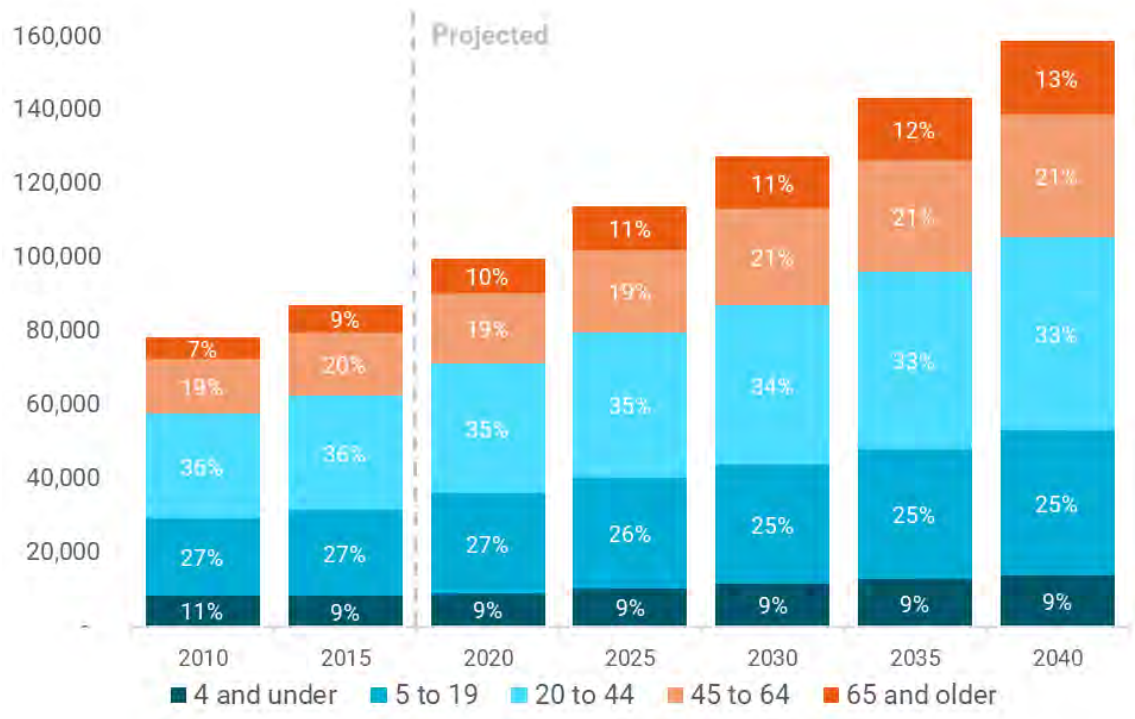
Sources: Washington OFM, 2019; BERK, 2020

Exhibit 68: Franklin County Historical and Projected Population, 2000-2040




Sources: Washington OFM, 2019; Yakima County Horizon 2040 Comprehensive Plan; BERK, 2019

Exhibit 69: Franklin County Population by Age Cohort, Historical and Projected




Sources: Washington OFM, 2018; BERK, 2019

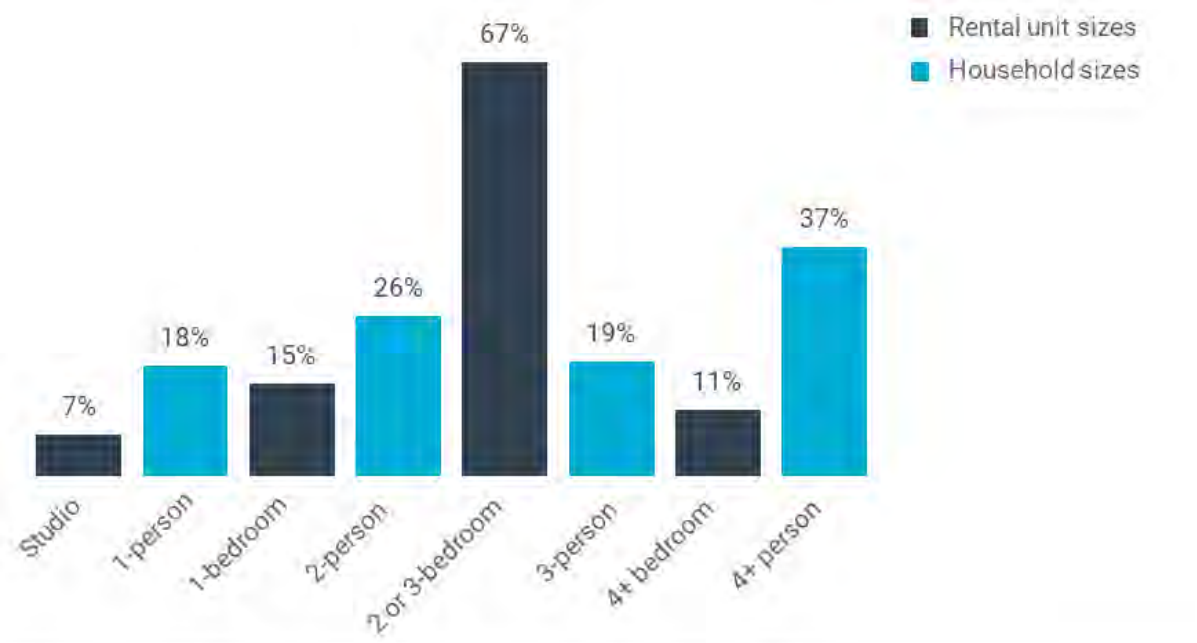
## *Household Population*

The average household size in Franklin County is 3.4 people.[108] Farmworker households are likely to reflect the general overall trend of household sizes. Thirty-one percent, or 8,244 households, are renters. Survey data suggests this rate is higher among the farmworker population, whose migratory patterns and lower annual earnings (see Exhibit 75) are more compatible with rental housing. Two- and three-bedroom units represent the majority of rental units available in Franklin County. This may also result in a mismatch of household size and housing stock for agricultural workers who rent and live with children or extended family members, further explored in Exhibit 70. **However, 37% have four or more household members, potentially requiring larger multifamily units. Units with 4+ bedrooms are limited in the rental market (in Franklin County, only 11% of rental units are this size), increasing the likelihood of overcrowding and "bunking up"**

[108] American Community Survey, Table DP02 5-year Estimates, 2014-2018.

arrangements if households cannot afford to purchase a home.[109]

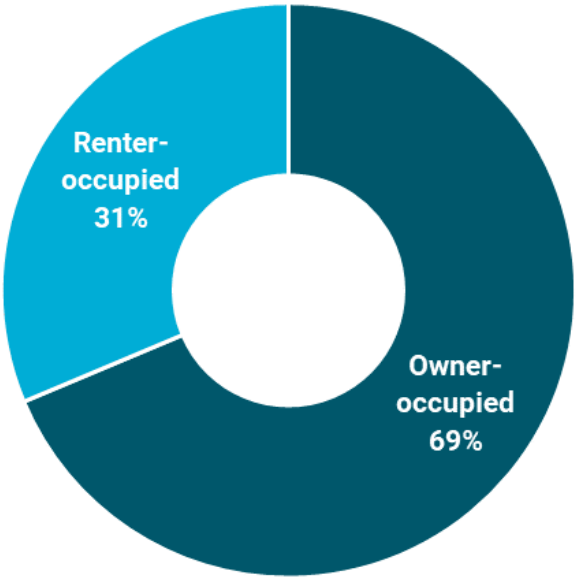
Exhibit 70: Franklin County Household Size




Sources: American Community Survey S2501 and S2504 5-Yr Estimates, 2014-2018; BERK, 2019

[109] American Community Survey, Table S2504 5-year Estimates, 2014-2018.

Exhibit 71: Franklin County Housing Tenure by Household, 2018




Sources: American Community Survey Table S2501 5-year Estimates, 2014-2018; BERK, 2020

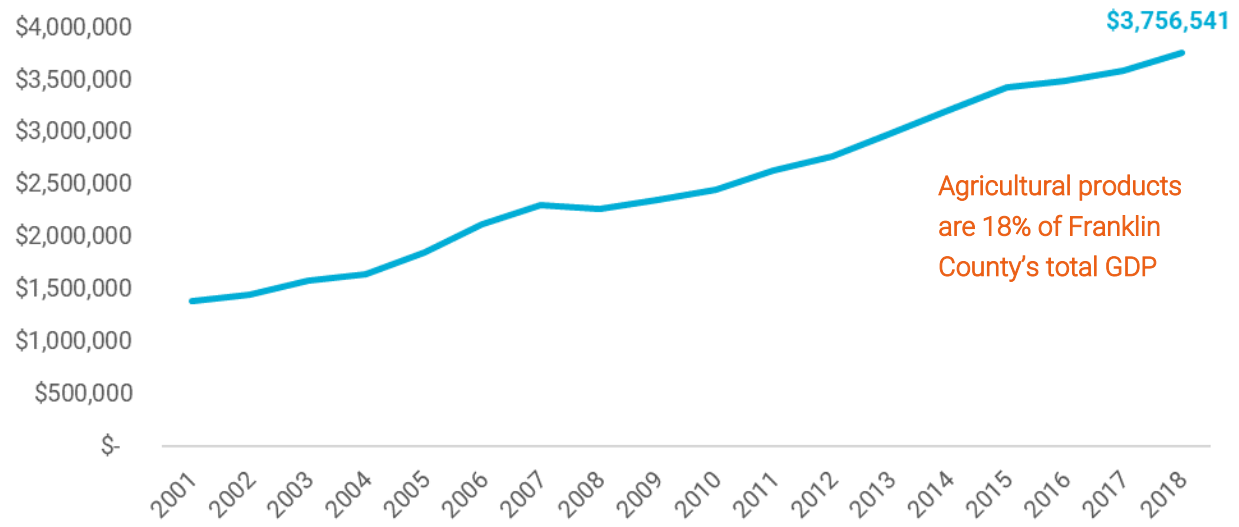
## *County economy*

In Franklin County, covered agricultural employment makes up **8% of the labor force**. Agricultural products comprise 18% of total GDP.

- Franklin County is one of three counties in ESD's southeastern area, along with Benton and Walla Walla counties. Farmworkers' earnings are slightly higher than the statewide average.
- Top employers for Franklin County include Tyson Foods, Lourdes Health Network, Tri-Cities Airport and the Port of Pasco.[110]

[110] Benton-Franklin Council of Governments, "Major Employers in Benton, Franklin and Walla Walla Counties," (2010), http://bfcog.us/2010%20Major%20Employers.pdf

Exhibit 72: Franklin County GDP, All Industries

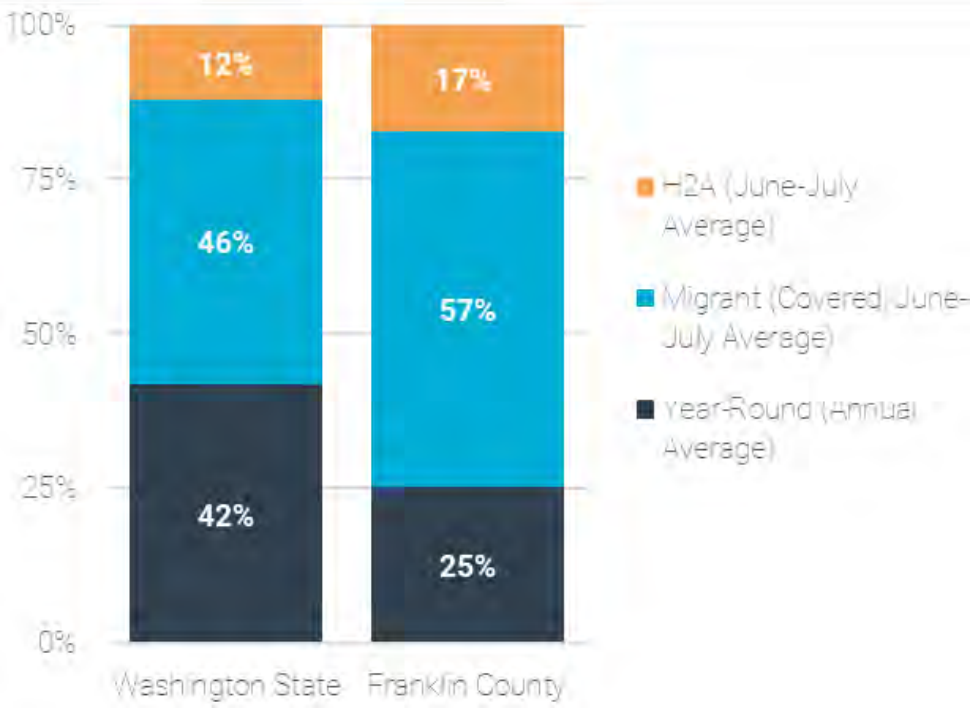



Sources: U.S. Bureau of Economic Analysis (BEA) SAGDP9N series, 2001-2018; BERK, 2020

## *Farmworker Population*

As of 2018, Franklin County is home to an estimated **2,960 year-round and covered agricultural jobs.** This more than triples during the peak months for migrant employment in June through August. Compared to statewide averages, Franklin County relies more upon migrant employment, both covered and H-2A, and less on year-round workers.

Exhibit 73: 2018 Agricultural Employment by Type, County versus State Averages




Sources: Washington ESD, 2019; U.S. Department of Labor, 2020; BERK, 2020

Exhibit 74: Franklin County Farmworker Estimates by Employment Types, 2018

| Employment Type | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year-round | 2,956 | 2,958 | 2,960 | 2,961 | 2,962 | 2,962 | 2,961 | 2,961 | 2,960 | 2,960 | 2,959 | 2,958 |
| Migrant covered | 1,717 | 2,353 | 2,916 | 4,433 | 5,174 | 7,747 | 5,634 | 5,421 | 4,004 | 3,610 | 2,181 | 1,454 |
| Migrant H-2A* | 178 | 279 | 330 | 437 | 451 | 2,087 | 1,936 | 1,709 | 1,634 | 0 | 0 | 0 |
| **Total estimated monthly employment** | **4,851** | **5,590** | **6,206** | **7,831** | **8,587** | **12,796** | **10,531** | **10,091** | **8,598** | **6,570** | **5,140** | **4,412** |

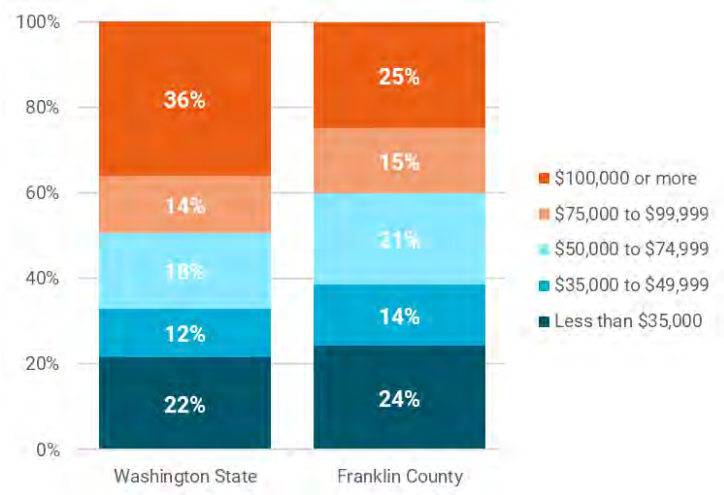
*Statewide requests provided by ESD and discounted 75% to reflect actual versus requested workers; County estimates based on Department of Labor percentages of worker requests by county

Sources: Employment Security Department, Employment Connections Division - Foreign Labor Certification Program; BERK, 2020

## *Income Summary*

Franklin County households have lower incomes than state averages. There is a slightly higher percentage of households earning less than $50,000 per year (38% versus 34%) and a much lower percentage of households earning greater than $100,000 per year (25% versus 36%). Based on ESD income and wages reporting, farmworker households are likely to earn less than $35,000 per year without additional income contributed from secondary employment or other household members. This income level is also well below the HUD-area median family income for 2018, $72,800.

Exhibit 75: Franklin County and State Household Income Brackets




One quarter of Franklin County households earn less than $35,000 annually. Many farmworker households are likely to be included in this group, as the 2018 regional average annual salary for agricultural workers was $30,133.

Sources: American Community Survey S1901 5-Yr Estimates, 2010 & 2018; BERK, 2020

Estimated wages for farmworkers are below the median family income (MFI) for Franklin County at any family size. **A single household earning the regional average for farmworkers earns 41% of MFI in Franklin County, classified as very low-income (30-49% MFI) for families of three or more members and low-income (50-79% MFI) for singles and two-person households.**

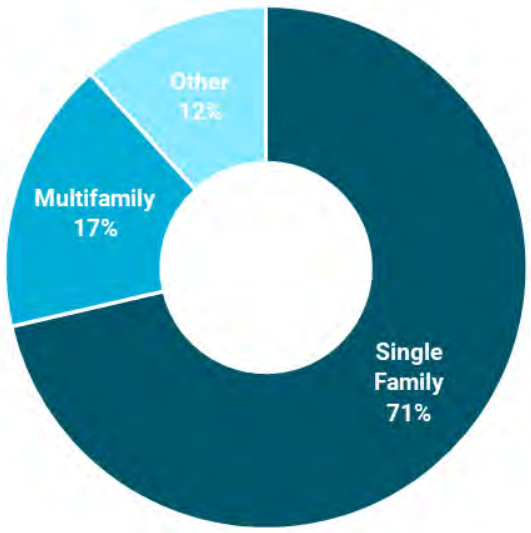
- Median family income for Franklin County (2018 - HUD): $72,800
- Average annual income for southeastern farmworkers (2018):[111] $30,133

[111] 2018 average wages projected based on average annual growth rates over 5 years, as reported by ESD, 2019.

## *Housing Inventory*

There are 28,476 housing units in Franklin County. The housing stock has higher proportions of single-family and mobile homes/other housing units, resulting in a limited stock of multifamily units (17% compared to 28% statewide). The market for rental units is competitive (vacancy rate 2.6%) and largely unaffordable on farmworker wages. An average 1-bedroom apartment results in a cost burden for average farmworker wages, and the estimated mortgage for the average home results in a severe cost burden. Only 6% of homes for sale would be considered affordable with farmworker wages.

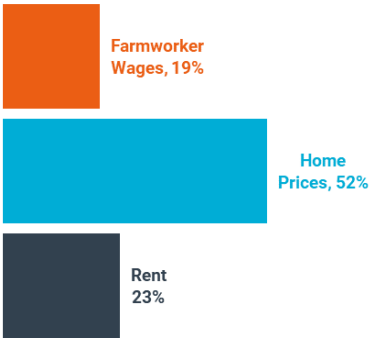
Exhibit 76: Total Housing Units by Type, Franklin County 2018




Sources: Washington OFM, 2018; BERK, 2020

Housing prices in Franklin County have risen faster than regional farmworker incomes in recent years, 52% for ownership and 23% for rent, versus 19% for wages. See Exhibit 77. This trend has exacerbated affordability issues, particularly for those planning to purchase a home. Given the regional average annual wages for farmworkers, housing is considered affordable at rates of $753 per month or less.

Exhibit 77: Franklin County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018




Sources: Washington ESD, 2020; Washington Center for Real Estate Research, 2012 & 2018; BERK, 2021

## Rental Housing

Average rents in Franklin County (2018):[112]

- $835 for 1-bedroom
- $899 for 2-bedroom
- The rental vacancy rate in Franklin County is 2.6%

## Home Ownership

**The median price of a home in Franklin County is $278,500.[113] For a farmworker household earning annual average wages, the estimated mortgage payment on this price of a home results in a cost burden.** A more affordable median home price is on farmworker income is $160,000 or less, assuming the ability to save for a $32,000 (20%) down payment. Approximately 6% of Franklin County housing units are available in this price range. This down payment will be out of reach for many families, and as down payment size decreases, monthly mortgage payments increase.

[112] Washington Center for Real Estate Research, Apartment Market Survey, Fall 2018.
[113] Ibid.

# Grant County

## *Key Takeaways*



**As many as 4,327 farmworker households search for housing through local, market rate options in Grant County.**




**Ten percent (10%) of this need is for migratory workers,** who have more unique and potentially term-limited housing needs. It is likely that many of these workers are living in less permanent forms of housing, such as mobile homes, as these comprise almost 30% of the local housing stock.

**In 2018, Grant County had...**



**5,483 year-round agricultural jobs.**

Farmworker housing resources in the area offered housing units to 8% of this total.



**11,533 migratory jobs available during peak months.**

Provided housing covers 89% of estimated local workers. The remaining 437 compete for rental units along with year-round farmworker households and all other renter households in Grant County.

| *Permanent Housing (units)* | | *Seasonal Housing (beds)* | |
|---|---|---|---|
| | 4,351 Estimated Workers | | 7,713 Estimated Workers |
| – | 462 Provided Units | – | 7,276 Provided Beds |
| | **3,889 Estimated Gap** | | **437 Estimated Gap** |



**Housing affordability is a challenge for farmworkers.** Average annual wages for farmworkers are below the median family income for all household sizes. The average home value results in cost burden for farmworker wages.




It is likely that many farmworker households are renters. **There are very few rental units in the area that can accommodate families with 4+ people, a common household size in Grant County.** Farmworker families may struggle to secure adequate accommodation at an affordable rate

## *Introduction*

Grant County is part of the Columbia Basin reporting area, situated in the middle of the state between Kittitas and Adams counties to the west and east, respectively, and Douglas and Benton counties to the north and south. There are 1,384 farms and more than 798,000 acres of

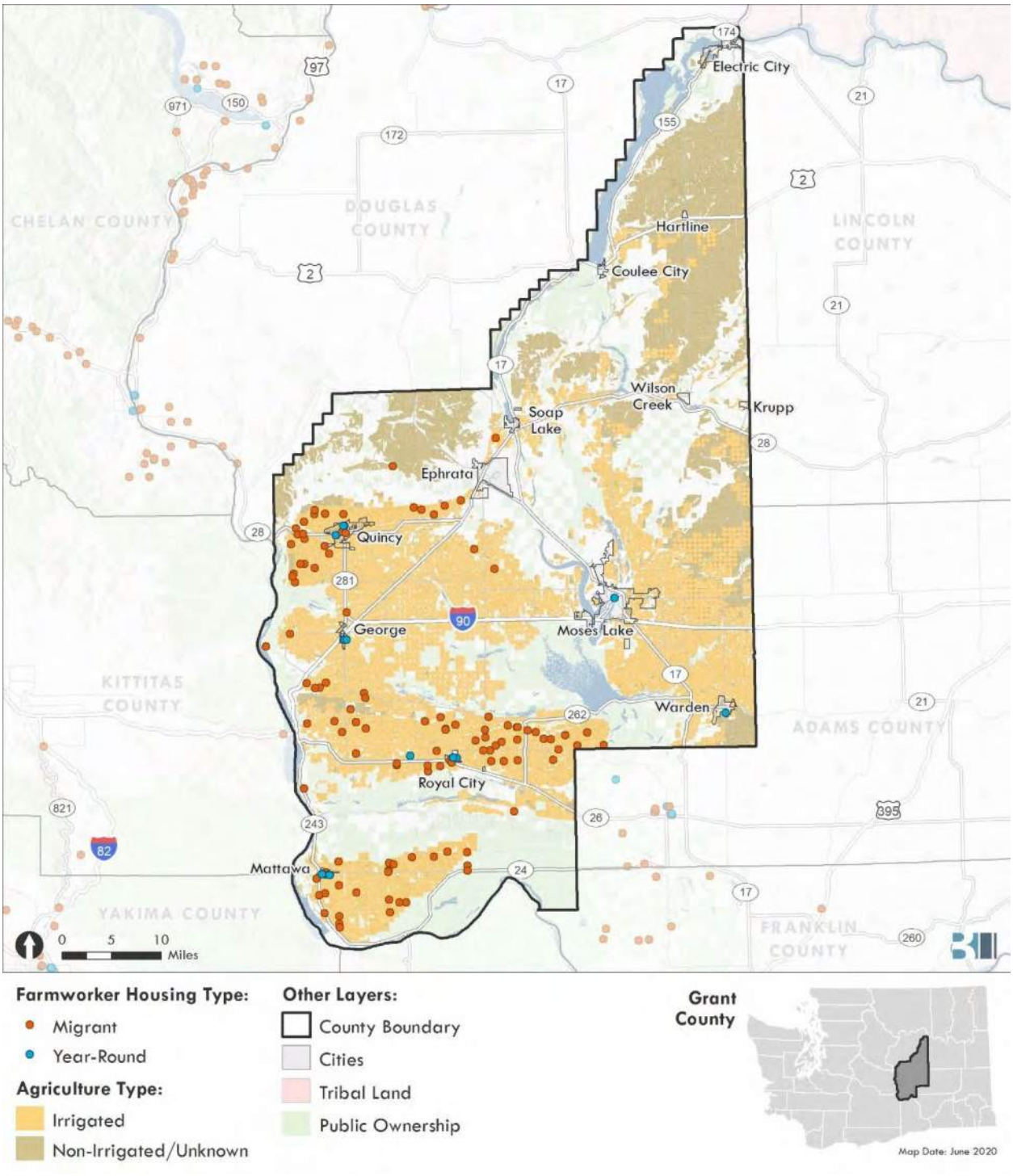
agricultural lands throughout the county, with irrigated farmland most common in the south.[114]

Grant County is Washington's second most productive county for agriculture, measured by the value of production, and is ranked third for year-round agricultural employment. Major agricultural commodities include apples, cattle and potatoes.[115] Other major sectors of employment are government services, manufacturing and retail trade.[116]

The county has a population of 98,740, with 15 cities and a large population living in unincorporated areas (44%).[117] Grant County's largest city is Moses Lake, with 25% of the population, and Ephrata is the county seat.

[114] Washington State Department of Agriculture, "Washington Agriculture Snapshot," (October 2021).
[115] Washington State Department of Agriculture, 2012.
[116] Washington State Employment Security Department, Average annual employment by 2-digit NAICS codes, 2018.
[117] Office of Financial Management, 2019.

Exhibit 78: Grant County Agricultural Land and Farmworker Housing Units, 2019




Sources: Housing Data from Washington DOH, 2019; Washington State Housing Finance Commission, 2019; Office of Rural and Farmworker Housing, 2019; WSDA, 2019

## *Population Summary*

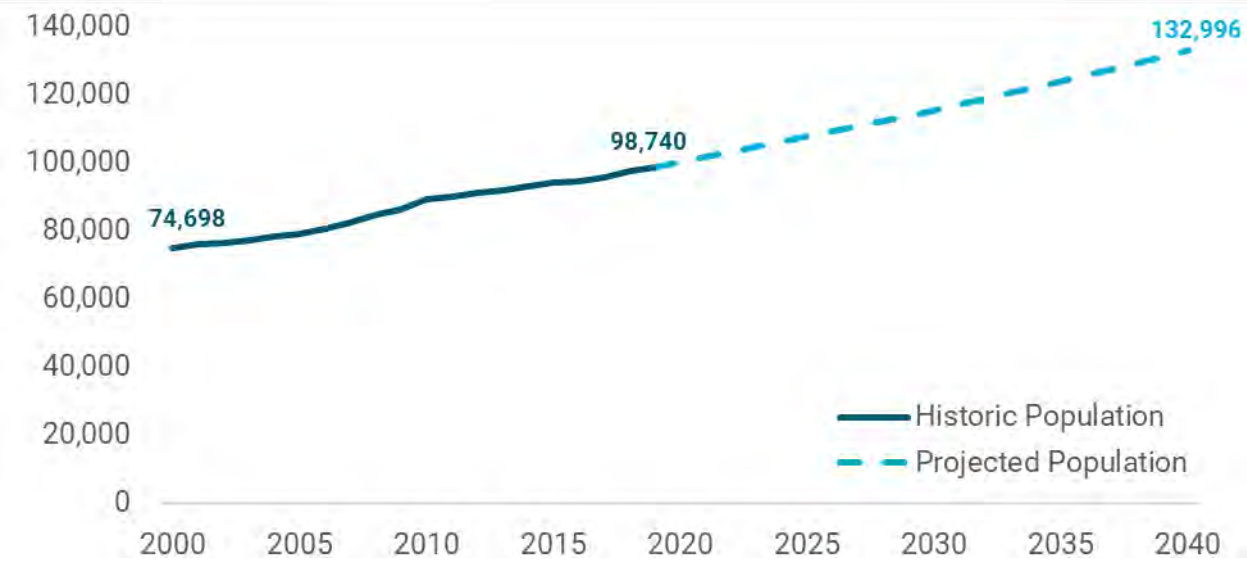
Grant County has a population of 98,740, which represents a 32% increase since 2000. Medium OFM population projections estimate continued growth patterns to 2040, as shown in Exhibit 139 and Exhibit 140. Demographic projections for Grant County estimate an increase in the proportion of adults over 65 as the Baby Boomer generation ages. This increase is offset by a decrease across age cohorts under age 45. The primary age group for farmworkers, 20-44, is predicted to remain relatively stable as a proportion of the population throughout this period, with a 2% decrease by 2040.

Exhibit 79: Grant County Historical and Projected Growth Rates, 2000-2040

| Average Annual Growth | 2000-2019 | 2019-2040 Projected |
|---|---|---|
| Individuals | 1,265 | 1,631 |
| Percentage | 1.7% | 1.7% |

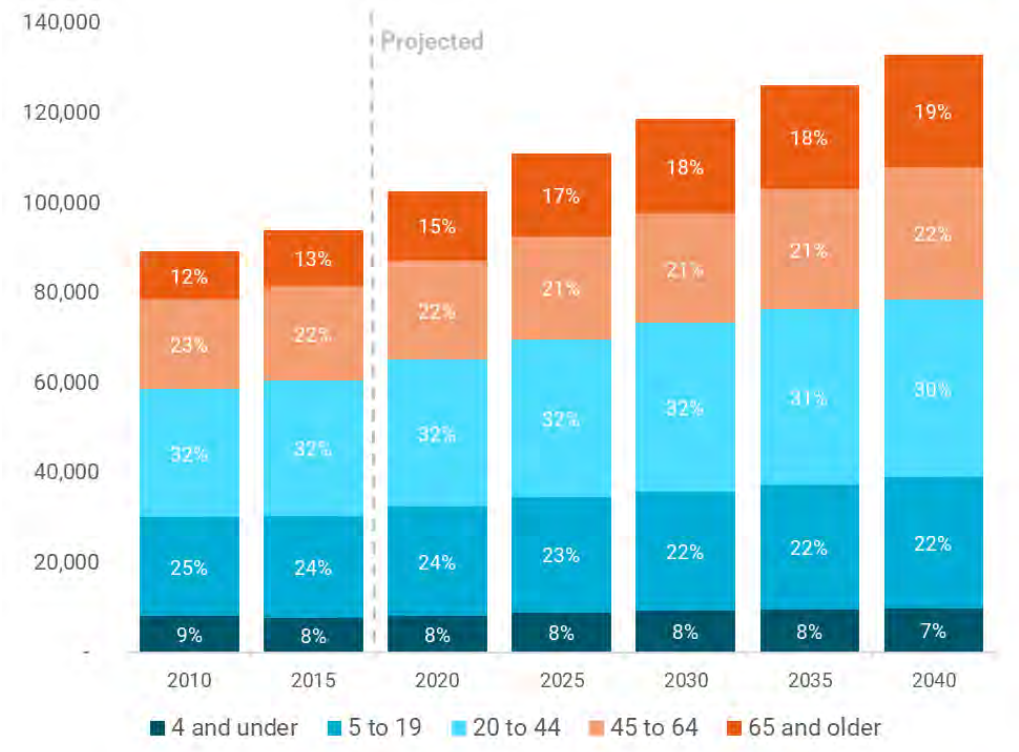
Sources: Washington State Office of Financial Management, 2019; BERK, 2020

Exhibit 80: Grant County Historical and Projected Population, 2000-2040




Sources: Washington OFM, 2019; Yakima County Horizon 2040 Comprehensive Plan; BERK, 2019

Exhibit 81: Grant County Population by Age Cohort, Historical and Projected



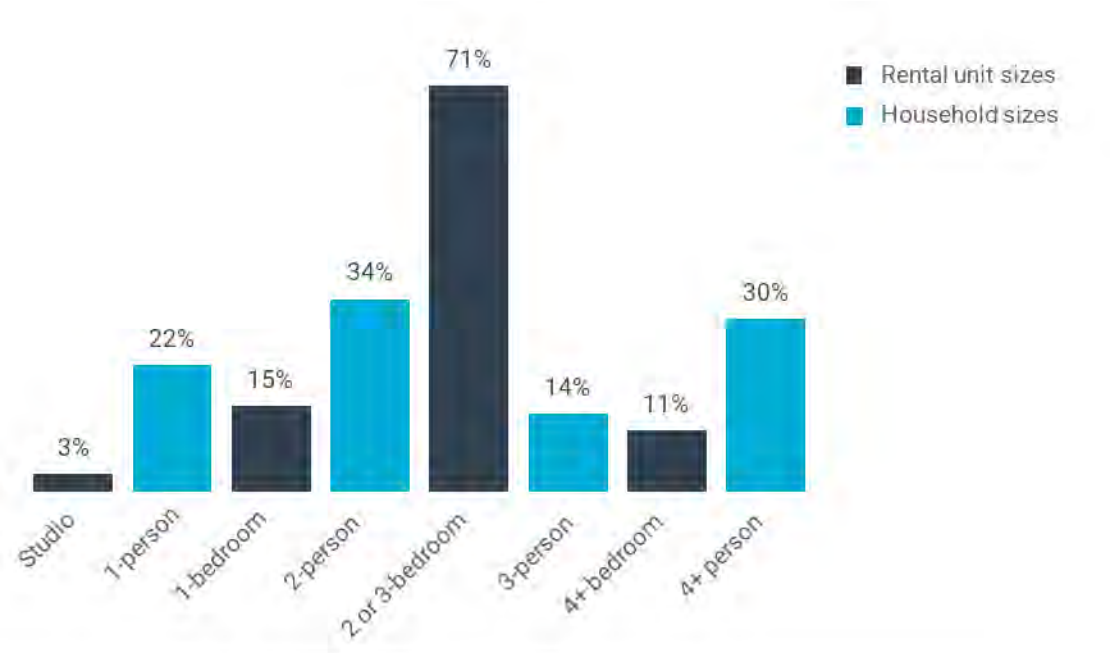

Sources: Washington OFM, 2018; BERK, 2019

## *Household Population*

The average household size in Grant County is 3.1 people.[118] Farmworker households are likely to reflect the general overall trend of household sizes. Almost 40% of Grant County households, or 11,705 households, are renters. Survey data suggests that this rate is higher among the farmworker population. This may result in a mismatch of household size and housing stock for agricultural workers who rent and live with children or extended family members, further explored in Exhibit 82. Two- and three-bedroom units represent the majority of rental units available in Grant County. **However, 30% of the population has more than four household members. Larger multifamily units with 4+ bedrooms are limited in the rental market (in Grant County, only 11% of rental units are this size), increasing the likelihood of overcrowding and "bunking up" arrangements if households cannot afford to purchase a home.**[119]

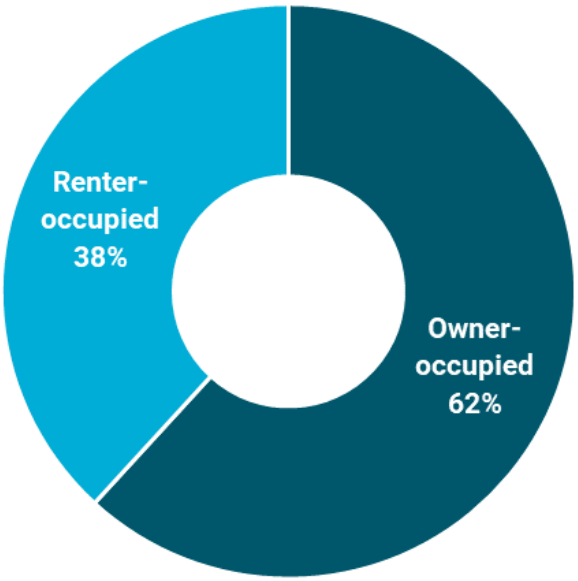
[118] American Community Survey, Table DP02 5-year Estimates, 2014-2018.
[119] American Community Survey, Table S2504 5-year Estimates, 2014-2018.

Exhibit 82: Grant County Household Size and Rental Housing Unit Sizes




Sources: American Community Survey S2501 and S2504 5-Yr Estimates, 2014-2018; BERK, 2020

Exhibit 83: Grant County Housing Tenure by Household, 2018



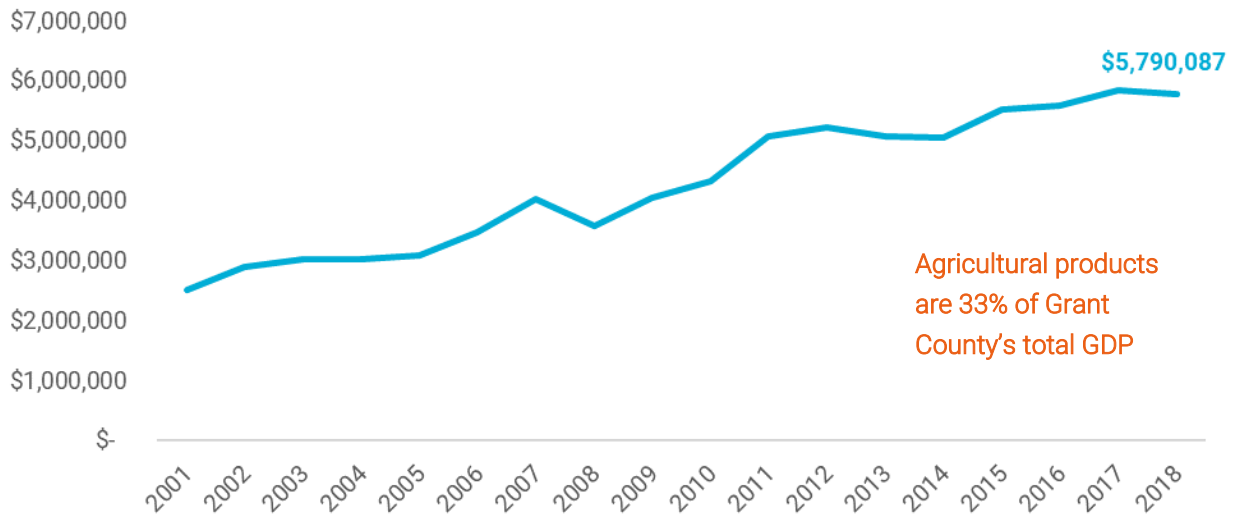

Sources: American Community Survey Table S2501 5-year Estimates, 2014-2018

## *County Economy*

In Grant County, covered farmworkers make up **13% of the labor force**. It is ranked third in the state for year-round employees and second for migrant, covered labor. It is also second in the state for the county's agriculture production value, which accounts for approximately one-third of the total GDP.

- Grant County is one of two counties in ESD's Columbia Basin area, along with Adams County, earning less than the statewide average for annual farmworker wages.
- Top employers include Moses Lake School District, Genie Industries, county government and Samaritan Healthcare.[120]

Exhibit 84: Grant County GDP, All Industries, 2001-2018



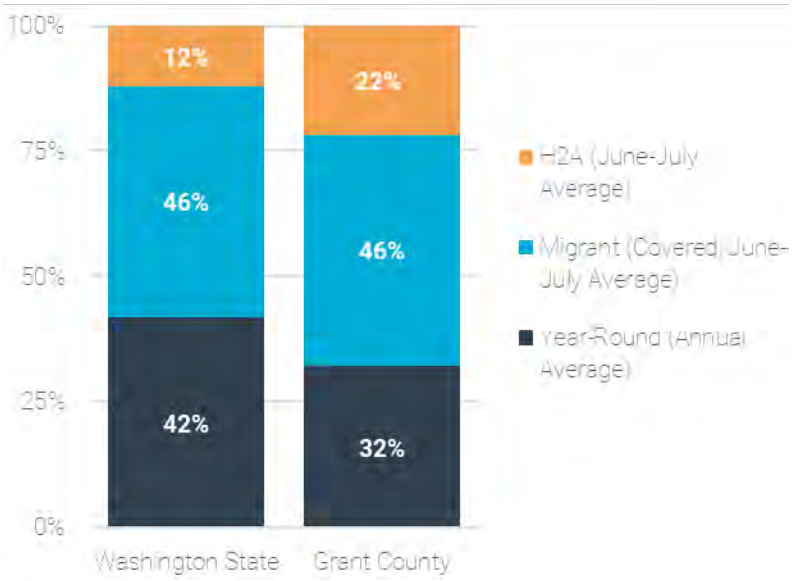

Sources: U.S. Bureau of Economic Analysis (BEA) SAGDP9N series, 2001-2018; BERK, 2020

## *Farmworker Population*

As of 2018, Grant County is home to an estimated **5,483 year-round and covered agricultural jobs.** This number more than doubles during the peak months for migrant employment, from June through August. Compared to statewide averages, Grant County relies less on year-round employment and instead much more heavily upon both H-2A and covered migrant employment.

[120] Grant County Economic Development Council, "Grant County Largest Employers," (2018), http://www.grantedc.com/demographics/largest-employers/

Exhibit 85: 2018 Agricultural Employment by Type, County versus State Averages




Sources: Washington ESD, 2019; U.S. Department of Labor, 2020; BERK, 2020

Exhibit 86: Grant County Farmworker Estimates by Employment Type, 2018

| Employment Type | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year-round | 5,546 | 5,536 | 5,525 | 5,513 | 5,502 | 5,490 | 5,478 | 5,465 | 5,453 | 5,440 | 5,428 | 5,415 |
| Migrant covered | 1,378 | 2,368 | 3,168 | 3,506 | 4,172 | 6,614 | 9,066 | 6,592 | 7,135 | 5,084 | 3,213 | 1,734 |
| Migrant H-2A* | 1,019 | 2,674 | 3,310 | 3,346 | 3,419 | 3,898 | 3,487 | 3,055 | 761 | 149 | 0 | 0 |
| **Total estimated monthly employment** | **7,943** | **10,578** | **12,003** | **12,365** | **13,093** | **16,002** | **18,031** | **15,112** | **13,349** | **10,673** | **8,641** | **7,149** |

*Statewide requests provided by ESD and discounted 75% to reflect actual versus requested workers; County estimates based on Department of Labor percentages of worker requests by county

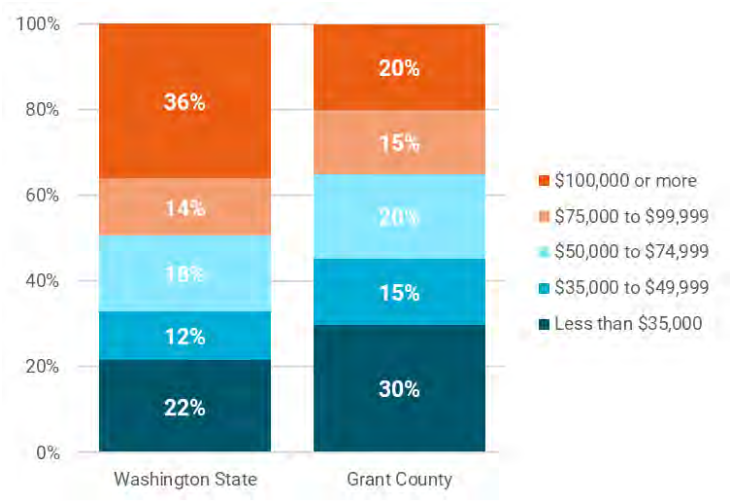
Sources: ESD, Employment Connections Division - Foreign Labor Certification Program; BERK, 2020

## *Income Summary*

Grant County households have lower incomes than state averages. There is both a higher percentage of households earning less than $50,000 per year and a lower percentage of households earning greater than $100,000 per year. Based on ESD income and wages reporting,

farmworker households are likely to earn less than $35,000 per year without additional income from secondary employment or other household members. This income level is below the HUD area median family income for 2018, $59,900.

Exhibit 87: Grant County, Household Income Brackets




Thirty percent of Grant County households earn less than $35,000 annually. Many farmworker households are likely to be included in this group, as the 2018 regional average annual salary for agricultural workers was $29,861.

Sources: American Community Survey S1901 5-Yr Estimates, 2010 & 2018; BERK, 2020

Estimated wages for farmworkers are below the median family income (MFI) for Grant County, at any family size. **A household earning the regional average for farmworkers earns 50% of MFI in Grant County, classified as very low-income for three or more person households (30-49% MFI) and low-income for a single person and two-person households (50-79% MFI).**

- Median family income for Grant County (2018 - HUD): $59,900
- Average annual income for Columbia Basin farmworkers (2018):[121] $28,861

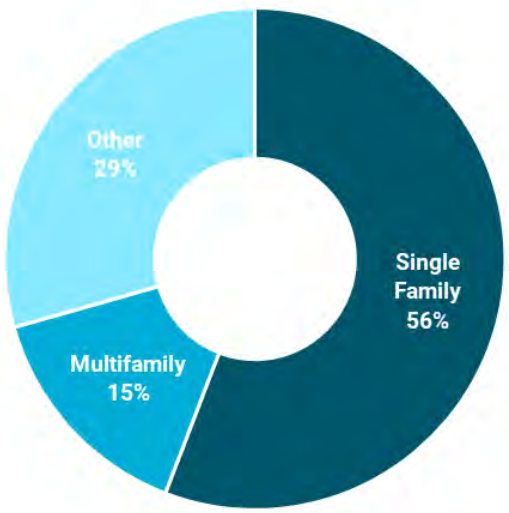
## *Housing Inventory*

There are 38,335 housing units in Grant County. A high percentage (29% compared to 8% statewide) of these are classified as 'other,' including mobile homes and other special housing types. This high percentage may correlate to the high number of farmworkers living in temporary housing types. There are not enough rental units for Grant County rental estimates to register with research databases. Home values are high enough that the estimated mortgage for an

[121] 2018 average wages projected based on average annual growth rates over 5 years, as reported by ESD, 2019.

average home results in a cost burden on farmworker wages. Based on information from the Washington Center for Real Estate Research, Housing Market Summary Q4 2018, 23% of homes for sale are $160,000 or less, which is a more affordable price point.

Exhibit 88: Total Housing Units by Type, Grant County 2018




Sources: Washington OFM, 2018; BERK, 2020

In recent years, housing prices in Grant County have risen faster than regional farmworker incomes, with home prices increasing 37%, compared to 15% for wages. See Exhibit 89. This trend has exacerbated affordability issues. Given the regional average annual wages for farmworkers, housing is considered affordable at rates of $747 per month or less.

Exhibit 89: Grant County, Percent Change for Farmworker Wages versus Housing Prices, 2012 to 2018




Sources: Washington ESD, 2020; Washington Center for Real Estate Research, 2012 & 2018; BERK, 2021

## Rental Housing

There are not enough rental housing units in Grant County for the Washington Center for Real Estate Research to include with its bi-annual report findings.

## Home Ownership

**The median price of a home in Grant County is $212,300.[122] For a farmworker household earning annual average wages, the estimated mortgage payment on this price of a home results in a cost burden.** A more affordable average home price is $160,000 or less, assuming the ability to save for a $32,000 (20%) down payment. Approximately 23% of Grant County housing units are available in this price range. This down payment will be out of reach for many families, and as down payment size decreases, monthly mortgage payments increase.

[122] Washington Center for Real Estate Research, Housing Market Summary Q4 2018.

# Okanogan County

## *Key Takeaways*



**As many as 1,645 farmworker households search for housing through local, market rate options in Okanogan County.**




**Ten percent (10%) of this need is for migratory workers,** who have more unique and potentially term-limited housing needs. This is complicated by the reality that there is a very limited stock of multifamily housing in Okanogan County. It is likely that many of these workers are living in less permanent forms of housing, such as mobile homes, as these comprise a quarter of the local housing stock.

**In 2018, Okanogan County had...**



**1,956 year-round agricultural jobs.**

Farmworker housing resources in the area offered housing units to 4% of this total.



**7,628 migratory jobs available during peak months.**

Provided housing covers 93% of estimated local workers. The remaining 170 compete for limited rental housing units alongside year-round farmworker households and all other permanent rental residents of Okanogan County.

| | | | |
|---|---|---|---|
| *Permanent Housing (units)* | 1,552 Estimated Workers | *Seasonal Housing (beds)* | 5,302 Estimated Workers |
| | – 77 Provided Units | | – 5,132 Provided Beds |
| | **1,475 Estimated Gap** | | **170 Estimated Gap** |



**Housing affordability is a challenge for farmworkers.** Average annual wages for farmworkers are below the median family income for all household sizes. The average home value results in severe cost burden for farmworker wages.




It is likely that many farmworker households are renters. **With limited rental housing stock, farmworker households, particularly those with larger families, may struggle to secure adequate accommodation at an affordable rate.**

## *Introduction*

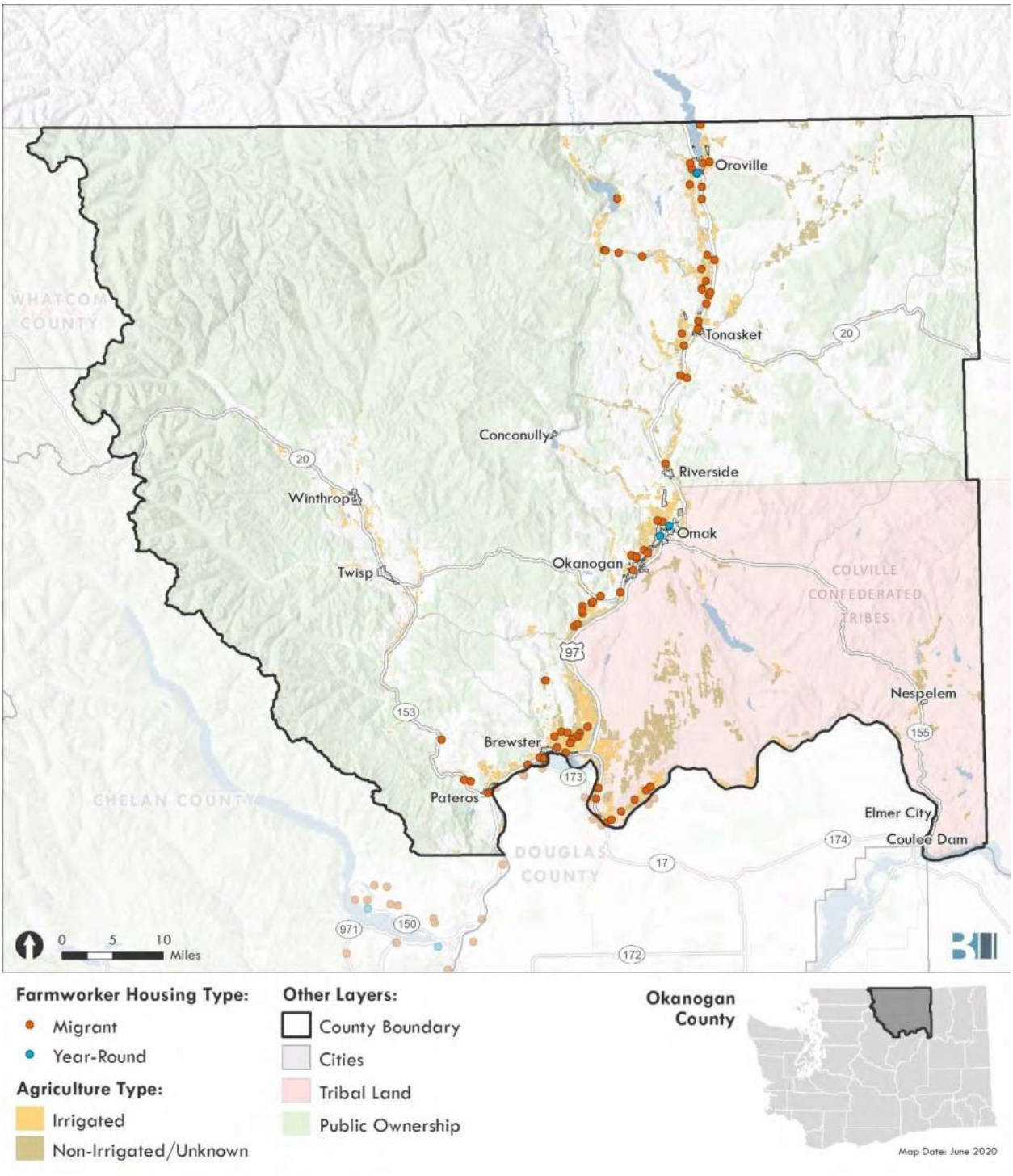
Okanogan County is part of the north-central state reporting area. It borders Canada to the north, and much of the county's eastern portion is designated as Colville Reservation tribal land. There are 1,192 farms and more than 105,000 acres of agricultural lands, primarily running north to south along highway 97.[123]

Okanogan County is Washington's eighth most productive county for agriculture, measured by the value of production, and is ranked seventh for year-round agricultural employment. Major agricultural commodities include apples, cherries and pears.[124] Other major sectors of employment are government services, retail trade, and healthcare and social assistance.[125]

The county has a population of 42,730, which is largely rural – 61% live in unincorporated areas.[126] Okanogan County's largest city is Omak, with 12% of the population, and the county seat is Okanogan.

[123] Washington State Department of Agriculture, "Washington Agriculture Snapshot," (October 2021).
[124] Washington State Department of Agriculture, 2012.
[125] Washington State Employment Security Department, Average annual employment by 2-digit NAICS codes, 2018.
[126] Office of Financial Management, 2019.

Exhibit 90: Okanogan County Agricultural Land and Farmworker Housing Units, 2019




Sources: Housing Data from Washington DOH, 2019; Washington State Housing Finance Commission, 2019; Office of Rural and Farmworker Housing, 2019; WSDA, 2019

## *Population Summary*

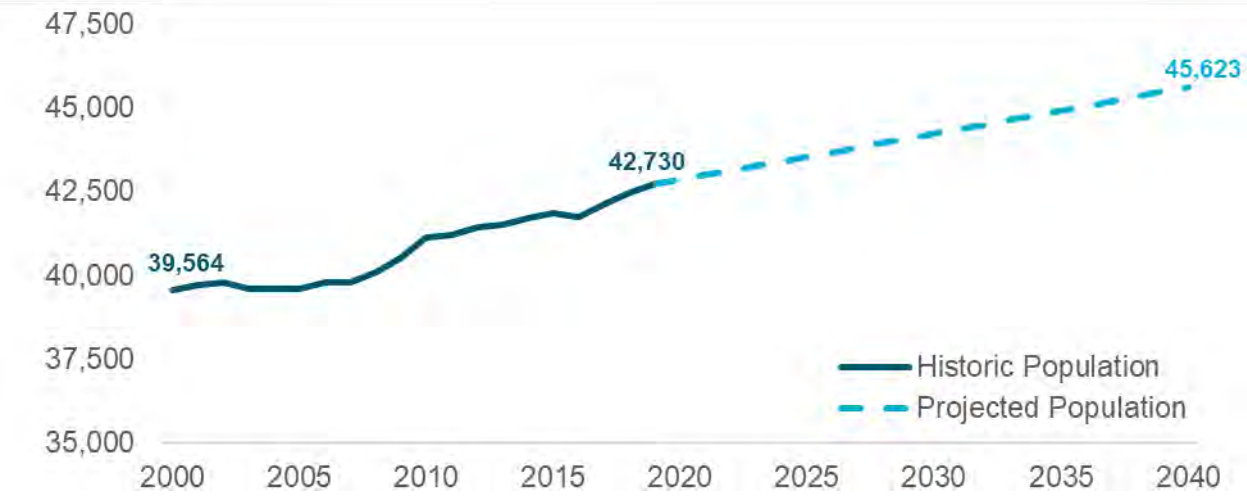
Okanogan County has a population of 42,730, representing an 8% increase 2000-2019, a slower pace of growth than many other counties. Medium OFM population projections estimate continued growth patterns to 2040, as shown in Exhibit 139 and Exhibit 140. Demographic projections for Okanogan County estimate a substantial shift proportionally toward older adults (65+) as Baby Boomers age. This is offset by a shrinking of the 45-64 cohort. The primary age group for farmworkers, 20-44, is predicted to remain relatively stable as a proportion of the population throughout this period.

Exhibit 91: Okanogan County Historical and Projected Growth Rates, 2000-2040

| Average Annual Growth | 2000-2019 | 2019-2040 Projected |
|---|---|---|
| Individuals | 167 | 138 |
| Percentage | 0.4% | 0.3% |

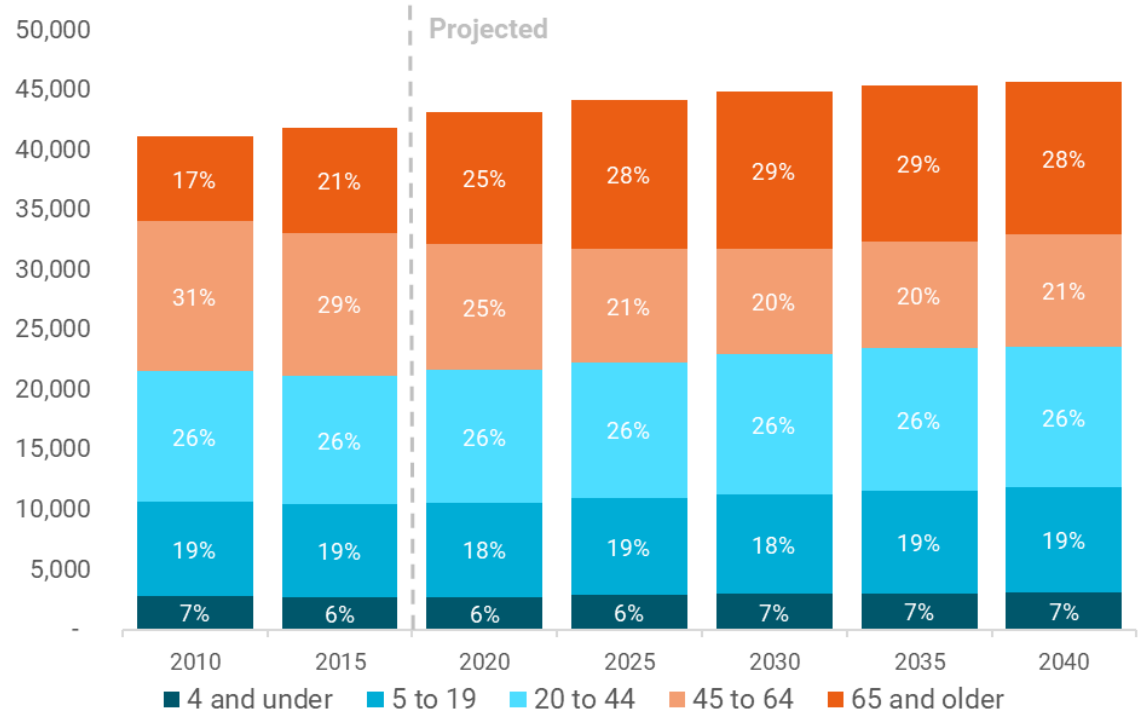
Sources: Washington OFM, 2019; BERK, 2020

Exhibit 92: Okanogan County Historical and Projected Population, 2000-2040




Sources: Washington OFM, 2019; PSRC, 2019; BERK, 2020

Exhibit 93: Okanogan Population by Age Cohort, Historical and Projected



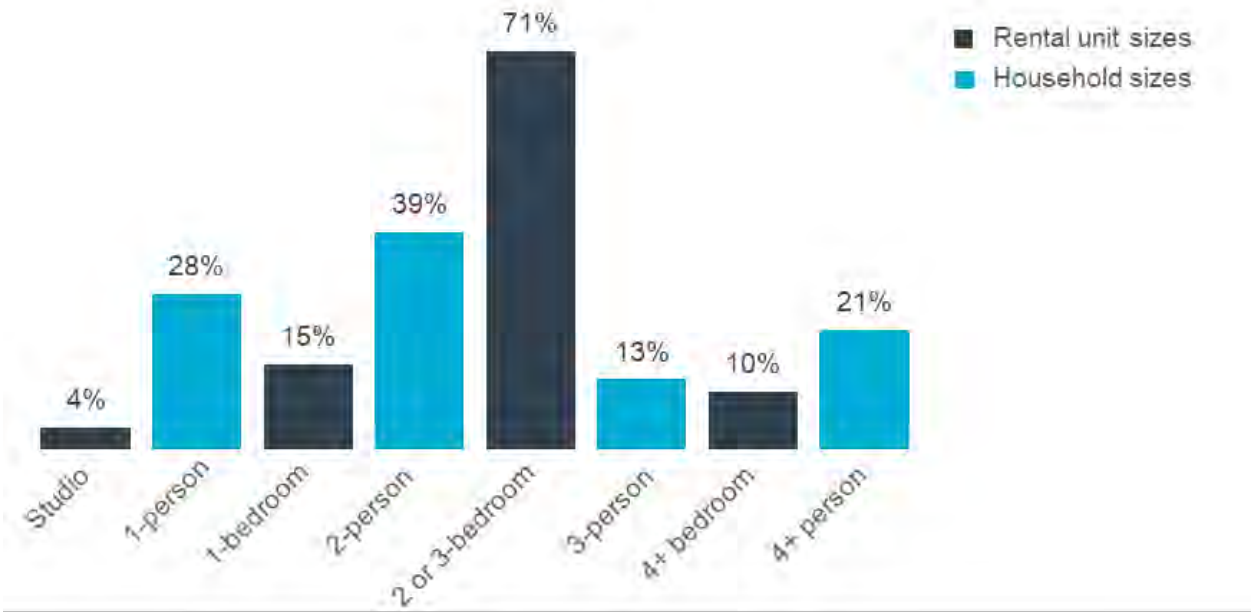

Sources: Washington OFM, 2018; BERK, 2019

## *Household Population*

The average household size in Okanogan County is 2.3 people.[127] Farmworker households are likely to reflect the general overall trend of household sizes. One-third (34%) of Okanogan County households, or 5,926 households, are renters. Survey data suggests that this rate is higher among the farmworker population (see Exhibit 27). This may result in a mismatch of household size and housing stock for agricultural workers who rent and live with children or extended family members, further explored in Exhibit 22. Two- and three-bedroom units represent the majority of rental units available in Okanogan County. **However, 21% of households have four or more members.** Only 10% of rentals in Okanogan County have four or more bedrooms, increasing the likelihood of overcrowding and "bunking up" arrangements if households cannot afford to purchase a home.[128]

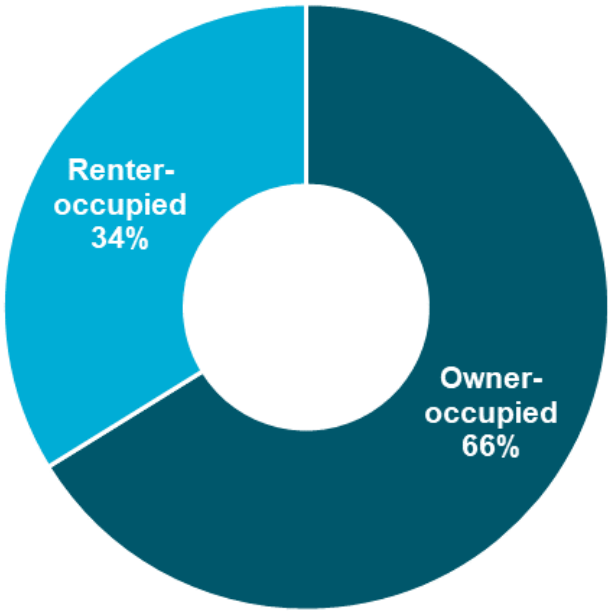
[127] American Community Survey, Table DP02 5-year Estimates, 2014-2018.
[128] American Community Survey, Table S2504 5-year Estimates, 2014-2018.

Exhibit 94: Okanogan County Household Size and Rental Unit Size, by Number of Bedrooms




Sources: American Community Survey S2501 and S2504 5-Yr Estimates, 2014-2018; BERK, 2020

Exhibit 95: Okanogan County Housing Tenure by Household, 2018



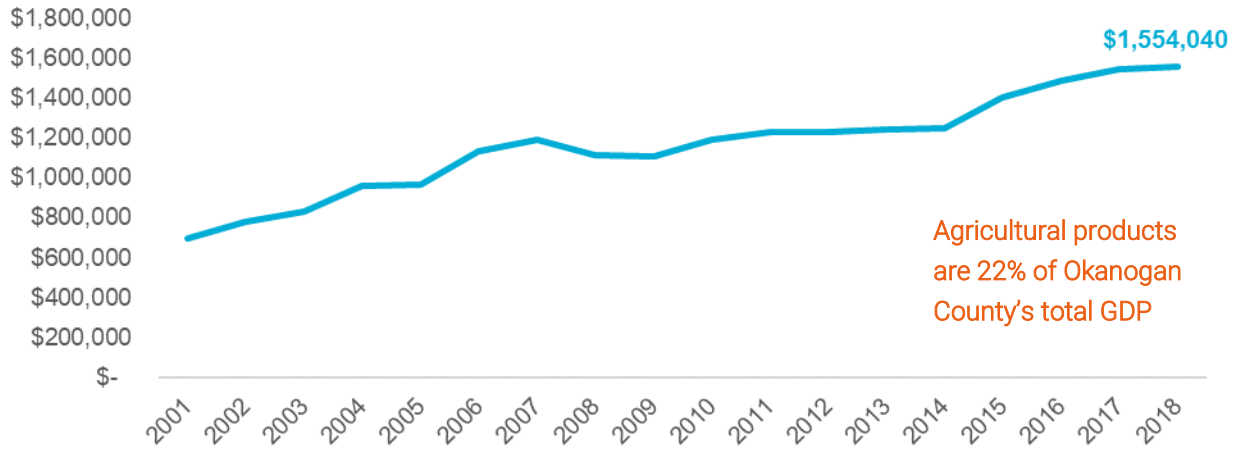

Sources: American Community Survey Table S2501 5-year Estimates, 2014-2018; BERK, 2020

## *County Economy*

In Okanogan County, agricultural employment makes up **10% of the labor force**. Agricultural products comprise 22% of total GDP, making the sector central to the local economy.

- Okanogan County is one of three counties in ESD's north-central area, along with Douglas and Chelan counties. Farmworker earnings in this region are the lowest of the six-state reporting areas.
- Top employers include Colville Confederated Tribes, Gebber Farms, Wal-Mart and Mid-Valley Hospital & Clinic.[129]

Exhibit 96: Okanogan County GDP, All Industries



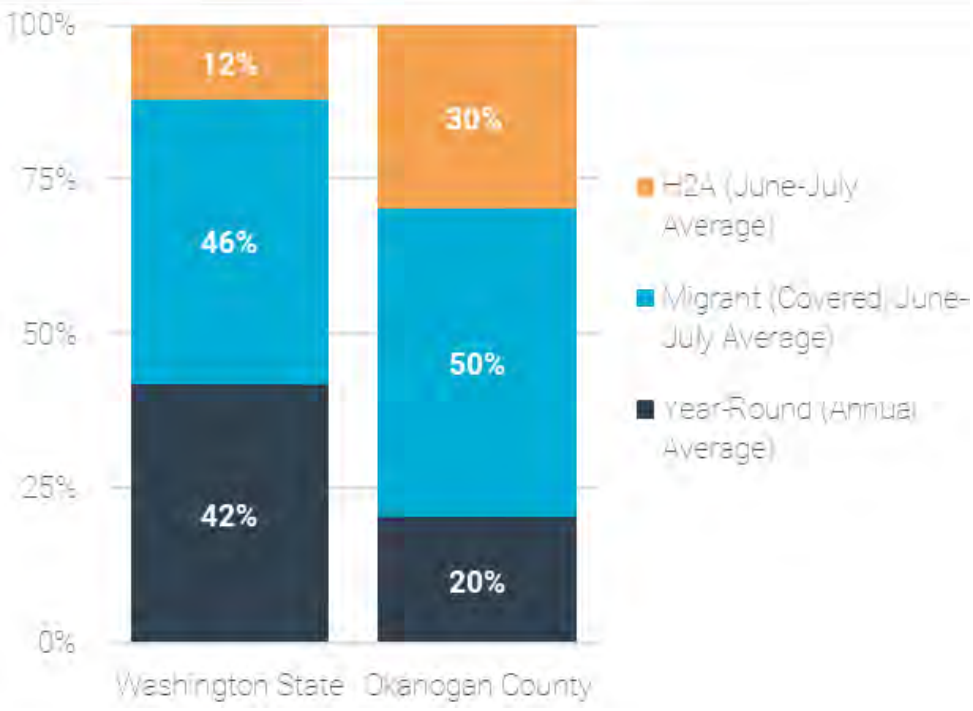

Sources: U.S. Bureau of Economic Analysis (BEA) SAGDP9N series, 2001-2018; BERK, 2020

## *Farmworker Population*

As of 2018, Okanogan County is home to an estimated **1,956 year-round and covered agricultural jobs**, which more than triples during the peak months, with migrant employment in March through August. Compared to statewide averages, Okanogan County relies heavily upon H-2A employment. H-2A workers comprise over 40% of employment estimates for the county, compared to 16% for the state.

[129] Adams County Development Council, "Leading Industries," (2013), https://www.growadamscounty.com/business-resources/largest-employers/

Exhibit 97: 2018 Agricultural Employment by Type, County versus State Averages




Sources: Washington ESD, 2019; U.S. Department of Labor, 2020; BERK, 2020

Exhibit 98: Okanogan County Farmworker Estimates by Employment Type, 2018

| Employment Type | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year-round | 2,178 | 2,138 | 2,098 | 2,058 | 2,017 | 1,976 | 1,936 | 1,895 | 1,854 | 1,814 | 1,773 | 1,732 |
| Migrant covered | 936 | 1,492 | 1,737 | 2,280 | 2,457 | 3,718 | 5,831 | 4,011 | 4,616 | 3,289 | 1,938 | 1,531 |
| Migrant H-2A* | 1,844 | 2,002 | 3,513 | 3,565 | 3,632 | 3,705 | 2,003 | 1,842 | 145 | 105 | 26 | 0 |
| **Total estimated monthly employment** | **4,958** | **5,632** | **7,348** | **7,903** | **8,106** | **9,399** | **9,770** | **7,748** | **6,615** | **5,208** | **3,737** | **3,263** |

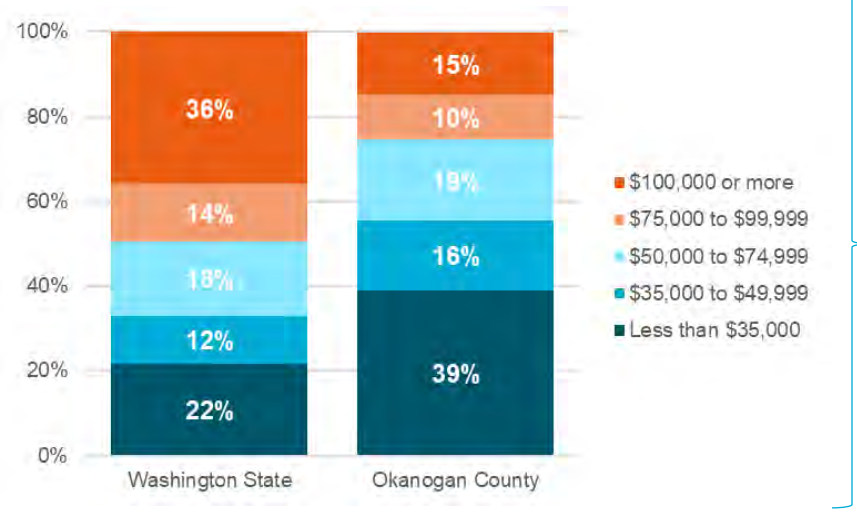
*Statewide requests provided by ESD and discounted 75% to reflect actual versus requested workers; County estimates based on Department of Labor percentages of worker requests by county

Sources: Employment Security Department, Employment Connections Division - Foreign Labor Certification Program; BERK, 2020

## *Income Summary*

Okanogan County households have lower incomes than state averages. There is a much higher percentage of households earning less than $50,000 per year (39% versus 22%) and a lower percentage of households earning greater than $100,000 per year (15% versus 36%). Based on ESD income and wages reporting, farmworker households are likely to earn less than $35,000 per year without additional income contributed from secondary employment or other household members. This income level is also well below the HUD-area median family income for 2018: $51,200.

Exhibit 99: State and County Household Income Brackets




Almost 40% of Okanogan County households earn less than $35,000 annually. Many farmworker households are likely to be included in this group, as the 2018 regional average annual salary for agricultural workers was $26,625.

Sources: American Community Survey S1901 5-Yr Estimates, 2014-2018; BERK, 2020

Estimated wages for farmworkers are below the median family income (MFI) for Okanogan County, at any family size. **A household earning the regional average for farmworkers earns 52% of MFI in Okanogan County, classified as very low-income (30-49% MFI) for three or more members and low-income (50-79% MFI) for singles or two-person households.**

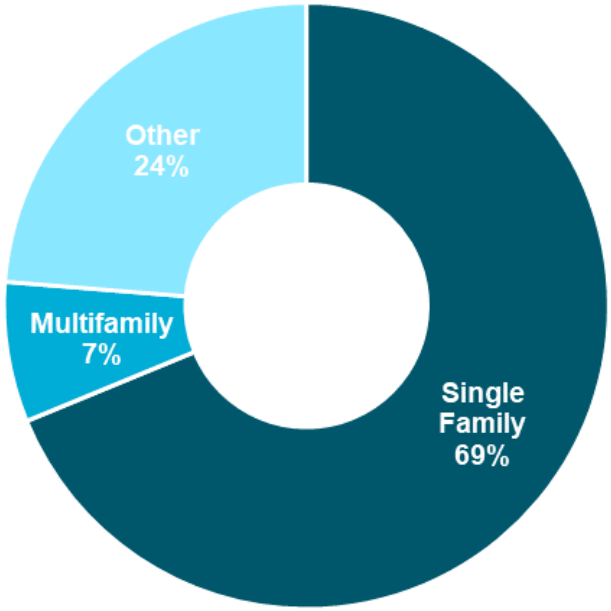
- Median family income for Okanogan County (2018 - HUD): $51,200
- Average annual income for north central farmworkers (2018):[130] $26,625

[130] 2018 average wages projected based on average annual growth rates over 5 years, as reported by ESD, 2019.

## *Housing Inventory*

There are 23,361 housing units in Okanogan County. A high percentage of these (24%) are classified as 'other,' including mobile homes and other special housing types, compared to a statewide average of 8%. This high percentage may correlate to the high number of farmworkers living in temporary housing types. Rental rate reporting in Okanogan County is unreliable due to the limited stock of multifamily units. Homeownership for average-priced houses results in a severe cost burden with farmworker wages. Affordable ownership options represent 5% of the home market for sale.

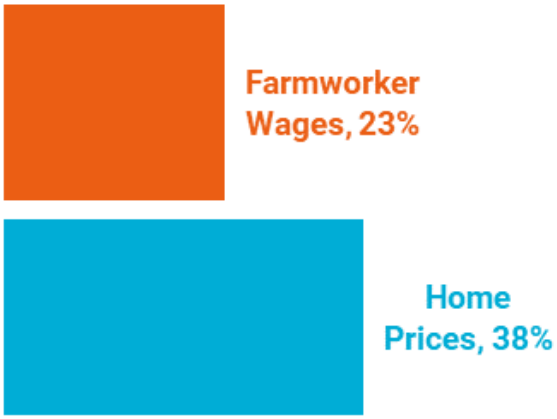
Exhibit 100: Total Housing Units by Type, Okanogan County 2018




Sources: Washington OFM, 2018; BERK, 2020

In recent years, housing prices in Okanogan County have risen faster than regional farmworker incomes, with home prices rising 38% versus 23% for wages. See Exhibit 89. This trend has exacerbated affordability issues. Given the regional average annual wages for farmworkers, housing is considered affordable at rates of $666 per month or less.

Exhibit 101: Okanogan County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018




Sources: Washington ESD, 2020; Washington Center for Real Estate Research, 2012 & 2018; BERK, 2021

Rental Housing

There are not enough rental housing units in Okanogan County for inclusion in the Washington Center for Real Estate Research's biannual survey.

Home Ownership

**The median price of a home in Okanogan County is $213,500.[131] For a farmworker household earning annual average wages, the estimated mortgage payment on this price of a home results in a severe cost burden.** A more affordable home price point is $80,000 or less, assuming the ability to save for a $16,000 (20%) down payment. Approximately 5% of Okanogan County housing units are in this price range. This down payment will be out of reach for many families, and as down payment size decreases, monthly mortgage payments increase.

[131] Ibid.

# Skagit County

## *Key Takeaways*



**As many as 1,377 farmworker households search for housing through local, market rate options in Skagit County.**




**Seventeen percent (17%) of this need is for migratory workers,** who have more unique and potentially term-limited housing needs. This is complicated by the reality that there is a very limited stock of multifamily housing and extremely low rental vacancy in Skagit County.

**In 2018, Skagit County had...**



**1,737 year-round agricultural jobs.**

Farmworker housing resources in the area offered housing units to 17% of estimated workers.



**1,356 migratory jobs available during peak months.**

Provided housing covers 66% of estimated local workers. The remaining 238 compete for rental units along with year-round farmworker households and all other rental households of Skagit County.

| | | | | |
|---|---|---|---|---|
| *Permanent Housing (units)* | 1,378 Estimated Workers | *Seasonal Housing (beds)* | 699 Estimated Workers | |
| | – 240 Provided Units | | – 461 Provided Beds | |
| | **1,138 Estimated Gap** | | **238 Estimated Gap** | |



**Housing affordability is a challenge for farmworkers.** Average annual wages for farmworkers are below the median family income for all household sizes. The average home value results in severe cost burden for farmworker wages, and less than 5% of the available housing stock is affordable with farmworker wages.




It is likely that many farmworker households are renters. **There is extremely low rental vacancy in Skagit County (0.5%) and a low proportion of multifamily units in the housing stock. Rental rates, even for smaller unit sizes, result in cost burden with farmworker wages.** Farmworker families with 4+ members may encounter additional difficulty locating adequate rental accommodations at an affordable rate.

## *Introduction*

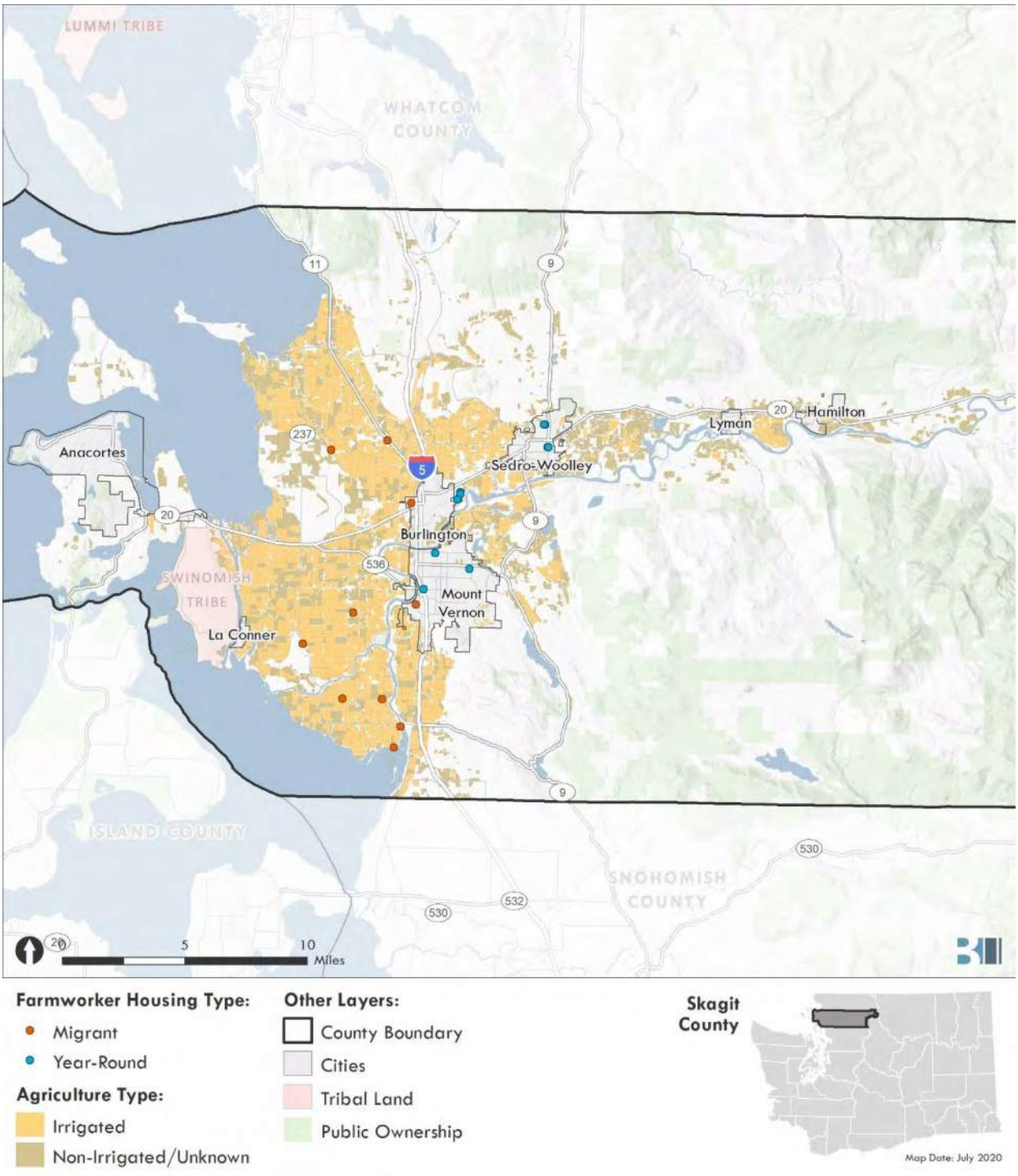
Skagit County is in the western reporting area, situated between Whatcom and Snohomish counties to the north and south. The Puget Sound coastline forms its western border, and much of the eastern county is dedicated as public lands. Interstate 5 and Highways 9 and 20 are the primary routes through the county, connecting many incorporated areas. There are 1,041 farms and more than 84,000 acres of agricultural lands, most prevalent in western parts of the county.[132]

Skagit County is Washington's ninth most productive county for agriculture, measured by the value of production, and is ranked eighth for year-round agricultural employment. Major commodities include flowers, milk and potatoes.[133] Other major sectors of employment are government services, manufacturing and retail trade.[134]

The county has a population of 129,200, with 41% of its residents in unincorporated areas.[135] Mount Vernon is the largest city and county seat, with 28% of the county population.

[132] Washington State Department of Agriculture, "Washington Agriculture Snapshot," (October 2021).
[133] Washington State Department of Agriculture, 2012.
[134] Washington State Employment Security Department, Average annual employment by 2-digit NAICS codes, 2018.
[135] Office of Financial Management, 2019.

Exhibit 102: Skagit County Agricultural Land and Farmworker Housing Units, 2019




Sources: Housing Data from Washington DOH, 2019; Washington State Housing Finance Commission, 2019; Office of Rural and Farmworker Housing, 2019; WSDA, 2019

## *Population Summary*

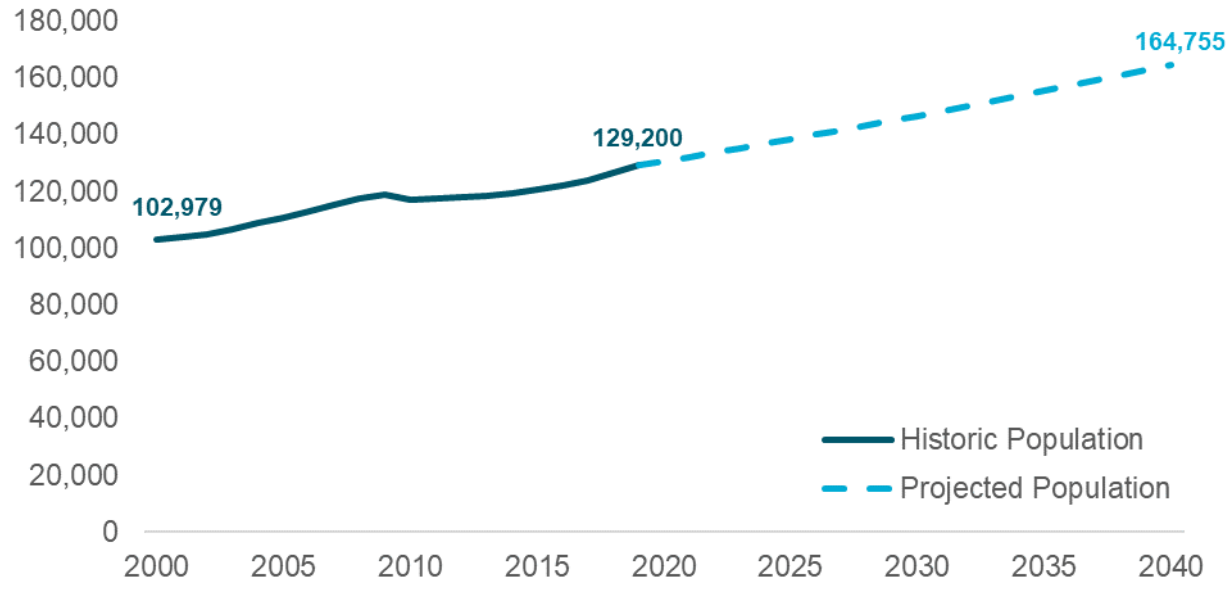
Skagit County has a population of 129,200, which is a 25% increase from 2000 to 2019. Medium OFM population projections estimate continued growth patterns to 2040, as shown in Exhibit 103 and Exhibit 104. Demographic projections for Skagit County estimate a significant increase in the older adult population (aged 65+) with a corresponding decrease in the primary working-age cohorts (ages 20-64). The primary age group for farmworkers, 20-44, is predicted to decrease from 30% to 27% as a proportion of the population throughout this period.

Exhibit 103: Skagit County Historical and Projected Growth Rates, 2000-2040

| Average Annual Growth | 2000-2019 | 2019-2040 Projected |
|---|---|---|
| Individuals | 1,380 | 1,693 |
| Percentage | 1.3% | 1.3% |

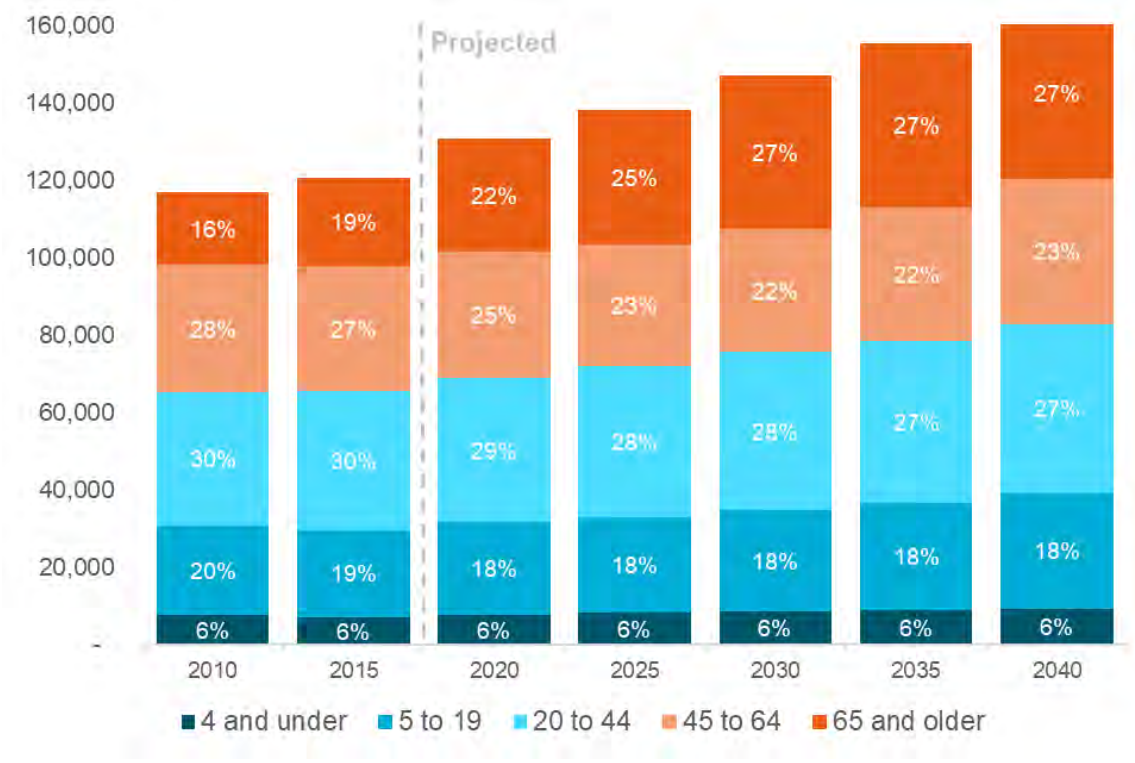
Sources: Washington OFM, 2019; BERK, 2020

Exhibit 104: Skagit County Historical and Projected Population, 2000-2040




Sources: Washington OFM, 2019; Yakima County Horizon 2040 Comprehensive Plan; BERK, 2019

Exhibit 105: Skagit County Population by Age Cohort, Historical and Projected




Sources: Washington OFM, 2018; BERK, 2019

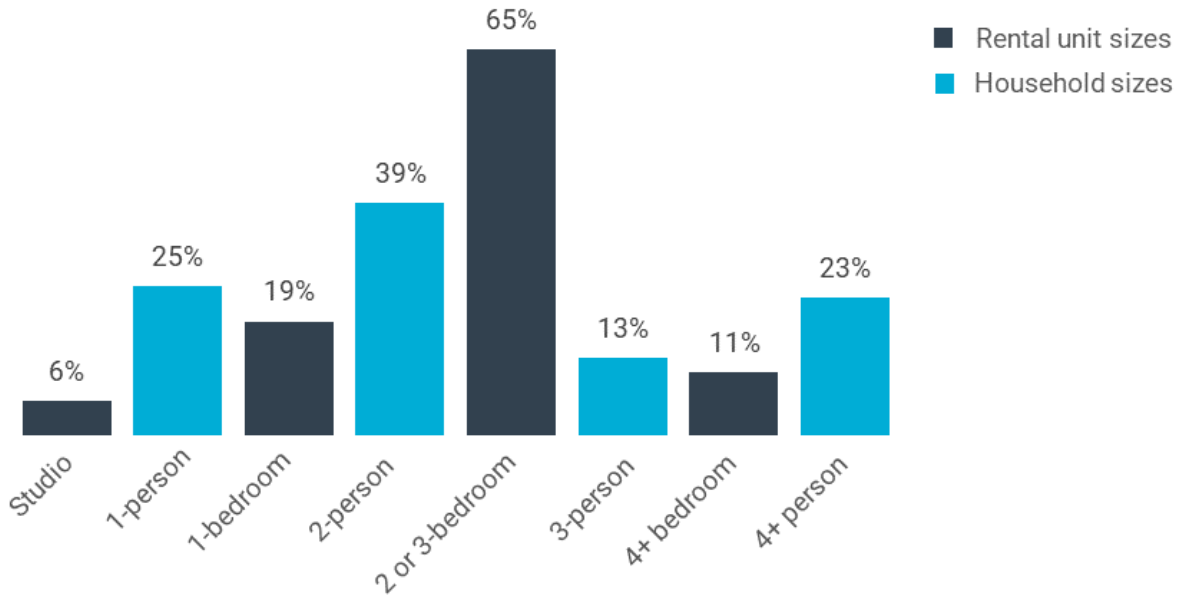
## *Household Population*

The average household size in Skagit County is 2.6 people.[136] Farmworker households are likely to reflect the general overall trend of household sizes. Almost one-third (32%) of Skagit County households, or 15,559 households, are renters. Survey data suggests that this rate is higher among the farmworker population, whose migratory patterns and lower annual earnings (see Exhibit 111) are more compatible with rental housing. This may result in a mismatch of household size and housing stock for agricultural workers who rent and live with children or extended family members. Two- and three-bedroom units represent the majority of rental units available in Skagit County. **However, 23% of households have more than four members. Larger multifamily rental units with 4+ bedrooms are limited; in Skagit County, only 11% of rental units are this size, increasing the likelihood of overcrowding and "bunking up" arrangements if**

[136] American Community Survey, Table DP02 5-year Estimates, 2014-2018.

households cannot afford to purchase a home.[137]

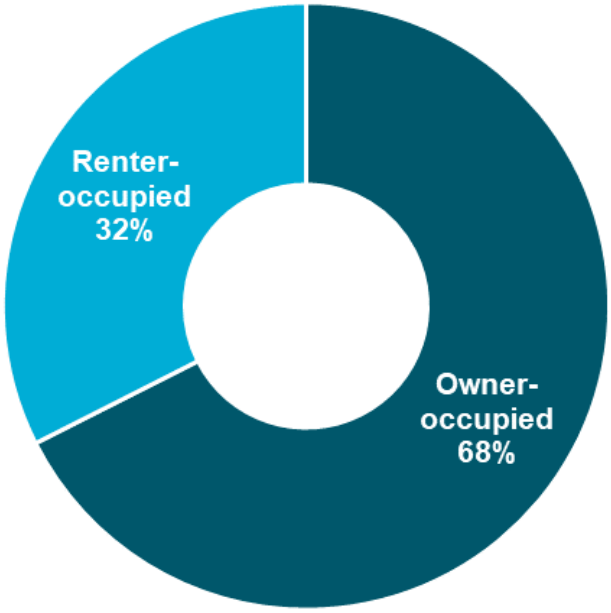
Exhibit 106: Skagit County Household Sizes and Rental Housing Unit Sizes




Sources: American Community Survey S2501 and S2504 5-Yr Estimates, 2014-2018; BERK, 2020

[137] American Community Survey, Table S2504 5-year Estimates, 2014-2018.

Exhibit 107: Skagit County Housing Tenure by Household, 2018




Sources: American Community Survey Table S2501 5-year Estimates, 2014-2018

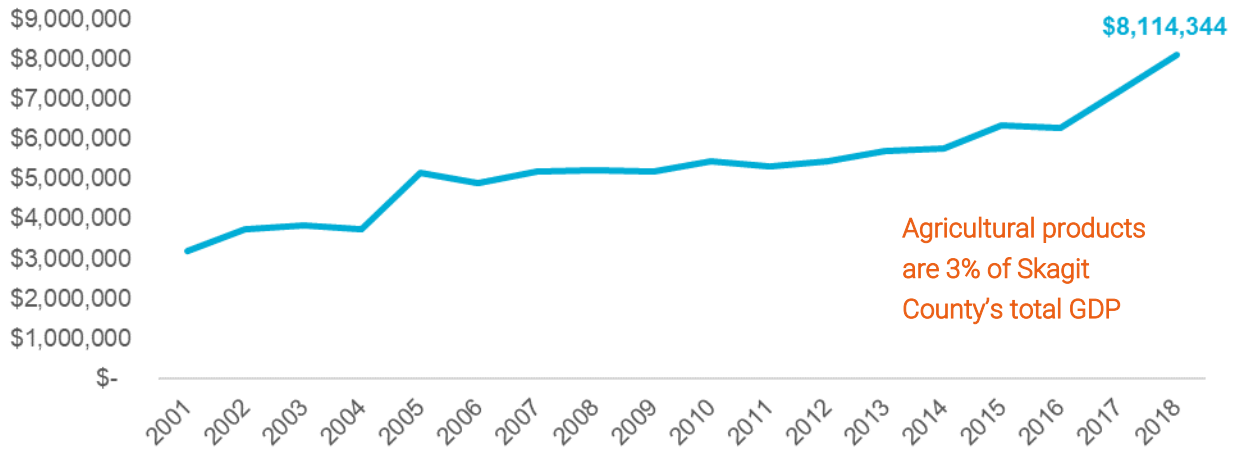
## *County Economy*

In Skagit County, covered farmworkers make up **4% of the labor force** and agricultural products comprise 3% of total GDP. This is a lower amount than many other counties, largely due to the value of its manufacturing economy.

- Skagit County is one of 13 counties in ESD's western area, where farmworkers earn slightly higher annual wages than the statewide average.
- Top employers include Skagit Regional Health, Draper Valley Farms, Mount Vernon School District and Skagit Horticulture LLC.[138]

[138] Western Washington University, Center of Economic and Business Research, "Skagit County 2018 Top Employers," (2018), https://cbe.wwu.edu/files/2018%20Skagit%20County%20Top%20Employers.pdf

Exhibit 108: Skagit County GDP, All Industries

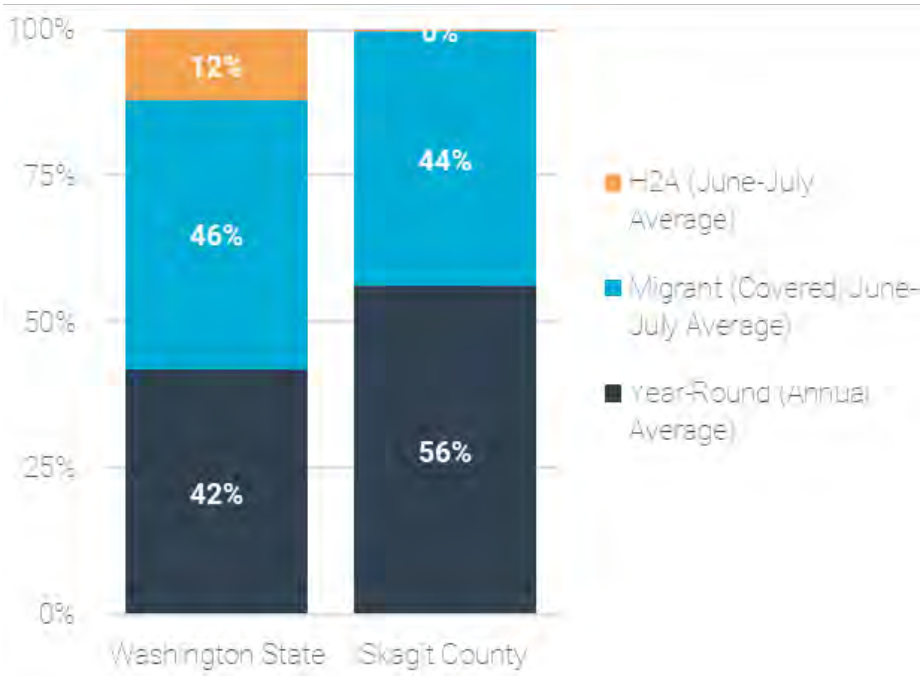



Sources: U.S. Bureau of Economic Analysis (BEA) SAGDP9N series, 2001-2018; BERK, 2020

## *Farmworker Population*

As of 2018, Skagit County is home to an estimated **1,737 year-round and covered agricultural jobs,** which almost doubles during the peak months for migrant employment. Compared to statewide averages, Skagit County applies for very few H-2A visas and employs much higher percentages of year-round workers. These employees will need to secure housing locally.

Exhibit 109: 2018 Agricultural Employment by Type, County versus State Averages




Sources: Washington ESD, 2019; U.S. Department of Labor, 2020; BERK, 2020

Exhibit 110: Skagit County Farmworker Estimates by Employment Type, 2018

| Employment Type | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year-round | 1,720 | 1,723 | 1,726 | 1,730 | 1,733 | 1,736 | 1,738 | 1,741 | 1,744 | 1,747 | 1,750 | 1,753 |
| Migrant covered | 148 | 426 | 542 | 581 | 674 | 1,157 | 1,540 | 1,454 | 1,210 | 987 | 369 | 342 |
| Migrant H-2A* | 15 | 15 | 15 | 15 | 15 | 15 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total estimated monthly employment** | **1,883** | **2,164** | **2,283** | **2,326** | **2,422** | **2,908** | **3,278** | **3,195** | **2,954** | **2,734** | **2,119** | **2,095** |

*Statewide requests provided by ESD and discounted 75% to reflect actual versus requested workers; County estimates based on Department of Labor percentages of worker requests by county

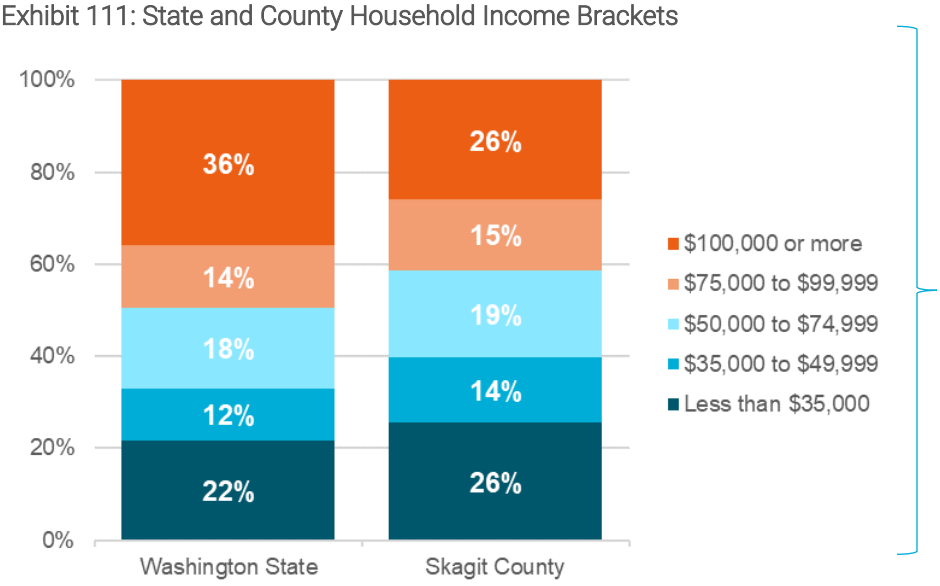
Sources: Employment Security Department, Employment Connections Division - Foreign Labor Certification Program; BERK, 2020

## *Income Summary*

Skagit County households have lower incomes than state averages. There is both a higher

percentage of households earning less than $50,000 per year and a lower percentage of households earning greater than $100,000 per year. Based on ESD income and wages reporting, farmworker households are likely to earn less than $35,000 per year without additional income from secondary employment or other household members. This income level is also well below $69,100, the HUD-area median family income for 2018.

Exhibit 111: State and County Household Income Brackets




One quarter of Skagit County households earn less than $35,000 annually. Many farmworker households are likely to be included in this group, as the 2018 regional average annual salary for agricultural workers was $30,245.

Sources: American Community Survey S1901 5-Yr Estimates, 2010 & 2018; BERK, 2020

Estimated wages for farmworkers are below the median family income (MFI) for Skagit County at any family size. **A household earning the regional average for farmworkers earns 44% of MFI in Skagit County, classified as very low-income (30-49% MFI) for households with more than three members and low-income (50-79% MFI) for singles or 2-person households.**

- Median family income (2018 - HUD): $69,100
- Average annual income for western area farmworkers (2018):[139] $30,245

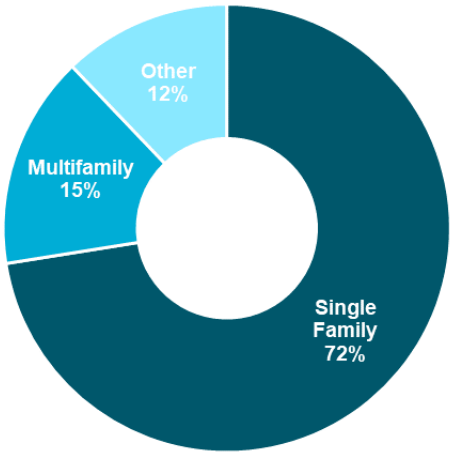
## *Housing Inventory*

There are 53,974 housing units in Skagit County. A high percentage of these are classified as single-family (72% compared to 64% statewide), and there are fewer multi-family units (15%

[139] 2018 average wages projected based on average annual growth rates over 5 years, as reported by ESD, 2019.

compared to 28% statewide). This limited stock of multifamily units may contribute to the low rental vacancy rate (0.5% compared to 4.3% statewide) and relative inability to afford average rental units. Rent for a typical one-bedroom unit results in a cost burden with farmworker wages, increasing the challenge for farmworker families with multiple members to identify suitable housing in the rental market. Farmworker households looking to purchase a home will also struggle with affordability. Despite the high prevalence of single-family units in Skagit County, few of these will be available and affordable with farmworker wages, which would be cost-burdened with an estimated mortgage for an average home. There are few units for sale (4% of the available stock) in an affordable price range.

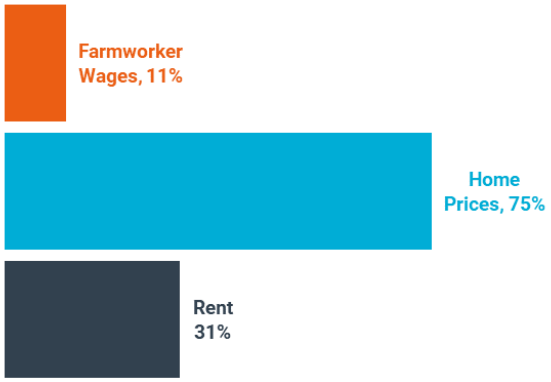
Exhibit 112: Total Housing Units by Type, Skagit County 2018




Sources: Washington State OFM, 2018; BERK, 2020

In recent years, housing prices in Skagit County have risen faster than regional farmworker incomes. Housing prices have increased 75% for ownership, while rent has increased 31%. Wages have increased 11%. See Exhibit 113. This trend has intensified affordability issues. Given the regional average annual wages for farmworkers, housing is considered affordable at rates of $756 per month or less.

Exhibit 113: Skagit County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018




Sources: Washington ESD, 2020; Washington Center for Real Estate Research, 2012 & 2018; BERK, 2021

## Rental Housing

Average rents in Skagit County (2018):[140]

- $930 for 1-bedroom
- $992 for 2-bedroom
- The rental vacancy rate in Skagit County is 0.5%

## Home Ownership

**The median price of a home in Skagit County is $362,300.[141] For a farmworker household earning annual average wages, the estimated mortgage payment on this price of a home is a cost burden.** A more affordable home price is $160,000 or less, assuming the ability to save for a $32,000 (20%) down payment. Approximately 4% of Skagit County housing units are available in this price range. This down payment will be out of reach for many families, and as down payment size decreases, monthly mortgage payments increase.

[140] Washington Center for Real Estate Research, Apartment Market Survey, Fall 2018.
[141] Ibid.

# Walla Walla County

## *Key Takeaways*



**As many as 5,093 farmworker households search for housing through local, market rate options in Walla Walla County.**




**Forty-seven percent (47%) of this need is for migratory workers,** who have more unique and potentially term-limited housing needs. This is complicated by the reality that the rental market in Walla Walla County is incredibly tight, with a very low vacancy rate. Many rental units exceed affordability limits for farmworker households, particularly those with families.

**In 2018, Walla Walla County had...**



**2,148 year-round agricultural jobs.**

Farmworker housing resources in the area offered housing units to 3% of this total.



**2,921 migratory jobs available during peak months.**

Provided housing is estimated as insufficient to include any local workers. These 1,470 workers compete for rental units along with year-round farmworker households and all other renter households in Walla Walla County.

*Permanent Housing (units)*

1,705 Estimated Workers
– 59 Provided Units
**1,646 Estimated Gap**

*Seasonal Housing (beds)*

1,674 Estimated Jobs
– 204 Provided Beds
**1,470 Estimated Gap**



**Housing affordability is a challenge for farmworkers.** Average annual wages for farmworkers are below the median family income for all household sizes. The average home value results in severe cost burden for farmworker wages.




It is likely that many farmworker households are renters. **There is very low rental vacancy in Walla Walla County, and much of the available rental housing is not affordable with farmworker wages.** Farmworker families with 3+ members may find it particularly difficult to secure adequate accommodation at an affordable rate.

## *Introduction*

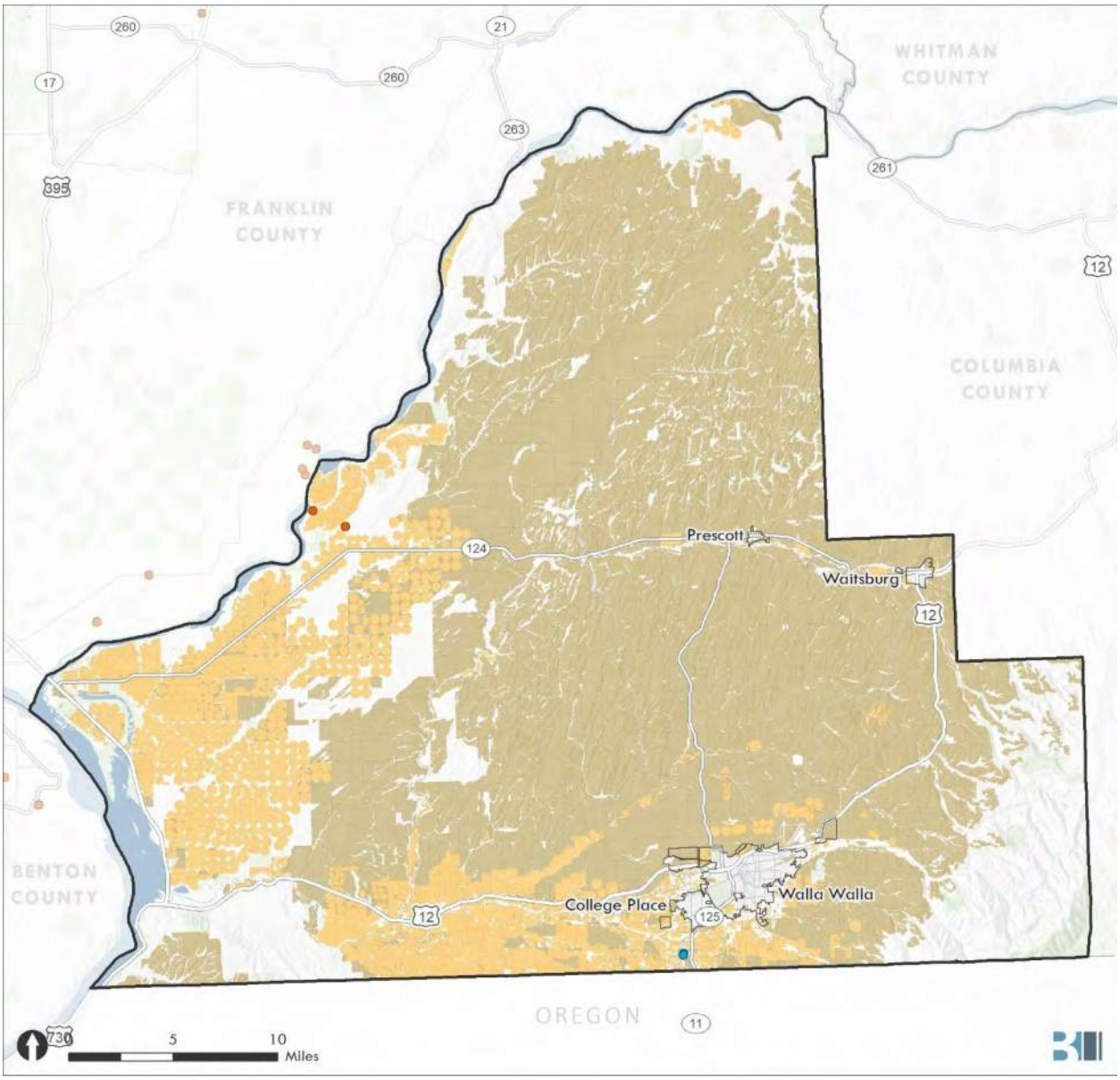
Walla Walla County is part of the southeastern reporting area. It is on the southern border of Washington, bordering Oregon, with the Snake and Columbia Rivers forming the western and northern borders and Columbia County to the east. Highway 12 and state routes 125 and 124 are major routes through the county, connecting many incorporated areas. There are 903 farms and more than 575,000 acres of agricultural lands covering most of the county.[142]

Walla Walla County is Washington's fifth most productive county for agriculture, measured by the value of production, and is ranked sixth for year-round agricultural employment. Major crops grown include cattle, wheat and apples.[143] Other major sectors of employment are government services, healthcare and social assistance, and retail trade.[144]

The county has a total population of 62,200.[145] The city of Walla Walla is the county seat and major population hub of the county, home to 55% of the total population.

[142] Washington State Department of Agriculture, "Washington Agriculture Snapshot," (October 2021).
[143] Washington State Department of Agriculture, 2012.
[144] Washington State Employment Security Department, Average annual employment by 2-digit NAICS codes, 2018.
[145] Office of Financial Management, 2019.

Exhibit 114: Walla Walla County Agricultural Land and Farmworker Housing Units, 2019




Sources: Housing Data from Washington DOH, 2019; Washington State Housing Finance Commission, 2019; Office of Rural and Farmworker Housing, 2019; WSDA, 2019

## *Population Summary*

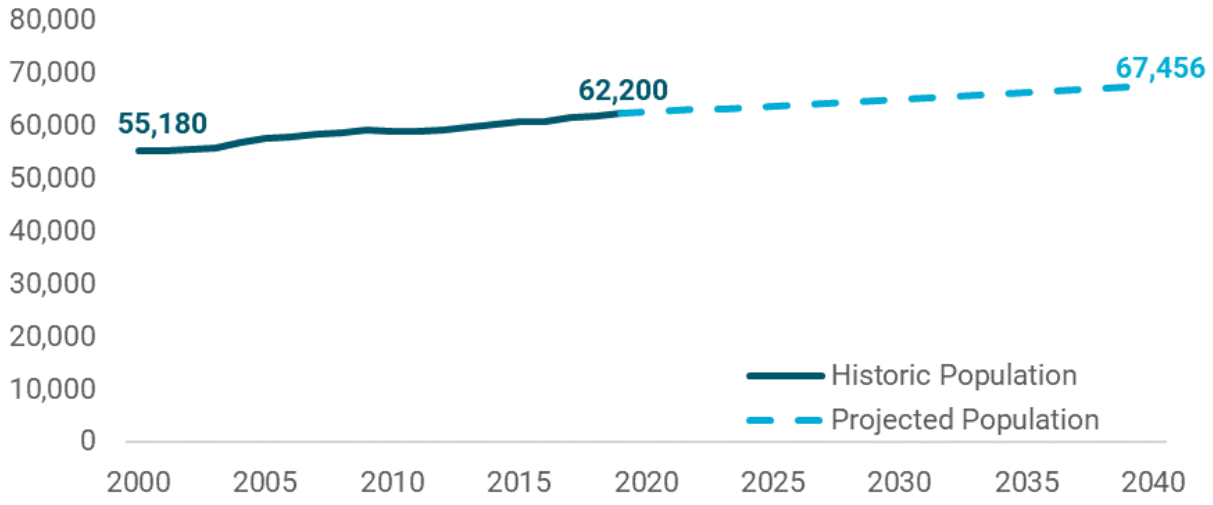
Walla Walla County has a population of 62,200, which is a 13% increase from 2000 to 2019. Medium OFM population projections estimate continued, though slightly decelerated, growth patterns to 2040, as shown in Exhibit 115 and Exhibit 116. Demographic projections for Walla Walla County estimate a relatively stable proportion of age cohorts, with a slightly lower proportion of adults 45-64 offset by proportional increases to older adults (65+) and the 20-44 cohort, which tends to be the prime working-age for farmworkers.

Exhibit 115: Walla Walla County Historical and Projected Growth Rates, 2000-2040

| Average Annual Growth | 2000-2019 | 2019-2040 Projected |
|---|---|---|
| Individuals | 369 | 250 |
| Percentage | 0.7% | 0.4% |

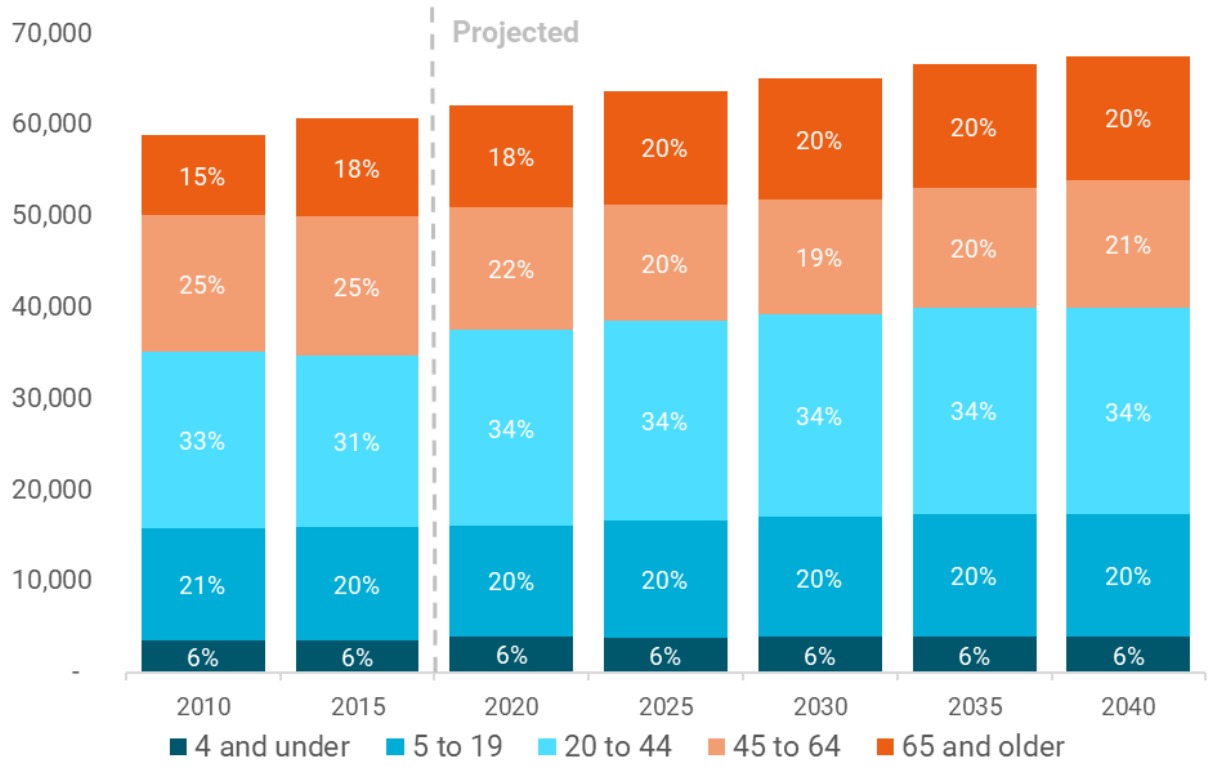
Sources: Washington OFM, 2019; BERK, 2020

Exhibit 116: Walla Walla County Historical and Projected Population, 2000-2040




Sources: Washington OFM, 2019; Yakima County Horizon 2040 Comprehensive Plan; BERK, 2019

Exhibit 117: Walla Walla County Population by Age Cohort, Historical and Projected



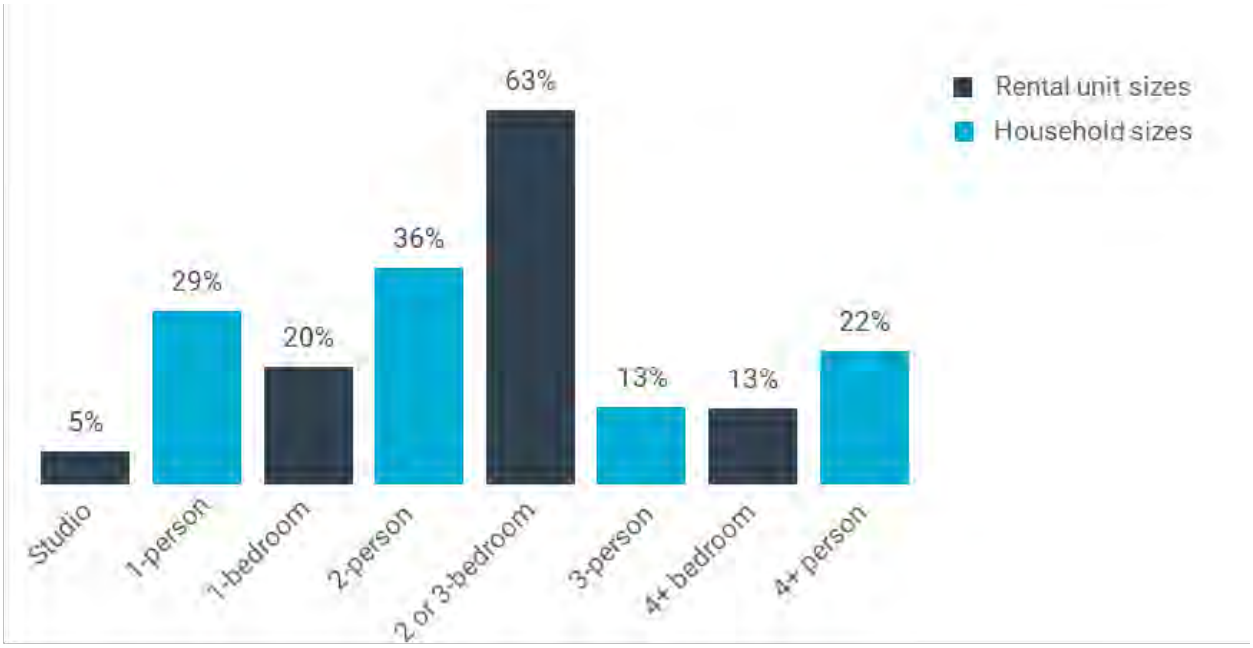

Sources: Washington OFM, 2018; BERK, 2019

## *Household Population*

The average household size in Walla Walla County is 2.5 people.[146] Farmworker households are likely to reflect the general overall trend of household sizes. One-third (35%) of Walla Walla County households, 7,904 households, are renters. Survey data suggests that this rate is higher among the farmworker population, whose migratory patterns and lower annual earnings (see Exhibit 123) are more compatible with rental housing. This may result in a mismatch of household size and housing stock for agricultural workers who rent and live with children or extended family members, further explored in Exhibit 118. Two- and three-bedroom units represent the majority of rental units available in Walla Walla County.

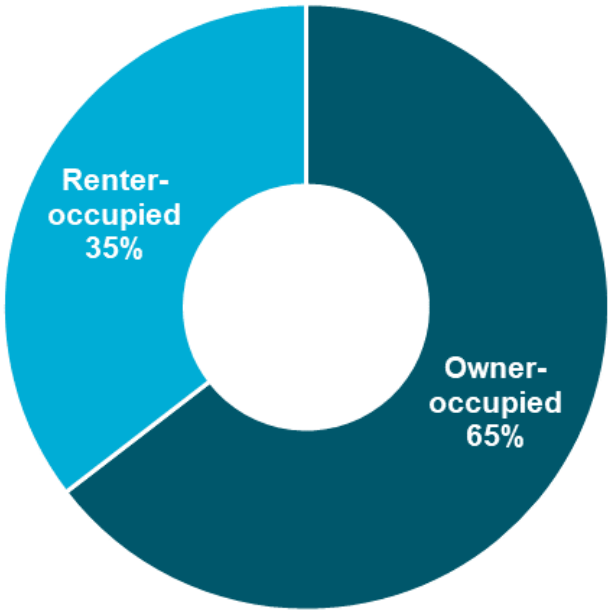
[146] American Community Survey, Table DP02 5-year Estimates, 2014-2018.

Exhibit 118: Walla Walla Household Sizes and Rental Housing Unit Size




Sources: American Community Survey S2501 5-Yr Estimates, 2010 & 2017; BERK, 2019

Exhibit 119: Walla Walla County Housing Tenure by Household, 2018



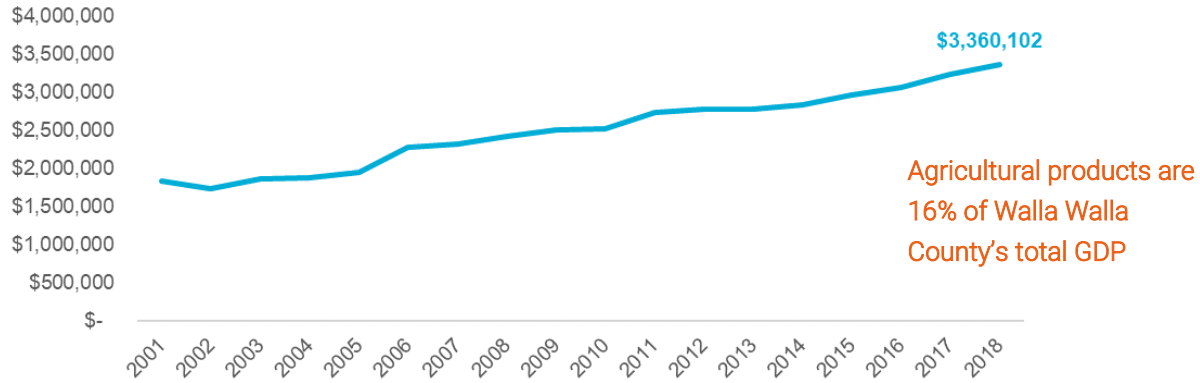

Sources: American Community Survey Table S2501 5-year Estimates, 2014-2018; BERK, 2020

## *County Economy*

In Walla Walla County, covered farmworkers make up **8% of the labor force** and agricultural products comprise 16% of total GDP.

- Walla Walla County is one of two counties in ESD's southeastern area. Workers there earn just less than the statewide average annual farmworker wages.
- Top employers for Walla Walla County include Broetje Orchards, Tyson Fresh Meats, Washington State Penitentiary and Providence St. Mary Medical Center.[147]

Exhibit 120: Walla Walla County GDP, All Industries, 2001-2018



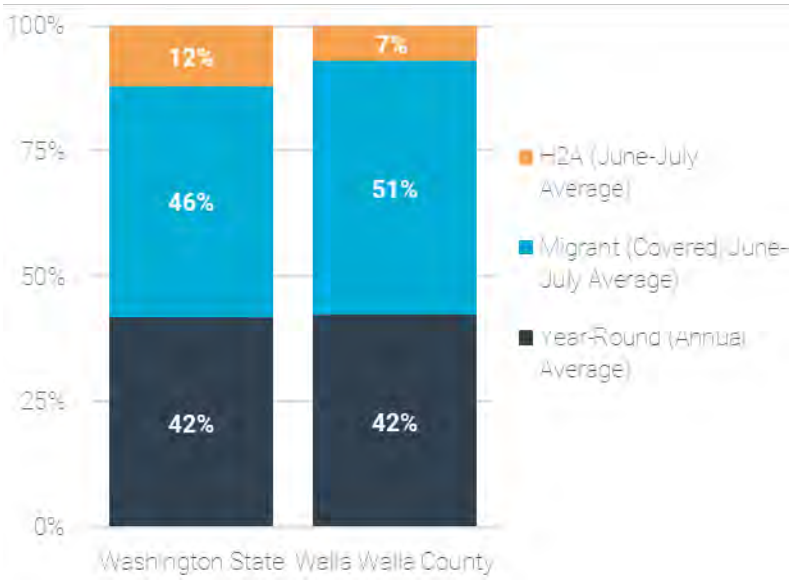

Sources: U.S. Bureau of Economic Analysis (BEA) SAGDP9N series, 2001-2018; BERK, 2020

## *Farmworker Population*

As of 2018, Walla Walla County is home to an estimated **2,148 year-round and covered agricultural jobs,** which more than doubles during the peak months for migrant employment in June through October. Compared to statewide averages, Walla Walla County relies less upon H-2A workers and more on migrant, covered workers for its labor force.

[147] Walla Walla Comprehensive Plan, "Walla Walla County Comprehensive Plan," (2019), https://www.co.walla-walla.wa.us/document_center/commdev/planning/comp%20plan/FINAL%20Walla%20Walla%20County%20Comp%20Plan%20(080519)%20(complete).pdf

Exhibit 121: 2018 Agricultural Employment by Type, County versus State Averages




Sources: Washington ESD, 2019; U.S. Department of Labor, 2020; BERK, 2020

Exhibit 122: Walla Walla County Farmworker Estimates, 2018

| Employment Type | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year-round | 2,115 | 2,121 | 2,127 | 2,133 | 2,139 | 2,145 | 2,151 | 2,157 | 2,163 | 2,169 | 2,176 | 2,182 |
| Migrant covered | 416 | 644 | 941 | 878 | 1,026 | 2,274 | 2,847 | 2,651 | 2,540 | 2,171 | 1,737 | 466 |
| Migrant H-2A* | 0 | 0 | 67 | 300 | 361 | 361 | 361 | 128 | 61 | 0 | 0 | 0 |
| **Total estimated monthly employment** | **2,531** | **2,765** | **3,135** | **3,311** | **3,526** | **4,780** | **5,359** | **4,936** | **4,764** | **4,340** | **3,913** | **2,648** |

*Statewide requests provided by ESD and discounted 75% to reflect actual versus requested workers; County estimates based on Department of Labor percentages of worker requests by county

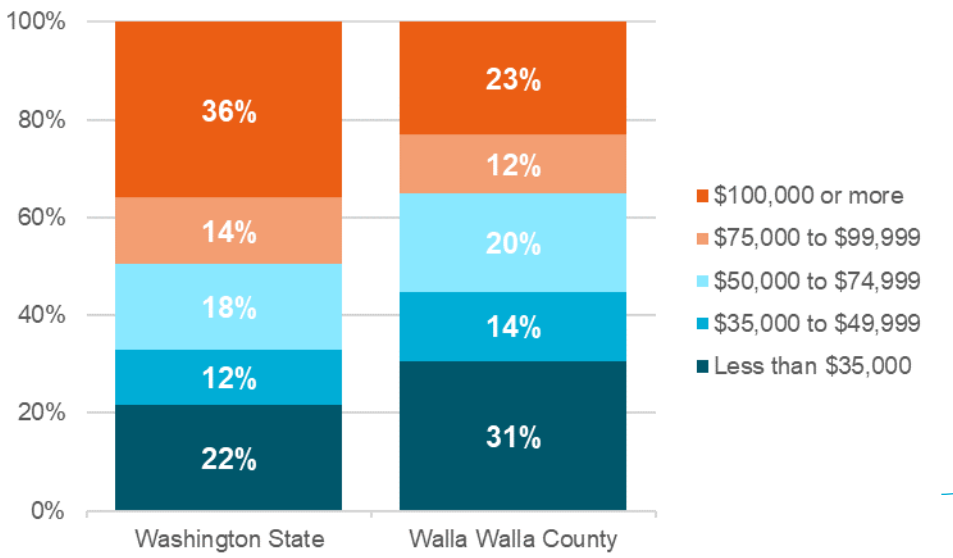
Sources: ESD, Employment Connections Division - Foreign Labor Certification Program; BERK, 2020

## *Income Summary*

Walla Walla County households have lower incomes than state averages, with a higher percentage of households earning less than $50,000 per year and a lower percentage of households earning greater than $100,000 per year. Based on ESD income and wages reporting,

farmworker households are likely to earn less than $35,000 per year without additional income from secondary employment or other household members. This income level is below the $65,700 HUD-area median family income.

Exhibit 123: State and County Household Income Brackets




Thirty-one percent of Walla Walla County households earn less than $35,000 annually. Many farmworker households are likely to be included in this group, as the 2018 regional average annual salary for agricultural workers was $30,133.

Sources: American Community Survey S1901 5-Yr Estimates, 2014- 2018; BERK, 2020

Estimated wages for farmworkers are below the median family income (MFI) for Walla Walla County at any family size. **A household earning the regional average for farmworkers earns 46% of MFI in Walla Walla County, classified as very low-income (30-49% MFI) for households with three or more members and low-income (50-79% MFI) for single or two-person households.**

- Median family income for Walla Walla County (2018 - HUD): $65,700
- Average annual income for southeastern farmworkers (2018):[148] $30,133

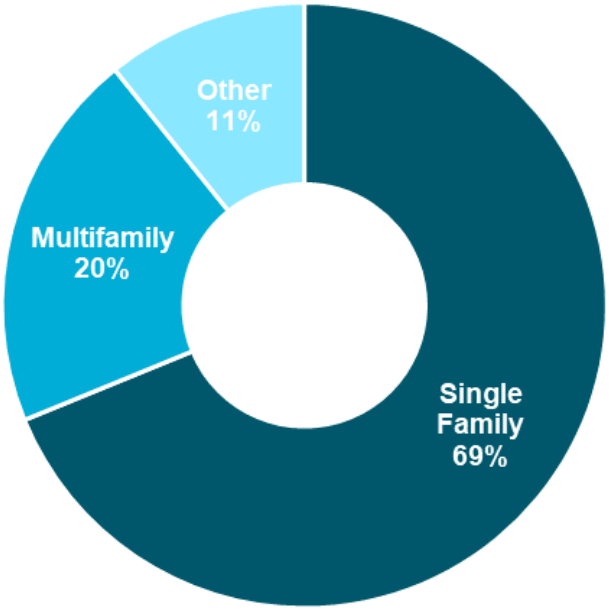
## *Housing Inventory*

There are 24,849 housing units in Walla Walla County. This includes a mix of single-family, multifamily, and 'other' unit types, such as mobile homes. Given average farmworker wages in the region, an average one-bedroom rental unit is considered affordable, while the average two-

[148] 2018 average wages projected based on average annual growth rates over 5 years, as reported by ESD, 2019.

bedroom unit exceeds the affordability threshold. This may result in difficulty for larger household sizes to identify suitable rental accommodations. Vacancy rates for apartments in Walla Walla County are low, 0.2% compared to 4.3% statewide, indicating a competitive market for rental units. Homeownership is largely out of reach with farmworker wages — the estimated mortgage for average-priced homes results in a severe cost burden for these households. Less than 17% of homes for sale are priced at a range that might be affordable with farmworker wages.

Exhibit 124: Total Housing Units by Type, Walla Walla County 2018




Sources: Washington State OFM, 2018; BERK, 2020

**Given the regional average annual wages for farmworkers, housing is considered affordable at rates of $753 or less per month.** However, housing prices in Walla Walla County have risen faster than regional farmworker incomes. Average home prices are up 49%, while wages have increased 19%. See Exhibit 125. This trend has intensified affordability issues.

Exhibit 125: Walla Walla County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018




Sources: Washington ESD, 2020; Washington Center for Real Estate Research, 2012 & 2018; BERK, 2021

Rental Housing

Average rents in Walla Walla County (2018):[149]

- $662 for one-bedrooms
- $865 for two-bedrooms
- The rental vacancy rate is 0.2%

Home Ownership

**The median price of a home in Walla Walla County is $248,300.[150] For a farmworker household earning average annual wages, the estimated mortgage payment on this price of a home results in a severe cost burden.** A more affordable home price on farmworker income is $160,000 or less, assuming the ability to save for a $32,000 (20%) down payment. Approximately 17% of Walla Walla County housing units are available in this price range.[151] This down payment will be out of reach for many families, and as down payment size decreases, monthly mortgage payments increase.

[149] Washington Center for Real Estate Research, Apartment Market Survey, Fall 2018.
[150] Washington Center for Real Estate Research, Housing Market Summary, Q4 2018.
[151] Ibid.

# Whatcom County

## *Key Takeaways*



**As many as 1,562 farmworker households search for housing through local, market rate options in Whatcom County.**




**Thirty-nine percent (39%) of this need is for migratory workers,** who have more unique and potentially term-limited housing needs. This is complicated by the reality that there is a very low rental vacancy rate in Whatcom County, coupled with housing prices resulting in cost burden with farmworker wages.

**In 2018, Whatcom County had...**



**1,315 year-round agricultural jobs.**

Farmworker housing resources in the area offered housing units to 8% of this total.



**3,388 migratory jobs available during peak months.**

Provided housing covers 65% of local workers. The remaining 602 compete for rental units along with year-round farmworker households and all other renter households in Whatcom County.

*Permanent Housing (units)*

1,044 Estimated Workers
– 84 Provided Units
**960 Estimated Gap**

*Seasonal Housing (beds)*

1,764 Estimated Jobs
– 1,162 Provided Beds
**602 Estimated Gap**



**Housing affordability is a challenge for farmworkers.** Average annual wages for farmworkers are well below the median family income for all household sizes. Households with 3+ members would be considered very low-income by regional standards. The average home value results in severe cost burden for farmworker wages and very few rental or ownership units are within an affordable range.




It is likely that many farmworker households are renters. **There are very few rental units in the area that can accommodate families with 4+ people, a common household size in Whatcom County.** Farmworker families may struggle to secure adequate accommodation at an affordable rate

## *Introduction*

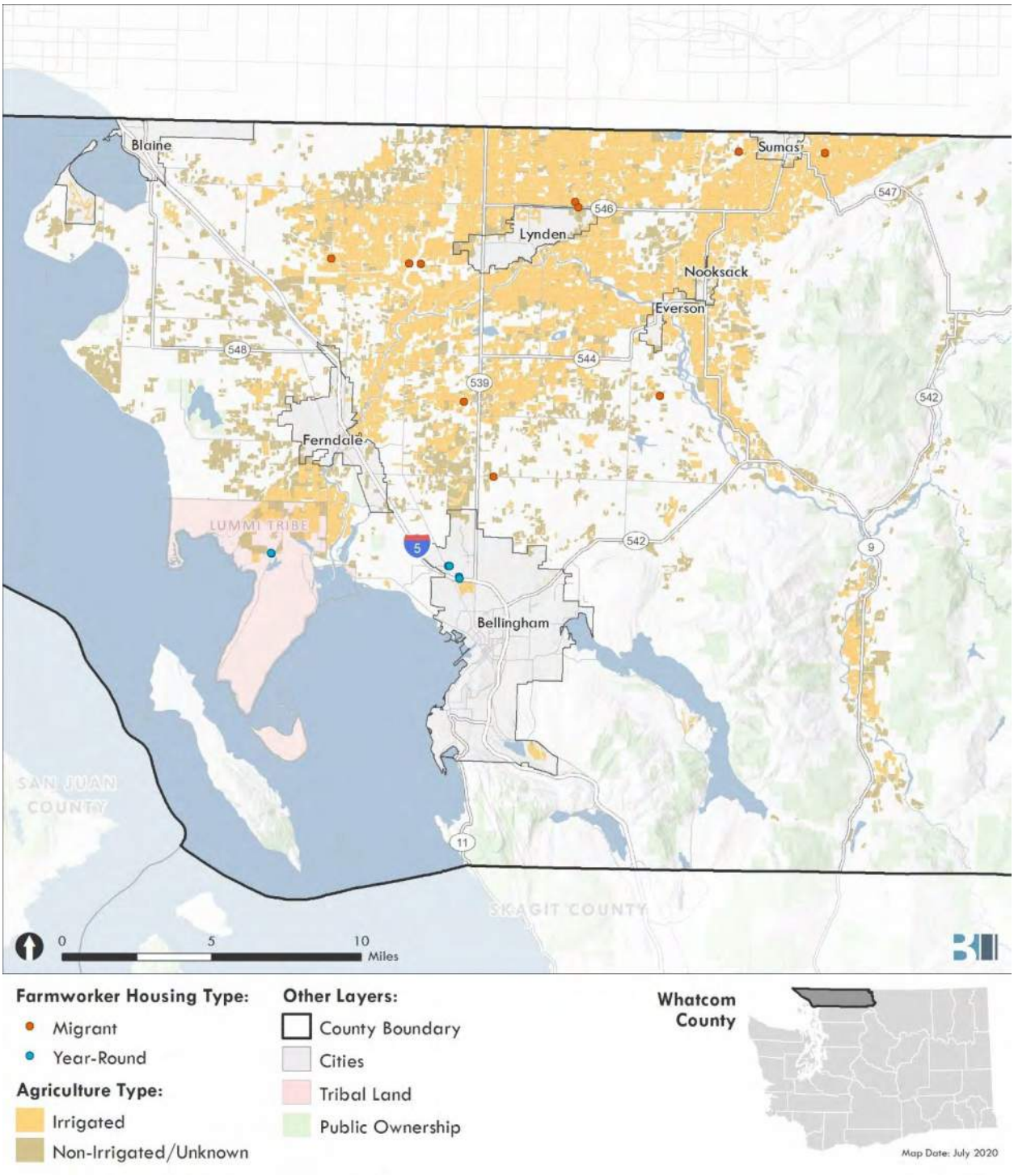
Whatcom County is part of the western state reporting area. It borders Canada to the north, Skagit County to the south and Okanogan County to the east. Much of the eastern portion of the county is reserved as the North Cascades National Park. Interstate 5 and Highways 9, 542, 536, and 549 are the primary routes through the county, connecting many of the incorporated areas. There are 1,712 farms and more than 97,000 acres of agricultural lands, most prevalent across western parts of the county.[152]

Whatcom County is Washington's sixth most productive county for agriculture, measured by the value of production, and is ranked 12th for year-round agricultural employment. Major commodities include milk, blueberries and raspberries.[153] Other major sectors of employment are government service, healthcare and social services, and retail.[154]

The county population is 225,300. Bellingham is its largest population home, the county seat and home to 40% of the population.[155] There is also a large rural population, with 44% of residents living in unincorporated areas of Whatcom County.

[152] Washington State Department of Agriculture, "Washington Agriculture Snapshot," (October 2021).
[153] Washington State Department of Agriculture, 2012.
[154] Washington State Employment Security Department, Average annual employment by 2-digit NAICS codes, 2018.
[155] Office of Financial Management, 2019.

Exhibit 126: Whatcom County Agricultural Land and Farmworker Housing Units, 2019




Sources: Housing Data from Washington DOH, 2019; Washington State Housing Finance Commission, 2019; Office of Rural and Farmworker Housing, 2019; WSDA, 2019

## *Population Summary*

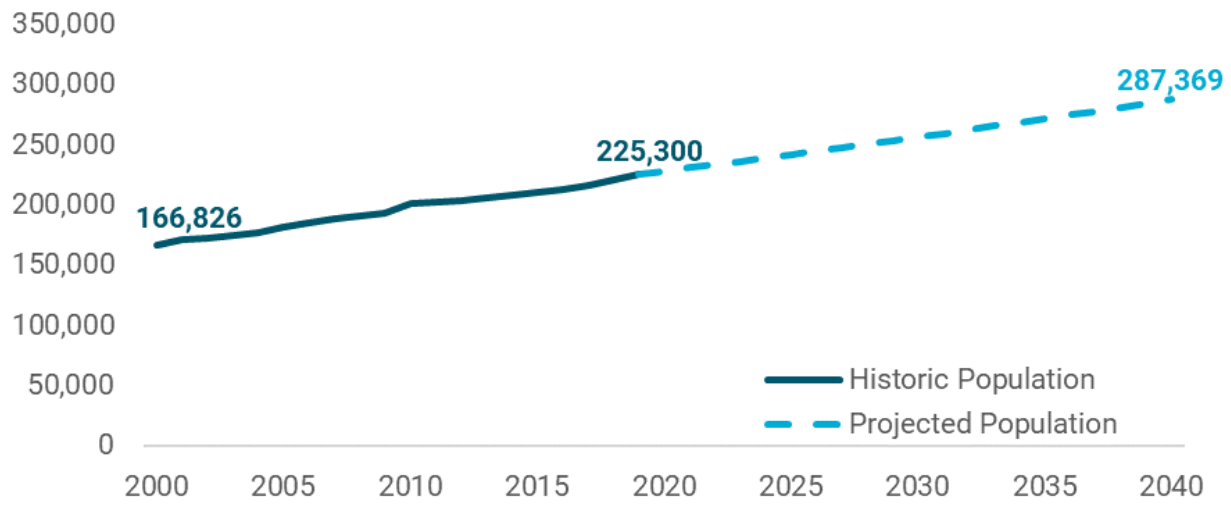
Whatcom County has experienced high rates of population growth over the past two decades. Today, it is home to a population of 225,300, which is a 35% increase from 2000 to 2019. Medium OFM population projections estimate continued, although slightly decelerated, growth patterns to 2040, as shown in Exhibit 139 and Exhibit 140. Demographic projections for Whatcom County estimate an increased proportion of older adults (65+) as the Baby Boomer generation ages. This is accompanied by slight proportional decreases across younger age cohorts in the county. The primary age group for farmworkers, 20-44, is predicted to decrease by 2% as a proportion of the population throughout this period.

Exhibit 127: Whatcom County Historical and Projected Growth Rates, 2000-2040

| Average Annual Growth | 2000-2019 | 2019-2040 Projected |
|---|---|---|
| Individuals | 3,078 | 2,956 |
| Percentage | 1.8% | 1.3% |

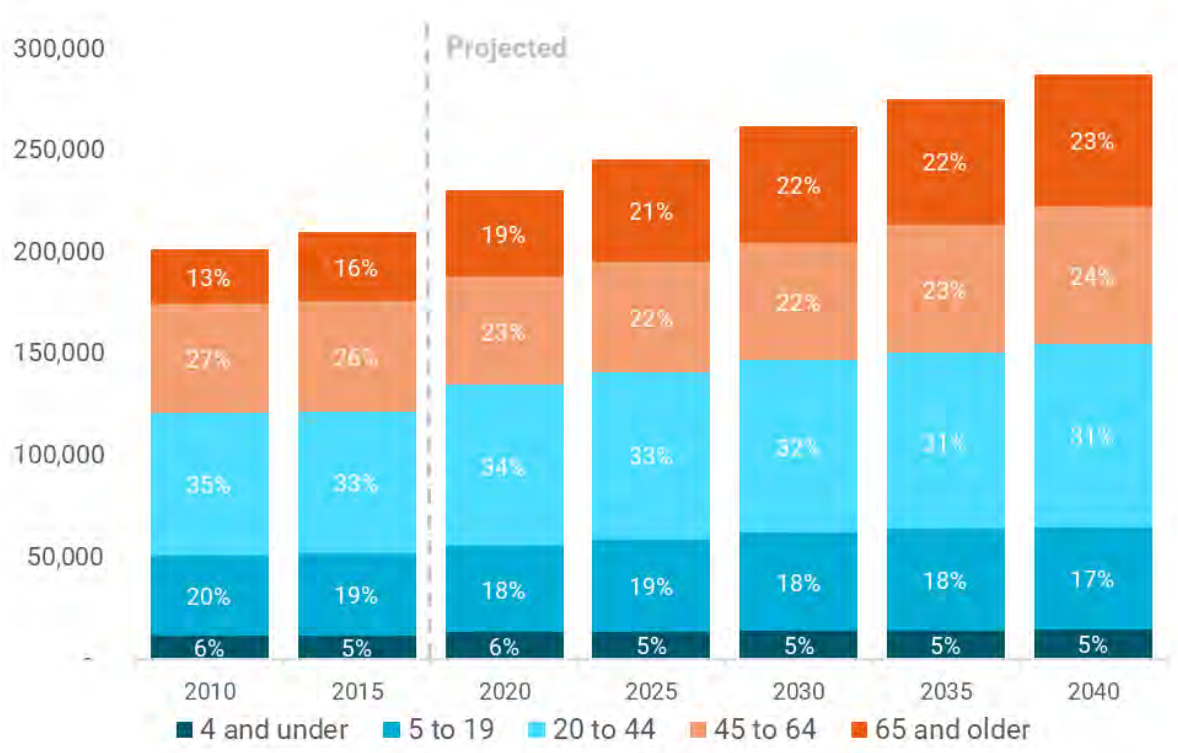
Sources: Washington State Office of Financial Management, 2019; BERK, 2020

Exhibit 128: Whatcom County Historical and Projected Population, 2000-2040




Sources: Washington OFM, 2019; BERK, 2019

Exhibit 129: Whatcom County Population by Age Cohort, Historical and Projected




Sources: Washington OFM, 2018; BERK, 2019

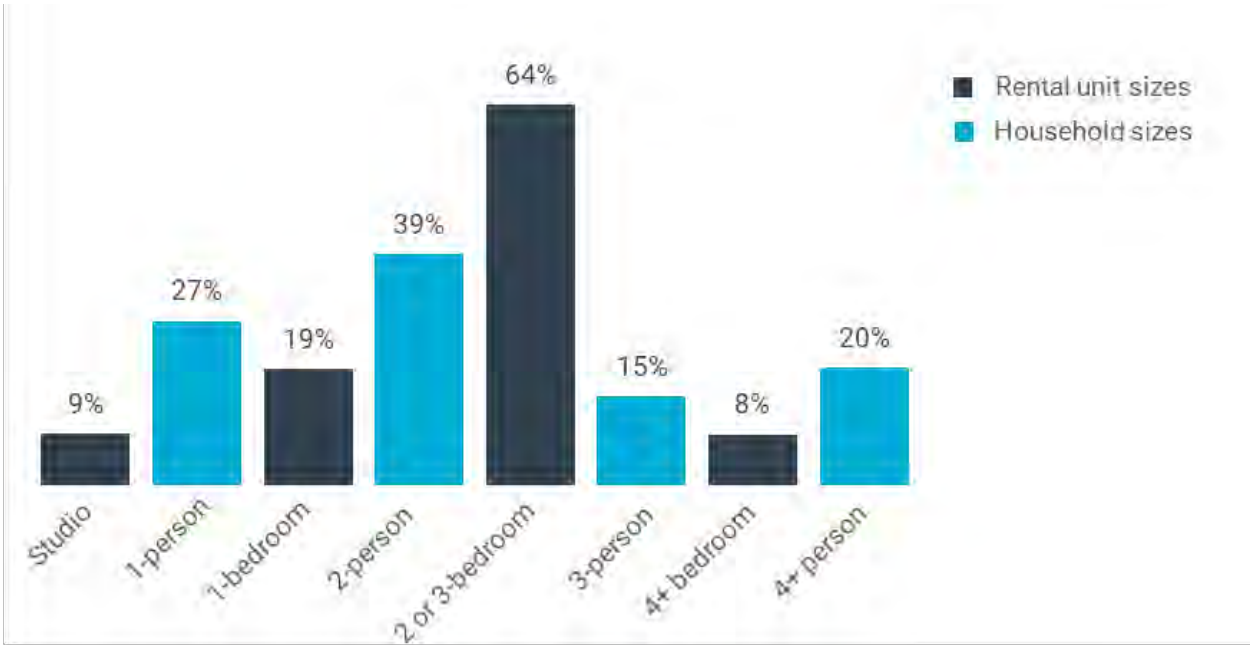
## *Household Population*

The average household size in Whatcom County is 2.5 people.[156] Farmworker households are likely to reflect the general overall trend of household sizes. Almost 40% of Whatcom County households, or 32,293 households, are renters. Survey data suggests that this rate is higher among the farmworker population, whose migratory patterns and lower annual earnings (see Exhibit 135) are more compatible with rental housing. This may result in a mismatch of household size and housing stock for agricultural workers who rent and live with children or extended family members, further explored in Exhibit 130. Two- and three-bedroom units represent the majority of rental units available in Whatcom County. **However, 20% of the population has more than four people in the household and may need larger dwellings. Larger multifamily units with four or more bedrooms are limited in the rental market (in Whatcom County, only 8% of rental units are this size), increasing the likelihood of overcrowding and**

[156] American Community Survey, Table DP02 5-year Estimates, 2014-2018.

"bunking up" arrangements if households cannot afford to purchase a home.[157]

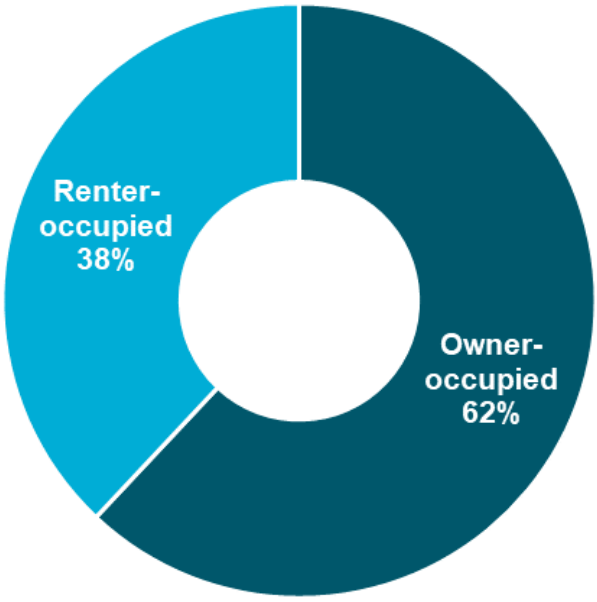
Exhibit 130: Whatcom County Household Size and Rental Unit Sizes




Sources: American Community Survey S2501 and S2504 5-Yr Estimates, 2014-2018; BERK, 2020

[157] American Community Survey, Table S2504 5-year Estimates, 2014-2018.

Exhibit 131: Whatcom County Housing Tenure by Household, 2018




Sources: American Community Survey Table S2501 5-year Estimates, 2014-2018

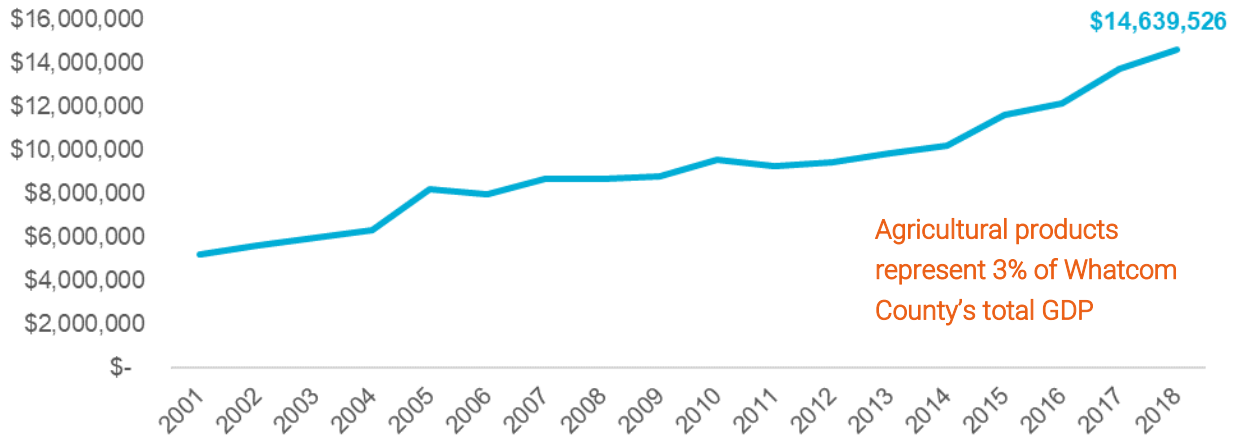
## *County Economy*

In Whatcom County, covered farmworkers make up **1% of the labor force,** and agricultural production comprises 3% of total GDP. These are smaller proportions than many counties due to the overall population size and major institutions such as Western Washington University, which attracts many individuals and industries to the area.

- Whatcom County is one of 13 counties in ESD's western area, where farmworker earnings are slightly higher than the statewide annual average.
- Top employers for Whatcom County include St. Joseph Hospital, Lummi Nation, Western Washington University and Bellingham Public Schools.[158]

[158] Western Washington University, Center of Economic and Business Research, "Whatcom County 2018 Top Employers," (2018), https://cbe.wwu.edu/files/2018%20Whatcom%20County%20Top%20Employers.pdf

Exhibit 132: Whatcom County GDP, All Industries

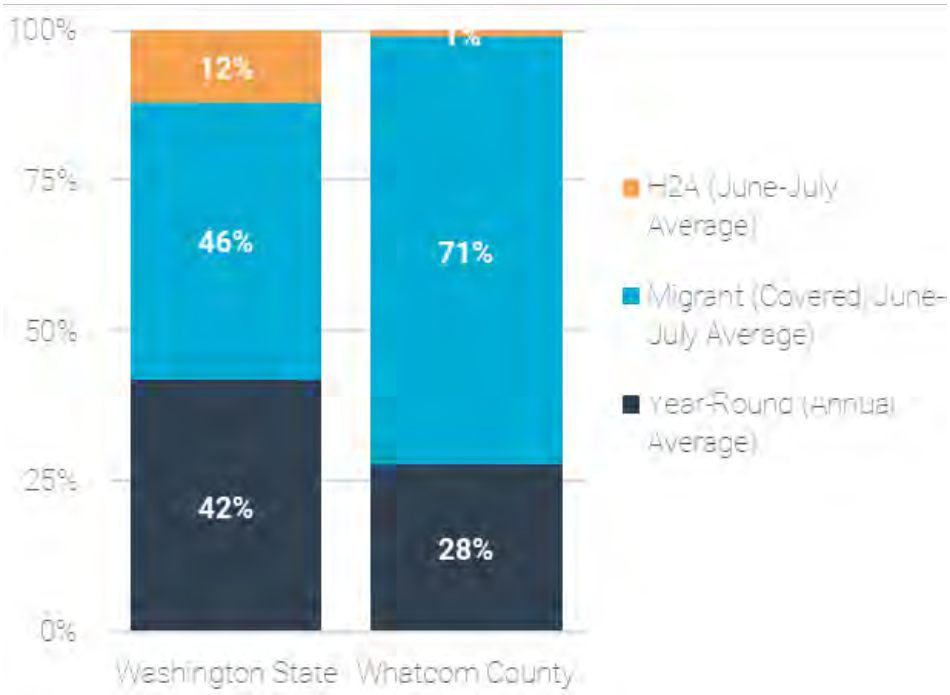



Sources: U.S. Bureau of Economic Analysis (BEA) SAGDP9N series, 2001-2018; BERK, 2020

## *Farmworker Population*

As of 2018, Whatcom County is home to an estimated **1,315 year-round and covered agricultural jobs**, which more than triples during the peak months for migrant employment in June through August. Compared to statewide averages, Whatcom County relies heavily upon migrant, covered employment with very few H-2A workers. These workers are likely to struggle the most securing adequate housing.

Exhibit 133: 2018 Agricultural Employment by Type, County versus State Averages




Sources: Washington ESD, 2019; U.S. Department of Labor, 2020; BERK, 2020

Exhibit 134: Whatcom County Farmworker Estimates, 2018

| Employment Type | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year-round | 1,414 | 1,398 | 1,381 | 1,363 | 1,345 | 1,326 | 1,307 | 1,288 | 1,268 | 1,249 | 1,229 | 1,210 |
| Migrant covered | 1,310 | 1,374 | 1,578 | 1,428 | 1,557 | 2,580 | 4,087 | 3,546 | 1,864 | 1,724 | 1,494 | 1,508 |
| Migrant H-2A* | 0 | 21 | 21 | 55 | 55 | 55 | 55 | 34 | 34 | 0 | 0 | 0 |
| **Total estimated monthly employment** | **2,724** | **2,793** | **2,980** | **2,846** | **2,957** | **3,961** | **5,449** | **4,868** | **3,166** | **2,973** | **2,723** | **2,718** |

*Statewide requests provided by ESD and discounted 75% to reflect actual versus requested workers; County estimates based on Department of Labor percentages of worker requests by county

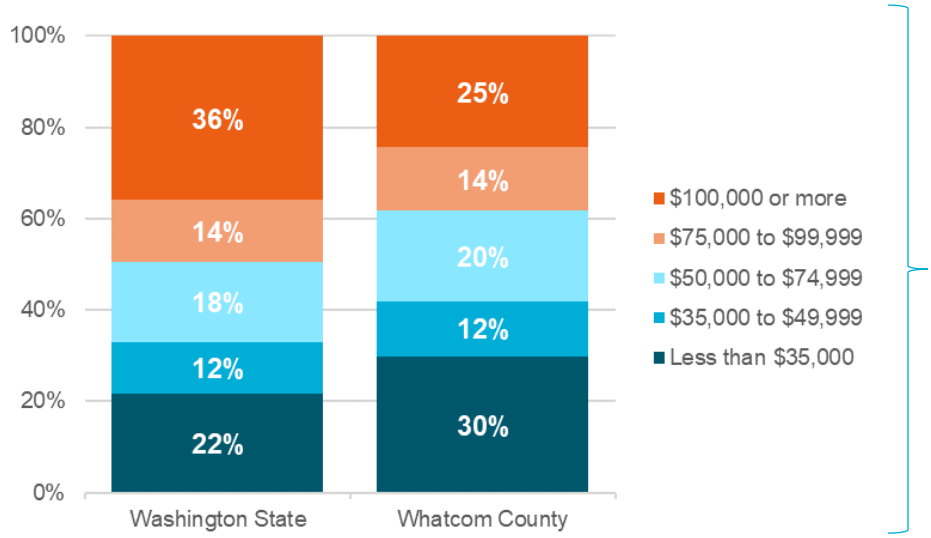
Sources: Employment Security Department, Employment Connections Division - Foreign Labor Certification Program; BERK, 2020

## *Income Summary*

Whatcom County households have lower incomes than state averages, with a higher percentage

of households earning less than $50,000 per year and a lower percentage of households earning greater than $100,000 per year. Based on ESD income and wages reporting, farmworker households are likely to earn less than $35,000 per year without additional income from secondary employment or other household members. This income level is below the HUD-area median family income for 2018, $77,500.

Exhibit 135: Whatcom County, Household Income Brackets




Thirty percent of Whatcom County households earn less than $35,000 annually. Many farmworker households are likely to be included in this group, as the 2018 regional average annual salary for agricultural workers was $30,245.

Sources: American Community Survey S1901 5-Yr Estimates, 2014- 2018; BERK, 2020

Estimated wages for farmworkers are below the median family income (MFI) for Whatcom County, at any family size. **A household earning the regional average for farmworkers earns 39% of MFI in Yakima County, classified as very low-income (30-49% MFI) for families with two or more members and low-income (50-79%) for singles.**

- Median family income for Whatcom County (2018 - HUD): $77,500
- Average annual income for western area farmworkers (2018):[159] $30,245

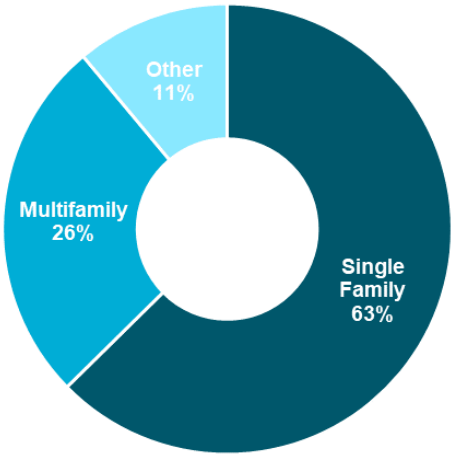
## *Housing Inventory*

There are 97,674 housing units in Whatcom County. Affordability is a major hurdle with farmworker wages, both for rental and ownership housing. The average one-bedroom apartment

[159] 2018 average wages projected based on average annual growth rates over 5 years, as reported by ESD, 2019.

results in a cost burden with farmworker wages. Farmworkers with larger family sizes may struggle to secure housing of adequate size and quality. The rental vacancy rate is also low, 0.2%, indicating a tight and competitive market for rental housing. Homeownership for an average-priced house would result in a severe cost burden for farmworkers. About 10% of available units are in a more affordable price range.

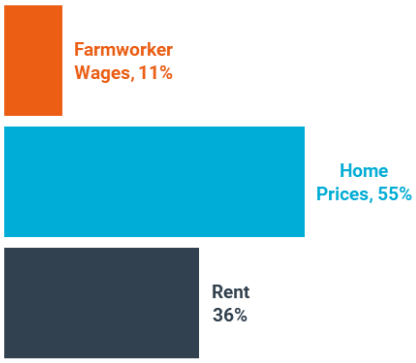
Exhibit 136: Total Housing Units by Type, Whatcom County, 2018




Sources: Washington OFM, 2018; BERK, 2020

In recent years, housing prices in Whatcom County have risen faster than regional farmworker incomes. The median home price is up 55%, while rent has increased 36%. Wages have increased 11%. See Exhibit 137. This trend has exacerbated affordability issues. Given the regional average annual wages for farmworkers, housing is considered affordable $756 or less per month. Given the regional average annual wages for farmworkers, housing is considered affordable at rates of $753 or less per month.

Exhibit 137: Whatcom County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018




Sources: Washington ESD, 2020; Washington Center for Real Estate Research, 2012 & 2018; BERK, 2021

## Rental Housing

Average rents in Whatcom County (2018):[160]

- $939 for one-bedroom
- $1,048 for two-bedroom
- The rental vacancy rate is 0.2%

## Home Ownership

**The median price of a home in Whatcom County is $388,700.[161] For a farmworker household earning annual average wages, the estimated mortgage payment on this price of a home results in a severe cost burden (82% of monthly income).** A more affordable home price is $160,000 or less, assuming the ability to save for a $32,000 (20%) down payment. Approximately 10% of Whatcom County housing units are available in this price range. This down payment will be out of reach for many families, however, and as down payment size decreases, monthly mortgage payments increase.

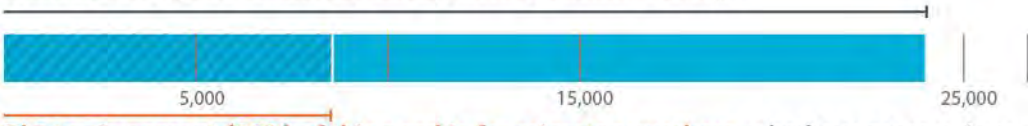
[160] Washington Center for Real Estate Research, Apartment Market Survey, Fall 2018.
[161] Ibid.

# Yakima County

## *Key Takeaways*



**As many as 24,046 farmworker households search for housing through local, market rate options in Yakima County.**




**Thirty-six percent (36%) of this need is for migratory workers,** who have more unique and potentially term-limited housing needs.

**In 2018, Yakima County had...**



**20,630**
**year-round agricultural jobs.**

Farmworker housing resources in the area offered housing units to 6% of estimated workers.

*Permanent Housing (units)*

16,373 Estimated Workers
– 948 Provided Units
**15,425 Estimated Gap**



**23,701 migratory jobs available during peak months.**

Provided housing covers 22% of estimated local workers. The remaining 8,260 compete for rental units along with year-round farmworker households and all other renter households in Yakima County.

*Seasonal Housing (beds)*

13,257 Estimated Workers
– 4,637 Provided Beds
**8,260 Estimated Gap**



**Housing affordability is a challenge for farmworkers.** Average annual wages for farmworkers are below the median family income for all household sizes and fewer than 15% of homes for purchase in Yakima County are affordable at this income level.

Lower income levels, affordability of housing stock, and job mobility make it likely that many farmworker households will compete for rental housing rather than ownership.




One- and two- bedroom rental units may be relatively affordable for farmworkers in Yakima County, however low vacancy rates indicate limited availability of units compared to market demand. Families with 3 or more members may struggle to find units of adequate size.

## *Introduction*

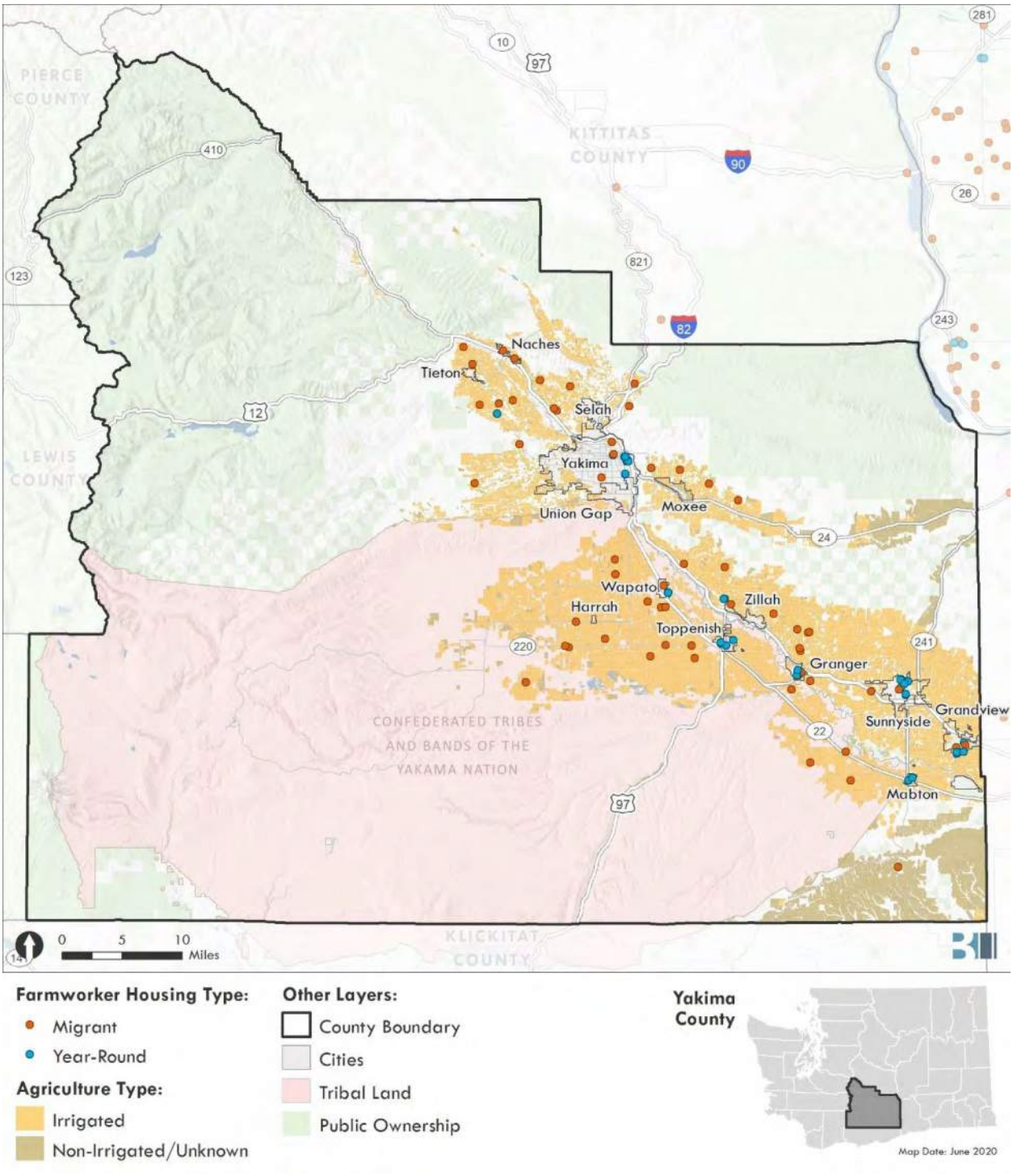
Yakima County is part of the south-central state reporting area. It is very nearly in the center of the state, bordering Skamania, Lewis and Pierce counties to the west, Kittitas County to the north, Grant and Benton counties to the east and Klickitat County to the south. Yakima County borders or includes federal land (Mount Rainier National Park) to the northwest and the Columbia River to the east. The southern half of the county is Yakama Nation lands.[162] There are 2,952 farms, most prevalent in central and eastern parts of the county.[163]

Yakima County is Washington's top agricultural producer and employer. Major crops grown include apples, milk and hay. Other major sectors of employment are government services, healthcare and social assistance, and retail trade.

The City of Yakima is the county seat and home to 37% of the county's population.[164]

[162] Confederated Tribes and Bands of the Yakama Nation. http://www.yakamanation.org/treaty.php
[163] Washington State Department of Agriculture, 2017.
[164] Office of Financial Management, 2019.

Exhibit 138: Yakima County Agricultural Land and Farmworker Housing Units, 2019




Sources: Housing Data from Washington DOH, 2019; Washington State Housing Finance Commission, 2019; Office of Rural and Farmworker Housing, 2019; WSDA, 2019

## *Population Summary*

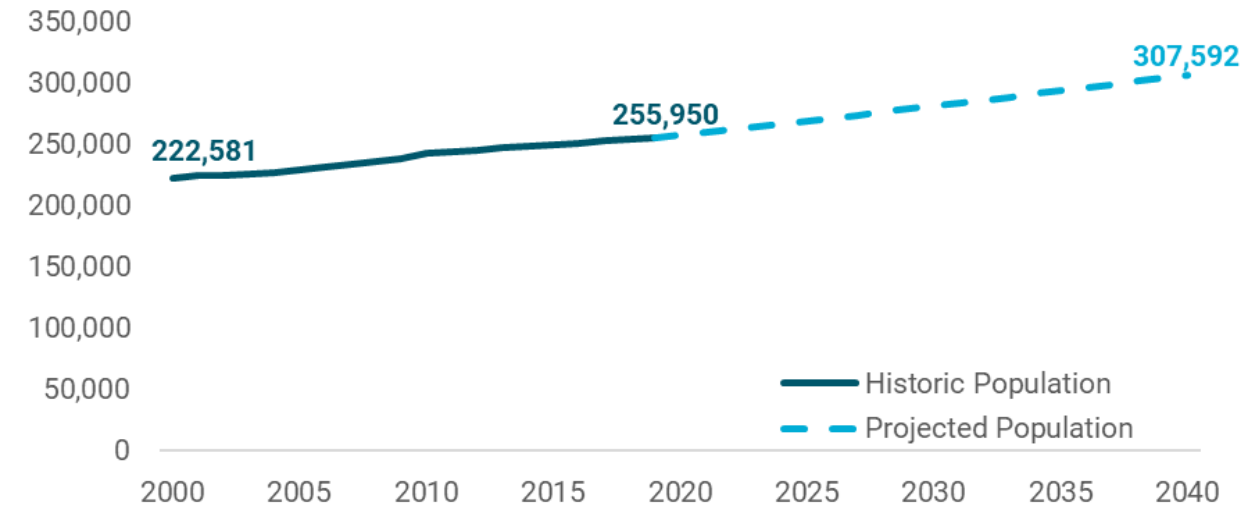
Yakima County has a population of 255,950, which is a 15% increase since 2000. Medium OFM population projections estimate accelerated growth patterns to 2040, as shown in Exhibit 139 and Exhibit 140. Growth projections for Yakima County estimate an increased proportion of adults over 65 and a decreased proportion of children under the age of four over the 2020-2040 period. This relates to longer life expectancies and lower birth rates. A higher proportion of the population at or above retirement age may represent higher demand for healthcare services, mobility assistance and ADA-compliant home design features. The primary age group for farmworkers, 20-44, is predicted to remain relatively stable as a proportion of the population throughout this period.

Exhibit 139: Yakima County Historical and Projected Growth Rates, 2000-2040

| Average Annual Growth | 2000-2019 | 2019-2040 Projected |
|---|---|---|
| Individuals | 1,756 | 2,459 |
| Percentage | 0.8% | 1.0% |

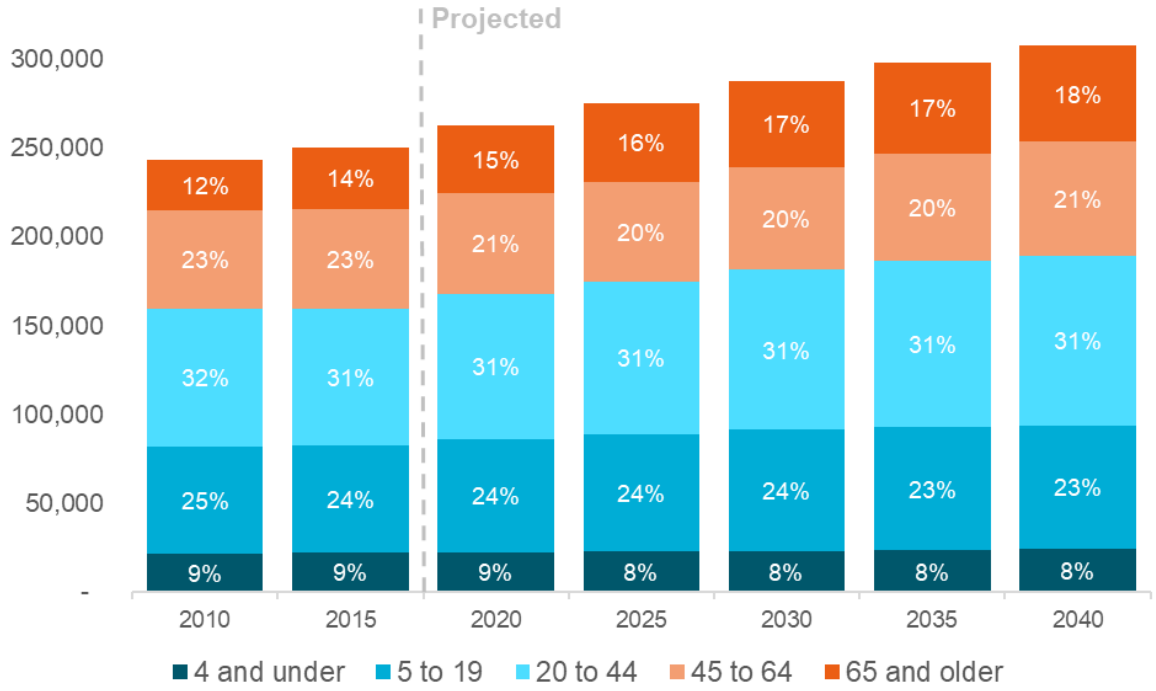
Sources: Washington State Office of Financial Management, 2019; BERK, 2020

Exhibit 140: Yakima County Historical and Projected Population, 2000-2040




Sources: Washington OFM, 2019; Yakima County Horizon 2040 Comprehensive Plan; BERK, 2019

Exhibit 141: Yakima County Population by Age Cohort, Historical and Projected




Sources: Washington OFM, 2018; BERK, 2019

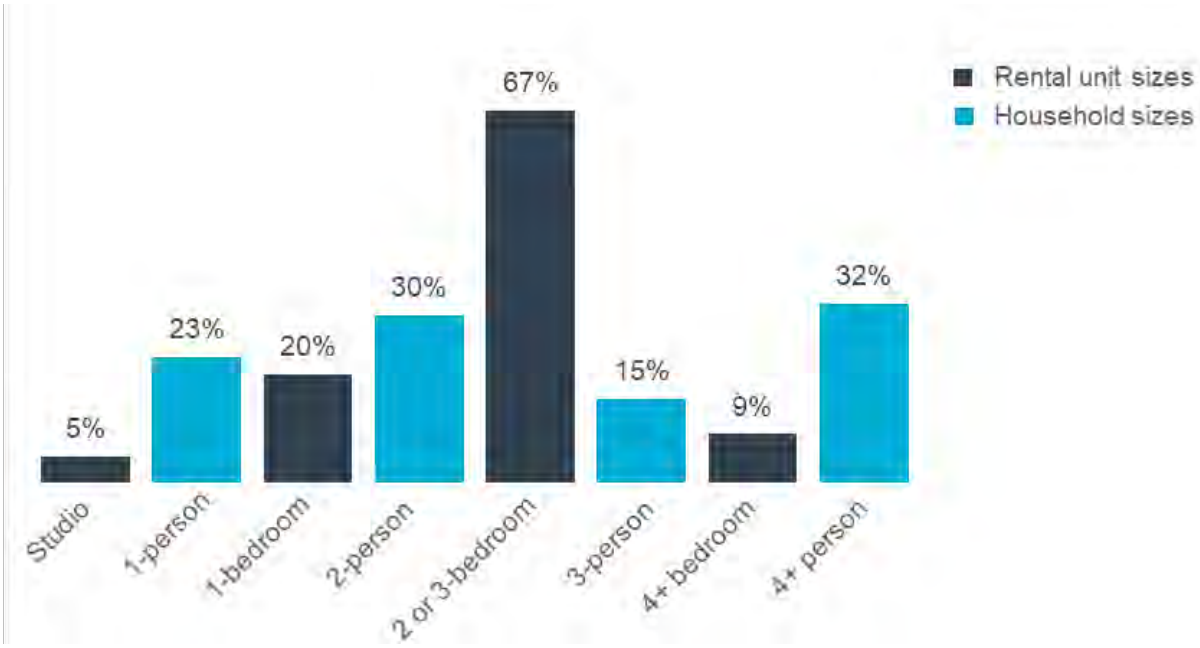
## *Household Population*

The average household size in Yakima County is 3.0 people.[165] Farmworker households are likely to reflect the general overall trend of household sizes in Yakima County. Almost 40% of Yakima County households, or 30,299 households, are renters. Survey data suggests that this rate is higher among the farmworker population, whose migratory patterns and lower annual earnings (see Exhibit 111) are more compatible with rental housing. This may result in a mismatch of household size and housing stock for agricultural workers who rent and live with children or extended family members, further explored in Exhibit 22. One and two-person households may desire smaller housing types such as one- and two-bedroom apartments, representing most rental units available in Yakima County. However, 32% of households have four or more people, who may need larger dwellings. Larger multifamily units with more than four bedrooms are limited in the rental market (in Yakima County, only 9% of rental units are this size), increasing the likelihood of overcrowding and "bunking up" arrangements if households cannot afford to

[165] American Community Survey, Table DP02 5-year Estimates, 2014-2018.

purchase a home.[166]

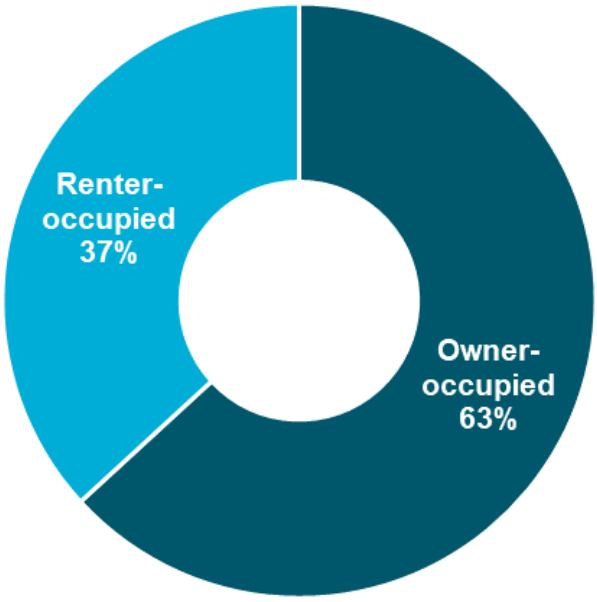
Exhibit 142: Yakima County Household Size and Number of Bedrooms in Rental Housing Units




Sources: American Community Survey S2501 and S2504 5-Yr Estimates, 2014-2018; BERK, 2020

[166] American Community Survey, Table S2504 5-year Estimates, 2014-2018.

Exhibit 143: Yakima County Housing Tenure by Household, 2018




Sources: American Community Survey Table S2501 5-year Estimates, 2014-2018

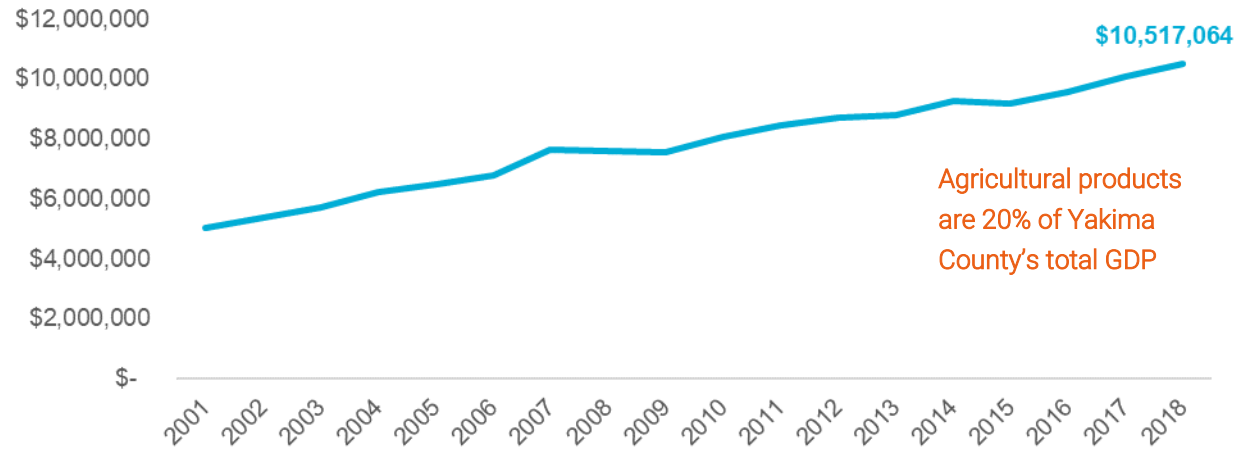
## *County Economy*

Agriculture is a major component of Yakima County's economy. Yakima County is Washington's top county for agriculture, measured by the value of annual production, number of employees and number of farms. Apples, milk and hay are three of the largest commodities farmed in the county.[167] Agriculture accounts for 20% of the county's GDP and 17% of its labor force.[168]

- Yakima County is one of two counties in ESD's south-central area, with the highest estimate for average annual farmworker wages.
- Top employers include Virginia Mason Memorial Hospital, Yakima School District, Walmart, Borton Fruit and Yakima County government.[169]

[167] Washington State Department of Agriculture, 2012.
[168] Agricultural Product Value from USDA, 2017; GDP from U.S. Bureau of Economic Analysis (BEA), 2017; Labor Force figures from Washington ESD, 2018.
[169] Yakima County Horizon 2040 Comprehensive Plan.

Exhibit 144: Yakima County GDP, All Industries

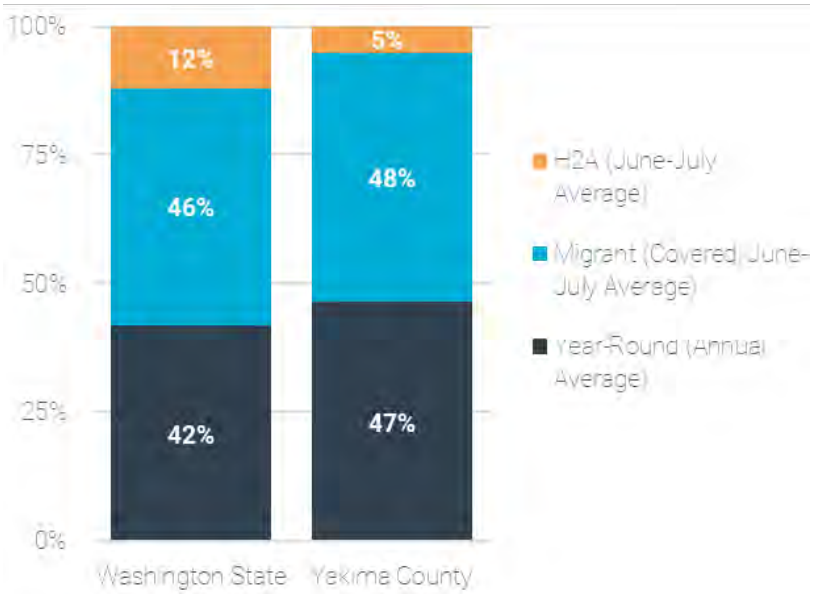



Sources: U.S. Bureau of Economic Analysis (BEA) SAGDP9N series, 2001-2018; BERK, 2020

## *Farmworker Population*

As of 2018, Yakima County is home to an estimated **20,630 year-round and covered agricultural jobs**, which more than doubles during the peak months for migrant employment. Compared to statewide averages, Yakima County relies more upon covered migrant employment rather than H-2A workers. This is likely due to its increased agricultural production. Given the additional housing challenges faced by migrant workers, this indicates a need for housing assistance among the county's agricultural labor force.

Exhibit 145: 2018 Agricultural Employment by Type, County versus State Averages




Sources: Washington ESD, 2019; U.S. Department of Labor, 2020; BERK, 2020

Exhibit 146: Yakima County Farmworker Estimates by Employment Type, 2018

| Employment Type | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year-round covered | 20,318 | 20,374 | 20,431 | 20,488 | 20,545 | 20,602 | 20,658 | 20,715 | 20,772 | 20,829 | 20,886 | 20,943 |
| Migrant covered | 2,858 | 5,910 | 7,700 | 10,654 | 10,519 | 22,282 | 20,593 | 17,932 | 19,032 | 15,527 | 3,496 | 2,434 |
| Migrant H-2A* | 869 | 1,026 | 1,452 | 1,750 | 1,790 | 2,453 | 2,075 | 1,675 | 1,009 | 474 | 30 | 0 |
| **Total monthly employment** | **24,045** | **27,310** | **29,583** | **32,892** | **32,854** | **45,337** | **43,326** | **40,322** | **40,813** | **36,830** | **24,412** | **23,377** |

*Statewide requests provided by ESD and discounted 75% to reflect actual versus requested workers; County estimates based on Department of Labor percentages of worker requests by county

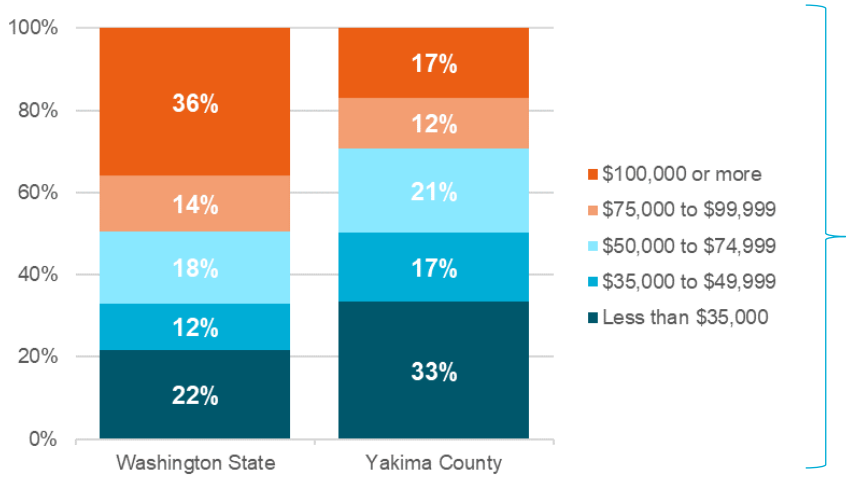
Sources: Employment Security Department, Employment Connections Division - Foreign Labor Certification Program; BERK, 2020

## *Income Summary*

Yakima County households have lower incomes than state averages, with a higher percentage of households earning less than $50,000 per year and a lower percentage of households earning

greater than $100,000 per year. Based on ESD income and wages reporting, farmworker households are likely to earn less than $35,000 per year without additional income from secondary employment or other household members. This income level is below the HUD-area median family income for 2018: $54,700.

Exhibit 147: Yakima County, Household Income Brackets




Sources: American Community Survey S1901 5-Yr Estimates, 2014- 2018; BERK, 2020

Estimated wages for farmworkers are below the median family income (MFI) for Yakima County at any family size. **A single-person household earning the regional farmworker average wage earns 58% of MFI in Yakima County and is classified as low-income (50-79% MFI).**

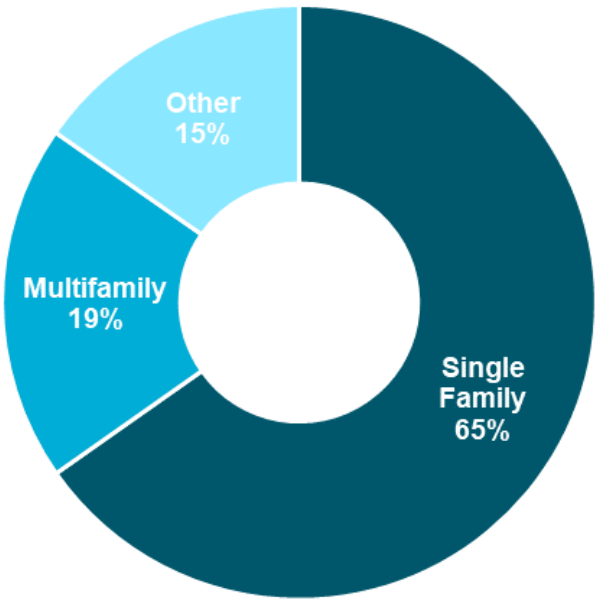
- Median family income for Yakima County (2018 - HUD): $54,700
- Average annual income for south-central farmworkers (2018):[170] $31,719

## *Housing Inventory*

There are 89,815 housing units in Yakima County. Fifteen percent of these are classified as 'other,' including mobile homes and other special housing types, compared to a statewide average of 8%. This high percentage may correlate to the high number of farmworkers living in temporary housing types.

[170] 2018 average wages projected based on average annual growth rates over 5 years, as reported by ESD, 2019.

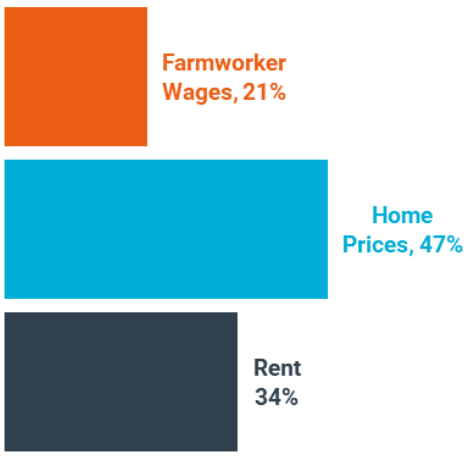
Exhibit 148: Total Housing Units by Type, Yakima County 2018




Sources: Washington OFM, 2018; BERK, 2020

In recent years, housing prices in Yakima County have risen faster than regional farmworker incomes. Median home prices have risen 47%, while rent has increased 34%. Wages have increased 21%. See Exhibit 149. This trend has intensified affordability issues. Given the regional average annual wages for farmworkers, housing is considered affordable at rates of $793 per month or less.

Exhibit 149: Yakima County, Percent Change for Farmworker Wages versus Housing Prices, 2012-2018



Sources: Washington ESD, 2020; Washington Center for Real Estate Research, 2012 & 2018; BERK, 2021

## Rental Housing

There are an estimated 30,299 renter-occupied housing units in Yakima County[171] and 948 units specifically available to farmworker households. The average rent in Yakima County is $660 per month for one-bedroom units and $830 per month for two-bedroom units.[172] These units are considered affordable for households earning $26,400 and $33,200, respectively. The rental vacancy rate is 1.4%, indicating a lack of available rental units. This suggests that while some rental units are affordable for farmworker wages, competition is tight. Renters who can prove higher earnings or who are willing to sign longer-term leases may be more attractive to property owners.

**Exhibit 150: Monthly Rent as a Percentage of Average Farmworker Wages, Yakima County, 2018**

| Unit Size | Average Monthly Rent | Percentage of Average Farmworker Monthly Wages |
|---|---|---|
| 1-bedroom | $660 | 25% |
| 2-bedroom | $830 | 31% |

Sources: Washington Center for Real Estate Research, Fall 2018 Apartment Market Survey; ESD, 2019; BERK, 2020

Farmworker wages and incomes are low, but the reported rental rates for Yakima County indicate that market-rate one-bedroom and two-bedroom apartments may be affordable for workers earning average annual wages. Two-bedroom apartments just cross the threshold of cost burden for these workers. Larger units that accommodate larger household sizes are likely unaffordable for farmworker households. Competition for rental units of any size may prevent lower-earning households or migratory workers from securing stable housing.

## Home Ownership

**The median price of a home in Yakima County is $227,800.[173] For a farmworker household earning annual average wages, the estimated mortgage payment on this price of a home results in a severe cost burden.** A more affordable home price is $160,000 or less, assuming the ability to

[171] American Community Survey, S2501 5-Yr Estimates, 2014-2018.
[172] Washington Center for Real Estate Research, Apartment Market Survey, Fall 2018.
[173] Ibid.

pay a $32,000 (20%) down payment. About 15% of Yakima County housing units are available in this price range. This down payment will be out of reach for many families, and as down payment size decreases, monthly mortgage payments increase.

# Stakeholder Engagement

## Farmworkers

### *Farmworker Tribunal*

BERK attended the seventh Annual Farmworker Tribunal in Olympia on Feb. 10, 2020, during which farmworkers delivered testimony to tribunal judges in culturally appropriate ways, such as through stories and in their preferred languages. Farmworkers described issues including generational poverty, fear of employer retaliation, health concerns about pesticides and housing locations, and concerns around schooling and the care of children. These issues and lived experience intersect with housing needs and informed this study's policy recommendations and gap analysis.

### *COVID-19 Farmworker Study (COFS)*

COFS is a collaborative tristate research project coordinated by the California Institute for Rural Studies (CIRS) to provide a rapid response analysis of the impact of COVID-19 on farmworker communities along the West Coast. The Washington COFS data collection team collected surveys of farmworkers throughout the state in the fall of 2020. Promotoras (community health workers) surveyed farmworker participants from farmworker-serving community-based organizations that are part of the project's data team.

## Housing Providers and Other Stakeholders[174]

Stakeholders from nonprofit organizations and housing authorities that build, own and operate farmworker housing provided input on the major needs for permanent and temporary farmworker housing. Stakeholders cited the following items as major areas of concern in farmworker housing:

- **Housing affordability.** Statewide housing affordability issues are affecting the ability of

[174] Sources: Interview with Lowel J. Krueger, Executive Director, Yakima Housing Authority, (Feb. 27, 2020); Interview with Dan Fazio, Executive Director, Wafla, (Feb. 27, 2020; Interview with Melony Rosen, Executive Director, Yakima Habitat for Humanity, (March 10, 2020); Interview with Bryan Ketcham, Director, Catholic Charities Housing Services, (March ,17 2020).

farmworkers to secure rental housing. Since farmworkers tend to have lower incomes, issues of low rental housing inventory and low vacancy rates contribute to farmworkers struggling to find rental properties and facing higher costs when they find units.

- Barriers to homeownership. More than half of farmworkers in Washington indicate that they would like to own a home but face barriers.[175] Staff at one nonprofit focused on increasing access to homeownership highlighted the low inventory of lower-priced homes in the Washington real estate market. Very few homes affordable to first-time buyers come onto the market, and those that do sell quickly. Farmworkers are also more likely to be immigrants and speak a language other than English, which can disadvantage them in the home buying process. One stakeholder said that some factors in the home buying process in the U.S., such as the importance of a credit score and how to build credit, might not be familiar to some farmworkers. This compounds with language barriers to make the process more challenging.
- Lack of temporary housing options. Staff at an organization that develops farmworker housing talked about the challenges around temporary housing development. Private developers rarely build temporary housing for migrant workers because such developments are not a good investment — migrant workers typically earn less than year-round workers and have less income for housing.
- Poor conditions in temporary housing facilities. Several stakeholders noted concerns with conditions in some existing temporary housing facilities. For example, they described overcrowding, pests and fire hazards as challenges in tents, shared homes and other makeshift congregate housing.
- State and local regulations that impede the development of housing. One stakeholder shared that current state regulations make it challenging for nonprofits to operate temporary housing — some programs provide funding specifically for farmworker housing, but nonprofits are challenged when some farmworkers take on non-farm work in certain seasons of the year. Another regulation requires facility managers to reserve a certain percentage of beds for walk-ins, but there is no agreement about who qualifies as a walk-in.

  Local regulations can make developing permanent farmworker housing challenging, as well — it is easier to construct affordable housing as multi-family units, but local jurisdictions, particularly in rural areas, may not have zoning that allows for this construction.

[175] Washington State Farmworker Housing Trust, "2006 Farmworkers Survey" (May 2007).

## Employers

Employers of farmworkers described current trends in farmworker employment and housing and the current challenges in securing adequate housing.[176] Trends they described include:

- **Increased usage of H-2A visa workers and challenges with the program design.** Changes in immigration policy and enforcement have contributed to shortages of migrant workers. Several employers noted an increase in the hiring of H-2A visa workers in response. Several growers stated that they would like to hire H-2A visa workers because of the stability that such workers provide but were unable to do so because of the higher associated costs, including housing. Employers must provide housing to H-2A visa workers at cost, so building and operating housing becomes part of the expense of hiring H-2A workers.
- **Increased costs of providing housing due to state and federal regulations.** One stakeholder cited changing state and federal standards for farmworker housing as contributing to the decline of employer-provided housing. Though the intention was to improve housing conditions, the H-2A regulations combined with local land use and building regulations made it more costly for farmers to provide housing for their workers, and many stopped doing so altogether. Several employers cited specific building regulations — such as minimum window size and the required usage of screen doors — and Growth Management Act limitations on the location of urban and rural development and the cost to address rural water supplies as contributors to higher costs. In addition, because migrant workers provide labor to employers for limited periods, housing may sit empty for most of the year.
- **Farmworkers traveling longer distances to go to work.** One employer in Western Washington explained that the high costs of providing on-farm housing and the lack of private market housing near farms mean that many workers live far from where they work and travel long distances to work, with commutes that sometimes take several hours per day. The employer shared that they would like to provide on-site housing to attract workers and allow for a more stable workforce, but the costs to build and maintain that housing was prohibitive.

[176] Sources: Interview with April Clayton, Red Apple Farms, (June 22, 2020); Interview with Jon Devaney, Washington State Tree Fruit Association, (June 23, 2020); Interview with Rosella Mosby, Mosby Farms, (July 7, 2020); Interview with Josh Koempel, Rock Island Farm, (July, 9 2020); Interview with Dan Fazio, Executive Director, Wafla, (Feb. 27, 2020).

# Summary & Recommendations

## Housing Access and Affordability

Across the state, farmworkers struggle to access and afford housing that suits the unique needs of their work.

Statewide, an estimated 48,500 farmworkers must seek permanent housing in the private market, and up to 21,000 migrant farmworkers must secure temporary beds in the private market. The largest gaps between available farmworker housing units and need are in Chelan and Yakima counties. Between the two counties, an estimated 20,650 farmworkers seek permanent housing and 12,000 must find temporary housing on the private market. Benton and Franklin counties also have notably low proportions of provided housing units compared to worker counts.

Exhibit 151: Housing Availability Highlights

| County | Ratio of Year-round Workers to Farmworker-specific Housing Units | Year-round Farmworkers Looking in the Local Market | Ratio of Migratory Workers to Farmworker-specific Housing Units | Migratory Farmworkers Looking in the Local Market |
|---|---|---|---|---|
| Adams | 8% | 990 | 45% | 712 |
| Benton | 3% | 2,754 | 14% | 2,716 |
| Chelan | 3% | 5,222 | 35% | 3,305 |
| Douglas | 2% | 1,202 | 97% | 70 |
| Franklin | 6% | 2,204 | 14% | 2,936 |
| Grant | 11% | 3,889 | 89% | 437 |
| Okanogan | 5% | 1,475 | 93% | 170 |
| Skagit | 17% | 1,138 | 66% | 238 |
| Walla Walla | 3% | 1,646 | 0% | 1,313 |
| Whatcom | 8% | 960 | 65% | 602 |
| Yakima | 6% | 15,425 | 22% | 8,620 |

Sources: Covered employment estimates from Washington ESD, 2018. Farmworker housing counts from Washington State Housing Finance Commission, 2019; Department of Health, 2019; and Office of Rural and Farmworker Housing, 2020. BERK, 2020.

Challenges for farmworkers seeking rental housing on the private market include lack of options due to low rental inventory, lack of units affordable to individuals earning typical farmworker wages, and lack of rental units large enough to accommodate farmworker households. Farmworker wages are lower than median incomes across Washington. Lack of affordable housing for farmworkers is most acute in Chelan and Douglas counties, where a two-bedroom apartment costs two-thirds of the average farmworker's wages. See Exhibit 152.

Exhibit 152: Housing Affordability Highlights

| County | Farmworker Wages as a Percentage of HUD-area MFI | Percent of Income Spent to Afford Average Apartment* |
|---|---|---|
| Adams | 57% | n/a |
| Benton | 41% | 36% |
| Chelan | 40% | 66% |
| Douglas | 40% | 66% |
| Franklin | 41% | 36% |
| Grant | 50% | n/a |
| Okanogan | 52% | n/a |
| Skagit | 44% | 39% |
| Walla Walla | 46% | 34% |
| Whatcom | 39% | 42% |
| Yakima | 58% | 31% |

*Based on average monthly wages by region and countywide average rental rates for a 2-bedroom apartment. HUD considers households cost-burdened when 30% or more of income goes toward housing.

Sources: Covered employment wage estimates from Washington ESD, 2018. HUD-area MFI estimates as provided by Washington State Housing Finance Commission, 2020. Average rents and vacancy rates as reported by Washington Center for Real Estate Research, 2018. BERK, 2020.

The greatest need for farmworker housing is temporary housing for non-H-2A migrant workers. These workers need flexible, temporary housing, which is not available in the private market; thus, they are more likely to live in unsheltered, unsafe or unhealthy housing situations.

## Farmworker Preferences and Housing Situations

Farmworkers have a variety of housing preferences. Year-round workers who live in and around agricultural areas often prefer to be in a central location and look for work on different farms. Many of these workers have families and would prefer to be close to amenities such as schools, churches and other employers. Temporary migrant workers often prefer a shorter commute and housing close to their worksites. While housing conditions and preferences vary among farmworkers, studies have shown that a significant proportion of farmworkers report problems with their housing conditions. This reflects the tradeoffs farmworkers makers when faced with a lack of affordable housing. According to a 2008 survey of farmworkers,[177] more than one-third (36%) cited problems with their current housing conditions. Thirty-two percent reported living in overcrowded units, 27% reported living in units with peeling or chipping paint, 23% reported living in units with mice, and 18% reported living in units with one or more appliances that did not work. In 2020, many farmworkers lived far from their place of work, in areas with more affordable housing, which resulted in long commutes.

Housing situations also vary by duration of work. There are substantial differences between the housing situations for local and non-local, non-H-2A migrant workers, many of whom are undocumented immigrants from Mexico and other countries. These migrant workers are more likely to be in substandard housing than local workers or H-2A workers. Migrant workers are also more likely to lack indoor shelter and to experience homelessness. According to a 2019 report, 6% of farmworkers reported living outdoors, such as in a shed or car. For non-local migrant workers, this proportion nearly tripled to 15%.

Federal law requires employers of H-2A visa workers to provide housing for their H-2A employees at no cost.[178] This includes the option to provide housing directly or to secure and pay for the use of public housing units. However, H-2A workers represent only about 12% of all farmworkers in Washington (see Statewide Demographic Information on Farmworkers on pages 21-22), so this does not apply to most of the state's farmworkers.

## Challenges in Accessing Housing

Given their demographics and the nature of their work, farmworkers face unique challenges in accessing housing:

[177] Washington State Farmworker Housing Trust, "A Sustainable Bounty: Investing in our Agricultural Future," (2008).
[178] 20 CFR 655.122(d)(1)

- Wages for farmworkers are low. Across the state, farmworker wages range from 40-60% of HUD-area median family income estimates. Thus, wages are a limiting factor for farmworkers looking to access market-rate housing or become a homeowner.
- Many farmworkers face barriers, including inadequate funds for deposits, discrimination and inappropriately long leases for seasonal work. There are additional challenges in acquiring a rental lease for the high proportion of farmworkers who are not English proficient.

# Recommendations

## Funding Recommendations

- **Evaluate increasing or restructuring funding for farmworker housing through the state Housing Trust Fund (HTF).** The HTF is a key resource for farmworker housing funding. Though the level of funding for farmworker housing has remained largely the same since 1999, the total number of units and beds produced with those funds is lower in the last six years than in the program's first six years. From 1999-2004, the program supported the production of 1,015 permanent units and 4,054 seasonal beds. From 2014-2019, the HTF supported the production of 623 permanent units and 1,086 seasonal beds.

  This reduction is likely due to:

  - A focus on permanent housing, which is more expensive to produce per unit than temporary housing is per bed. Thirty-six percent of the production in 2014-2019 was permanent units, compared with 20% in 1999-2004.
  - Rising construction costs, which could mean developers produce less housing stock at the same costs.

  Given the scale of the need, this report recommends evaluating additional funding allocations to the HTF based on the best available data on housing needs.

- **Establish a dedicated funding source for temporary housing.** Across the state, the housing needs of migrant workers for temporary housing are high. There are also several challenges unique to temporary housing development. For example, temporary housing has the same operating costs as permanent housing but lower cash flow given the lack of year-round revenue. Due to higher operating costs and lower rents that can be achieved with temporary units, the private market is unlikely to build temporary housing for migrant workers. Shortages

in temporary housing make migrant workers more likely to live unsheltered or in unsafe or unhealthy housing situations. Establishing a dedicated funding source for temporary housing with a higher portion of funds for maintenance and operations can alleviate housing challenges in local housing markets.

- **Implement the Joint Legislative Audit and Review Committee (JLARC) recommendation to retool the tax exemption for farmworker housing.** Many housing developers, including private developers, nonprofits and public agencies, build housing that serves multiple populations. For example, housing providers may build homes for agricultural workers, people with disabilities, and large families. By offering housing for multiple types of residents, housing providers increase their financial inflow by reducing the likelihood that units will sit vacant because they cannot find a tenant in the target group. Community support is also typically higher for housing developments that serve a broader range of groups than for developments targeted specifically for lower-income or higher-need households.

  The current sales tax exemption's requirements for occupancy differ from other common housing funding sources. The exemption is not utilized to the extent it should because occupancy requirements differ from other funding sources.[179] In addition, "agricultural employee" is defined differently for the exemption and other funding sources. This can limit housing providers from combining multiple funding sources and using the exemption. Aligning the definitions and occupancy requirements with other housing fund sources can encourage the use of the exemption.

  In addition, the Department of Revenue (DOR) has a policy that restricts the use of seasonal farmworker housing developed using the exemption for other purposes at any time during the year. Any use other than farmworker housing during the winter in the first five years would make a property ineligible for the exemption.[180] This creates a situation where housing providers restrict farmworker beneficiaries from taking on non-farm work in certain seasons. Another regulation requires facility managers to reserve 25% of beds for walk-ins, but there is no clarity about who qualifies as a walk-in.

  Refining these regulations to clarify requirements would give housing developers, nonprofits and public agencies greater confidence that they can meet the funding requirements. When

[179] See: Washington State Joint Legislative Audit and Review Committee, "2020 Tax Preference Performance Reviews: Farmworker Housing," (December 2020), https://leg.wa.gov/jlarc/taxReports/2020/farmhousing/f_final/default.html
[180] Ibid.

regulations are unclear, developers may choose not to build housing, and nonprofit and public agencies may choose not to operate housing facilities out of fear of losing funding.

- Advocate changes to the USDA that make it easier to combine Rural Development (RD) funding with other sources. USDA RD funds are a key source for funding farmworker housing development in rural communities. However, this funding requires strict financing and operating conditions, making it challenging to combine funds. For example, for the loan program for constructing on-farm housing, applicants must be "unable to obtain credit from any other source" – which may preclude projects where the developer/farm owner uses loaned funds from a community development bank or other similar institution. Also, as noted above, many housing providers combine funds to increase financial stability, and USDA RD funding conditions do not align with current housing practices or development costs.
- Evaluate the Housing Trust Fund allocation of funding to rural versus urban areas and consider offering support to rural communities in applying for funding. Rural communities have limited local funding options in rural areas than in urban areas. For example, only areas within urban centers or unincorporated UGAs designated as residential target areas are eligible to implement a Multi-family Tax Exemption (MFTE) program to support the construction of affordable housing, meaning that some rural areas do not have access to this tool.[181] Rural communities also have less housing overall, so farmworkers may face homelessness or live in overcrowded housing.

  The current HTF legislation[182] establishes a statutory target that at least 30% of the funds in any given funding cycle must benefit projects in rural areas of the state. Evaluating funding allocations to ensure this target is met ensures continued housing support for rural areas. This could include providing a funding source for technical assistance to help rural communities submit funding applications.

[181] RCW 84.14.040
[182] RCW 43.185.050

## Housing Development Recommendations

- **Encourage cities to increase zoning and infrastructure investments for multi-family housing within urban growth areas.** Local regulations and discretionary processes tied to approval for farmworker housing may create challenges for housing development for farmworkers. This is because many communities lack affordable housing for low-income residents or those experiencing homelessness. Farmworkers, especially seasonal workers, are viewed as competition for limited available units. Some residents may also harbor negative perceptions about farmworkers and farmworker communities.

  *"Some people say farmworkers should be out on a farm somewhere. Others say you shouldn't build a three-story building on farmland. Somewhere else is always the better place for farmworker housing."*

  *-Interviewee*

  Requirements for discretionary processes, such as design review for farmworker housing development, can create long, unpredictable processes for developers and potentially create a platform that channels negative community input. This adds costs and risks to development. The high cost of infrastructure investments, especially connections to public water and sewer, is another barrier to housing developments for farmworkers. Encouraging cities to increase zoning for multifamily housing in urban areas and strategic investments in infrastructure would support additional housing development and make it easier to build affordable housing for farmworkers.

- **Remove barriers to the development of rental housing.** Farmworkers seeking rental housing on the private market share major challenges with other people with similar incomes. This includes an overall shortage of units affordable to individuals earning 40-60% MFI and a shortage of rental homes overall, especially units large enough to accommodate families. Encouraging cities to identify and remove barriers to rental housing development is an important strategy to address housing needs for farmworkers.

- **Evaluate eligibility requirements for subsidized housing and/or prioritization of subsidized housing funds.** Across the state, we find that farmworker wages range from 40-60% of HUD-area MFI estimates. Many workers, both year-round and migratory, struggle to compete in local housing markets with these wages. On the other hand, many farmworkers are ineligible for priority for subsidized housing because the area median incomes in rural counties are low enough that they earn more than the 30% MFI threshold for priority on the waiting list. Given that housing supply overall is low in many communities, with vacancy rates below 5%, there is very little market-rate housing available to households that earn between 40%-60% MFI.

## Program Recommendations

- Establish housing navigators for farmworkers. Farmworkers face unique barriers to finding suitable housing. Housing navigators can help address these barriers by providing services during the preparation and early search phases customized to meet families' needs, including helping households know fair housing rights and providing assistance in multiple languages. Housing navigators can also assist with landlord-facing services, such as submitting rental applications and communicating with landlords. They can also support families in housing search and lease-up processes.

## Other Recommendations

- Evaluate reforms to the H-2A guest worker program. Overall, agricultural employment has grown from 2008 to 2018. Year-round employment has remained relatively stable as a proportion of the workforce, while domestic migrant employment has decreased in its share of total farmworker employment from 56% to 46%. Foreign workers through the H-2A visa program have increased to fill this gap. As shown in Exhibit 9, H-2A workers have increased from 2% to 12% over the same period – a total increase of almost 17,000 workers. While the use of the H-2A program has ballooned across the state, both growers and farmworkers described the need for program reform. From the farmworker's perspective, working conditions are often poor or unsafe. While housing is provided and is based on temporary housing standards, its quality varies. Growers value the access to a stable workforce that the H-2A program provides but see room for improvement. It is currently cumbersome, time-consuming, expensive and inflexible in its design.

  Specific ideas for reform to the application process include:

  - Streamline the application process. Like other visa programs, the H-2A visa program is intended to provide employers with temporary non-U.S. workers only if an employer can prove they were unsuccessful at hiring American workers. This requirement creates a time-consuming labor search process to demonstrate the shortfall of domestic workers so employers can be eligible.

  - Costs. Many growers referenced the need for more coordination and consistency among agencies providing funding for farmworker housing (such as HUD, USDA, and Commerce) to avoid being subjected to multiple inconsistent requirements. According to the American Farm Bureau, using the H-2A program has also increased federal audits among growers,

adding challenges and costs, including time or labor to support the audit. Another reason for added costs is lack of flexibility based on the duration of work. The program currently defines seasonality as 10 months or fewer (except for work with livestock), but the costs associated with the program are the same whether growers hire workers for two weeks or nine months. Growers must also renew contracts if the growing season lengthens and they need labor for longer than anticipated.

- Advocate for immigration reform. According to anecdotal data, some farmworkers lack authorized immigration status. Undocumented immigrant farmworkers face many challenges. They are often unable to advocate for better housing or conditions for fear of being penalized for their immigration status. While state and local government assistance has been available to farmworkers during the COVID-19 pandemic, undocumented workers are ineligible for federal public benefits such as extra unemployment insurance or stimulus checks. Advocating for comprehensive immigration reform can address the needs of these vulnerable farmworkers.

# Bibliography

Abbett, J. (2005). *Farmworker Housing in Washington State: Safe, Decent and Affordable.* Housing Division. Olympia, WA: Washington State Department of Community, Trade and Economic Development. Retrieved from http://lib.ncfh.org/pdfs/7077.pdf

Avilés, G., Lee, Ph.D., D., Roubinchtein, Ph.D., A., & Zadworny, Z. (2018). *2016 Agricultural Workforce Report.* Workforce Information and Technology Services. Washington State Employment Security Department. Retrieved from https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Annual-Ag-Report/2016%20Agricultural%20Workforce%20Report.pdf

Avilés, G., Moll, J., Paterson, T., & Zadworny, Z. (2019). *2017 Agricultural Workforce Report.* Labor Market and Economic Analysis. Washington State Employment Security Department. Retrieved from https://esdorchardstorage.blob.core.windows.net/esdwa/Default/ESDWAGOV/labor-market-info/Libraries/Industry-reports/Annual-Ag-Report/2017%20Agricultural%20Workforce%20Report.pdf

Washington State Farmworker Housing Trust. (2008). *A Sustainable Bounty: Investing in our Agricultural Future.* Seattle: Washington State Farmworker Housing Trust. Retrieved from http://lib.ncfh.org/pdfs/7482.pdf

## Tara Satushek

**From:** Tim Trohimovich <Tim@futurewise.org>
**Sent:** Thursday, March 13, 2025 5:33 PM
**To:** PDS comments
**Subject:** Re: Comments on "2025 Skagit County Periodic Comprehensive Plan Update"
**Attachments:** Guide for authors - Energy Policy.pdf; state-of-our-watersheds-sow-2020-final-web excerpts.pdf

Dear Staff:

Here is the fourth set of enclosures.

Tim Trohimovich, AICP
Director of Planning & Law
Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org

---

**From:** Tim Trohimovich <Tim@futurewise.org>
**Sent:** Thursday, March 13, 2025 5:31 PM
**To:** Skagit County PD&S Comments <pdscomments@co.skagit.wa.us>
**Subject:** Re: Comments on "2025 Skagit County Periodic Comprehensive Plan Update"

Dear Staff:

Here is the third set of enclosures.

Tim Trohimovich, AICP
Director of Planning & Law
Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org

---

**From:** Tim Trohimovich <Tim@futurewise.org>
**Sent:** Thursday, March 13, 2025 5:30 PM
**To:** Skagit County PD&S Comments <pdscomments@co.skagit.wa.us>
**Subject:** Re: Comments on "2025 Skagit County Periodic Comprehensive Plan Update"

Dear Staff:

Here is the second set of enclosures.

Tim Trohimovich, AICP
Director of Planning & Law
Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org

---

**From:** Tim Trohimovich <Tim@futurewise.org>
**Sent:** Thursday, March 13, 2025 5:29 PM
**To:** Skagit County PD&S Comments <pdscomments@co.skagit.wa.us>
**Subject:** Re: Comments on "2025 Skagit County Periodic Comprehensive Plan Update"

Dear Staff:

Here is the first set of enclosures.

Tim Trohimovich, AICP
Director of Planning & Law
Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org

---

**From:** Tim Trohimovich
**Sent:** Thursday, March 13, 2025 5:23 PM
**To:** Skagit County PD&S Comments <pdscomments@co.skagit.wa.us>
**Subject:** Comments on "2025 Skagit County Periodic Comprehensive Plan Update"

Dear Staff:

Subject: Comments on the 2025 Skagit County Periodic Comprehensive Plan Update

Thank you for the opportunity to comment on the 2025 Skagit County Periodic Comprehensive Plan Update. Futurewise strongly supports the update. We have comments on the final draft below.

Futurewise works throughout Washington State to support land-use policies that encourage healthy, equitable and opportunity-rich communities, and that protect our most valuable farmlands, forests, and water resources. We have members across Washington State including Skagit County.

### Comments on the Preface

The first sentence under "2025 Forecast" on page 10 of the redlined version has the year 20~~4~~5. It appears that 2025 was intended.

**The Rural Growth Allocations, see redline pages 10 through 12.**

Futurewise has three concerns about the rural growth allocations. First, allocating 20 percent of the county's growth to the rural area will be costly for county taxpayers and ratepayers. A peer-reviewed study shows that "the cost of providing public services in rural areas is 39% greater than in cities." Ron Shani, Yaniv Reingewertz & Eran Vigoda-Gadot, *Far from-sight and expensive: additional costs of public services in rural areas* Local Government Studies p. 1, pp. 11 – 12 (22 Jun 2024), DOI: 10.1080/03003930.2024.2369784 last accessed on March 11, 2025, at: https://www.tandfonline.com/doi/pdf/10.1080/03003930.2024.2369784 and enclosed in another email with the filename: "Far-from-sight and expensive additional costs of public services in rural areas.pdf." The draft comprehensive plan in Appendix C the Transportation Element Technical Appendix on page 572 shows a transportation capital projects deficit of $150,689,518. Reallocating rural growth to cities and towns could reduce this $150 million transportation deficit.

Second, 501 rural housing units are intended to be affordable to households earning 51 to 80 percent of the area median income (AMI). The State of Washington Department of Commerce has documented that to provide housing affordable to families and individuals earning 80 percent or less of the area median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023) last accessed on March 11, 2025, at: https://deptofcommerce.app.box.com/s/1d9d5l7g509r389f0mjpowh8isjpirlh and enclosed in another email with the filename: "HB 1220_Book2_Housing Element Update_230823 Final_updated 240920.pdf." Low-rise multifamily and mid-rise multifamily housing are urban uses and require sewers and other urban services. RCW 36.70A.070(5) prohibits urban uses outside urban growth areas.

Third allocating 20 percent of the county's growth to the rural area will make it difficult to comply with RCW 36.70A.070(9)(d)(i) which provides that:

> The greenhouse gas emissions reduction subelement of the comprehensive plan, and its related development regulations, must identify the actions the jurisdiction will take during the planning cycle consistent with the guidelines published by the department pursuant to RCW 70A.45.120 that will:
>
> (A) Result in reductions in overall greenhouse gas emissions generated by transportation and land use within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state;
>
> (B) Result in reductions in per capita vehicle miles traveled within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; and
>
> (C) Prioritize reductions that benefit overburdened communities in order to maximize the cobenefits of reduced air pollution and environmental justice.

Adding twenty percent of the county's growth to rural Skagit County will likely increase greenhouse gas emissions, increase per capital vehicle miles traveled, and not benefit overburdened communities. Rural residents have substantially higher greenhouse gas emissions, particularly higher transport-related direct greenhouse gas emissions than residents in the urban growth areas. Jeffrey Wilson, Jamie Spinney, Hugh Millward, Darren Scott, Anders Hayden, and Peter Tyedmers, *Blame the exurbs, not the suburbs: Exploring the distribution of greenhouse gas emissions within a city region* 62 Energy Policy 1329, pp. 1334 – 35 (2013) enclosed in another email with the filename: "Blame_the_exurbs_not_the_suburbs_Explori.pdf." Energy Policy is a peer reviewed journal. Energy

Policy Guide for authors webpage p. *14 last accessed on March 18, 2024, at: https://www.sciencedirect.com/journal/energy-policy/publish/guide-for-authors and in another email with the filename: "Guide for authors - Energy Policy.pdf." The transport-related direct emissions of rural residents are three times those in the inner city, and 1.5 times those in the suburbs. *Id.* p. 1335.

It is better to focus these housing types in cities, towns, and urban growth areas where the public facilities and services they require can be more affordably provided. This is important because if the planned, but not economically feasible, capacity for affordable housing in rural areas is counted towards the affordable housing need then the County and its cities and towns will not have the capacity for the affordable housing the county needs.

## Comments on Element 2: Urban, Open Space, and Land Use.

Futurewise supports the existing and proposed policies in this chapter.

We strongly support policy 2A-1.4 calling for the engagement of federally recognized Indian tribes before expanding urban growth areas.

We also support policies increasing development capacity in urban growth areas where sewer is available. This will increase housing affordability. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023).

## Comments on Element 3 the Rural Element.

**Rural Water on pages 82 and 83 of the Redline Version.**

While we recognize that this section is primarily a historical narrative, RCW 36.70A.070(1) provides that "[t]he land use element shall provide for protection of the quality and quantity of groundwater used for public water supplies." RCW 36.70A.070(5)(c)(iv) provides that "[t]he rural element shall include measures that apply to rural development and protect the rural character of the area, as established by the county, by: … Protecting surface water and groundwater resources." The Growth Management Act (GMA) in RCW 36.70A.590 also provides that:

> For the purposes of complying with the requirements of this chapter [the GMA] relating to surface and groundwater resources, a county or city may rely on or refer to applicable minimum instream flow rules adopted by the department of ecology under chapters 90.22 and 90.54 RCW. Development regulations must ensure that proposed water uses are consistent with RCW 90.44.050 and with applicable rules adopted pursuant to chapters 90.22 and 90.54 RCW when making decisions under RCW 19.27.097 and 58.17.110.

These policies and development regulations are required because overuse of surface or ground water often harms senior water rights holders and fish and wildlife habitat and consequently tribal treaty rights. Ecology has documented that lower streamflows in parts of the Skagit basin "have impacted important resources for fisheries and general stream health." State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023) last accessed on March 12, 2025, at: https://apps.ecology.wa.gov/publications/documents/2011003.pdf and enclosed in another email with the filename: "2011003.pdf."

> The reduced availability of surface water can have a negative impact on all stages of the salmonid life cycle. Water quality (e.g. temperature, flows) is affected by decreased inputs from groundwater. Lessened groundwater input concentrates pollutants, increases temperature, and diminish[es] dissolved oxygen. This is detrimental to salmonid migration, spawning and rearing.

*2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40 last accessed on March 12, 2025, at: https://nwifc.org/publications/state-of-our-watersheds/ and cited excerpts in another email with the filename: "state-of-our-watersheds-sow-2020-final-web excerpts.pdf."

Changes in Skagit County will directly impact the level of development that can be accommodated outside of urban growth areas. Most water in the Skagit "watershed is already legally spoken for or 'appropriated.'" State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023). Water is already limited and changes in hydrology will make water scarcer in the summer in the future. *Id.*; *Skagit River Basin Climate Science Report: Executive Summary* p. 9 last accessed on March 12, 2025, at: https://www.skagitcounty.net/EnvisionSkagit/Documents/ClimateChange/executive_summary.pdf and enclosed in another email with the filename: "executive_summary.pdf." Winter flooding will increase. *Skagit River Basin Climate Science Report: Executive Summary* pp. 9 – 11. These and other changes will make accommodating rural growth more difficult, more costly, and will adversely affect water available for salmon, wildlife, and irrigation. We recommend the County adopt policies consistent with RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590 to protect water quality and quantity.

**Goal 3A-2 revision on page 87 of the redline version.**

Goal 3A-2 is proposed to be amended to provide for a variety of "affordable housing types." The State of Washington Department of Commerce has documented that to provide housing affordable to families and individuals earning 80 percent or less of the county adjusted median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023). Low-rise multifamily and mid-rise multifamily housing are urban uses and require sewers and other urban services. RCW 36.70A.070(5) prohibits urban uses outside urban growth areas. Even if these housing types were allowed, it would not be affordable to provide the public facilities and services they need. A peer-reviewed study shows that "the cost of providing public services in rural areas is 39% greater than in cities." Ron Shani, Yaniv Reingewertz & Eran Vigoda-Gadot, *Far from-sight and expensive: additional costs of public services in rural areas* Local Government Studies p. 1, pp. 11 – 12 (22 Jun 2024), DOI: 10.1080/03003930.2024.2369784. The Appendix C, the Transportation Element Technical Appendix on page 572, shows a transportation capital projects deficit of $150 million.

There is also unlikely to be water available to serve these developments in the rural area. *2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40, p. 348. It is better to focus these housing types in cities, towns, and urban growth areas where the public facilities and services they require can be more affordably provided. This is important because if the planned, but not economically feasible, capacity for affordable housing in rural areas is counted towards the affordable housing need then the County and its cities and towns will not have the capacity for the affordable housing the county needs.

## Comments on Element 4: Natural Resource Lands.

**Policy 4A-1.1 on page 130 of the redline version.**

We appreciate that Policy 4A-1.1 is proposed to be amended to provide the "County may also consider unique farmlands soils and farmlands of statewide importance" in designating agricultural lands of long-term commercial significance. WAC 365-190-050(3)(c)(i) provides that in designating agricultural lands of long-term commercial significance "counties and cities should consider …: (i) The classification of prime and unique farmland soils, and farmlands of statewide importance, as mapped by the Natural Resources Conservation Service[.]" Consistent with WAC 365-190-050(3)(c) "should" should be substituted for "may" in Policy 4A-1.1.

We also support Policy 4A-1.1.(e) which requires that individual dedesignation requests must be deferred until a comprehensive countywide analysis is conducted. This policy is required by WAC 365-190-040 and WAC 365-190-050. These changes will better protect working farms and the county economy.

**Adopt a policy prohibiting the transfer of agricultural water for rural residential development.**

As was documented above, water is very limited in Skagit County. There will be pressure to transfer agricultural water to rural residential uses. Once this water is transferred, it will be lost to agriculture. While Skagit County cannot directly regulate water right transfers, it can use its zoning authority and subdivision authority to prohibit the use of agricultural water to mitigate rural residential and commercial developments. We urge the county to adopt a policy and regulation to prohibit the use of agricultural water to mitigate rural residential and commercial developments. It will aid the agricultural industry and the county economy long-term.

**Policy 4B-1.1 and Policy 4B-3.3 on pages 139 through 140 and page 144 of the redline version.**

We support the revisions to Policy 4B-1.1(e) and Policy 4B-3.3 so the policies comply with the amendments to WAC 365-190-040 and WAC 365-190-060. These amendments will help to conserve forest lands and forest industry jobs.

**New Policy on the Wildland Urban Interface and Policy 4B-2.11 on page 144 of the redline version.**

Wildfire is a significant and increasing risk in Skagit County. *Skagit County Community Wildfire Protection Plan 2019 Update* pp. 20 – 21 last accessed on March 12, 2025, at: https://skagitcounty.net/EmergencyManagement/Documents/Skagit%20County%20CWPP.pdf and enclosed in another email with the filename: "Skagit County CWPP.pdf." The Growth Management Act in RCW 36.70A.070(1) provides in part that:

> The land use element must reduce and mitigate the risk to lives and property posed by wildfires by using land use planning tools, which may include, but are not limited to, adoption of portions or all of the wildland urban interface code developed by the international code council or developing building and maintenance standards consistent with the firewise USA program or similar program designed to reduce wildfire risk, reducing wildfire risks to residential development in high risk areas and the wildland urban interface area, separating human development from wildfire prone landscapes, and protecting existing residential development and infrastructure through community wildfire preparedness and fire adaptation measures.

While we appreciate and support Policy 4B-2.11, RCW 36.70A.070(1) requires more. We recommend that development be directed away from the WUI. We also recommend the adoption and enforcement of the Firewise Principles which recommend "'two ways out' of the neighborhood for safe evacuation during a wildfire" along with other important measures to protect people and property. *Firewise USA® Program* p. *9 accessed on March 12, 2025, at: https://www.nfpa.org/en/education-and-research/wildfire/firewise-usa/firewise-usa-resources. We recommend that the following new policy be adopted as part of the Land Use Element or the Climate Change Element:

Policy X: Direct non-resource land uses and development away from the Wildland-Urban Interface (WUI), encourage the implementation of Firewise Principles for existing developments and uses, and require implementation of Firewise Principles for new developments and uses.

**Goal 4D-1 on page 153 of the redline version.**

We support the revisions to Goal 4D-1 to comply with WAC 365-190-040 and WAC 365-190-070. These changes will aid the construction industry and the county economy.

## Comments on Element 5: Environment.

**Designate and protect rare plant categories and listings from the Department of Natural Resources, Natural Heritage Program as the GMA requires. See pages 183 to 184 of the redline version.**

The "GMA requires the County to protect the functions and values of Critical Area Ecosystems." *Whidbey Environmental Action Network v. Island Cnty.*, Western Washington Region Growth Management Hearings Board (WWRGMHB) Case No. 14-2-0009, Final Decision and Order (June 24, 2015), at 21 of 49 last accessed on March 12, 2025, at: https://eluho2022.my.site.com/casemanager/s/case/50082000001BDWk/detail. This includes the "high quality ecosystem and rare plant categories and listings from the department of natural resources, natural heritage program." *Id.* at 32 – 35 of 49, see also WAC 365-190-040(4)(b). The *2024 Washington Vascular Plant Species of Conservation Concern* identifies rare plants in Skagit County. Jesse E. D. Miller, Sienna Wessel, and Walter Fertig, *2024 Washington Vascular Plant Species of Conservation Concern* pp. 8 – 44 (Washington Natural Heritage Program, Natural Heritage Report 2024-07: July 3, 2024) last accessed on March 12, 2025, at: https://www.dnr.wa.gov/publications/amp_nh_vascular_ets.pdf and enclosed in another email with the filename: "amp_nh_vascular_ets.pdf." These plants and ecosystems need to be designated as fish and wildlife habitats and conserved as the Growth Management Act requires.

**Do not change the "shalls" to "shoulds" in Policy 5A-5.1, Policy 5A-5.2, and Policy 5A-5.3 on pages 181 through 188 of the redline version.**

Policy 5A-5.1 is proposed to be amended to add that: "Critical areas shall be designated and protected to maintain no net loss of wetland functions and value." We strongly support this addition. It is also consistent with the Growth Management Act (GMA) which "requires that the regulations for critical areas must protect the 'functions and values' of those designated areas. [RCW 36.70A.172(1).] This means all functions and values." *Whidbey Env't Action Network v. Island Cnty.*, 122 Wn. App. 156, 174–75, 93 P.3d 885, 894 (2004). However, elsewhere in this policy the "shalls" are changed to "should." Shoulds are not consistent with the Growth Management Act requirement and should not be substituted for "shalls."

"Shoulds" are not consistent with the Growth Management Act requirement and also should not be substituted for "shalls in Policy 5A-5.2 and Policy 5A-5.3.

**Do not change "shall" to "should" in policy 5A-5.8 on page 191 of the of the redline version.**

For the same reason, do not change "shall" to "should" in policy 5A-5.8.

**Futurewise supports Goal 5B and its associated policies to address climate hazards and to reduced greenhouse gas pollution on pages 191 and 192 of the redline version.**

We support Goal 5B and its associated policies to address climate hazards and to reduced greenhouse gas pollution. This goal and the policies are required by RCW 36.70A.070(9). We have additional comments on the topic of climate below.

## Comments on Element 7: Housing.

**RCW 36.70A.070(2)(c) requires the housing element to identify sufficient land for affordable housing including STEP housing.**

RCW 36.70A.070(2)(c) requires the County housing element, and the housing elements of the cities, to identify "sufficient capacity of land for housing including, but not limited to, government-assisted housing, housing for

moderate, low, very low, and extremely low-income households, manufactured housing, multifamily housing, group homes, foster care facilities, emergency housing, emergency shelters, [and] permanent supportive housing ….” Using the State of Washington Department of Commerce Housing for All Planning Tool (HAPT) methodology, the population targets are converted to needed housing units by income category and beds for permanent supportive housing. The County must then identify the land with the zoning capacities needed to accommodate these housing units by income band or category. We were unable to find the documentation of sufficient capacity in the housing element. It may be in Appendix E Housing Needs Assessment, but we were unable to find this appendix. If it is in the appendix, that is fine. If not, the housing element should document that the County has sufficient capacity for affordable housing types and indoor emergency shelters, transitional housing, emergency housing, and permanent supportive housing (STEP housing).

**Affordable housing should be focused in cities, towns, and urban growth areas.**

The Housing Element on page 226 states: “Skagit County plans to accommodate new housing within its existing land use designations by focusing on limited areas of more intense rural development, specifically the rural village residential zones. The rural village residential zone, which are part of the County’s land use and zoning regulations, has been revised to allow for new housing types that are affordable to moderate- and low-income residents.” The State of Washington Department of Commerce has documented that to provide housing affordable to families and individuals earning 80 percent or less of the area median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023). Middle housing is not affordable to families earning 80 percent or less of the area median income. In addition, as was documented above there is a significant water shortage and placing affordable housing in rural areas increases transportation costs for families and transportation and public service costs for the County. We do not believe this strategy will work and should be discarded. Instead, affordable housing should be focused in cities, towns, and urban growth areas where affordable housing types and densities can actually be constructed.

Similarly, the *Washington Farmworker Housing Needs Assessment* recommended that to provide more affordable farm worker housing cities should be encouraged “to increase zoning and infrastructure investments for multi-family housing within urban growth areas.” BERK Consulting, *Washington Farmworker Housing Needs Assessment* p. 184 (The Washington State Department of Commerce: Jan. 2022) last accessed on March 12, 2025, at: https://www.commerce.wa.gov/wp-content/uploads/2022/04/CommerceReports_CSHD_FarmworkerHousing_Final_4.26.22.pdf and enclosed in a separate email with the filename: “CommerceReports_CSHD_FarmworkerHousing_Final_4.26.22.pdf.” The assessment also recommended that cities remove “barriers to the development of rental housing.” *Id*. “Encouraging cities to identify and remove barriers to rental housing development is an important strategy to address housing needs for farmworkers.” *Id*.

**Comments on Element 12: Climate and Resiliency**

Overall, Futurewise strongly supports the Climate and Resiliency element. We do have some suggestions provided below.

**Futurewise supports Goal 12J on page 396 of the redline version.**

Goal 12J on page 396 calls for integrating climate change projections into land use, infrastructure planning, and development regulations, ensuring long-term safety from sea-level rise, flooding, wildfires, and other climate-exacerbated hazards while protecting natural ecosystems. We support this goal and its associated policies. The deadline for Skagit County to update its development regulations is December 31, 2025. RCW 36.70A.130(1)(a), (5)(b).

**Please clarify policy 12J-1.8 on page 397 of the redline version.**

Futurewise strongly supports policy 12J-1.8. It intends to cover sea level rise which we support. On addition, as the seas are rising and storms become more intense, coastal rivers and streams will be subject to more channel migration. We recommend that policy 12J-1.8 be clarified as follows with our additions underlined.

policy 12J-1.8 All residential and commercial development and accessory uses, port and water related industrial facilities, equipment, and works should be located, designed, and maintained to avoid, or if necessary, withstand 100-year flood frequency flooding, and/or storm tides or surges, channel migration, and tides and water levels likely over the next 100 years without becoming hazards and without the placement of flood hazard reduction measures or other hard structural shoreline stabilization. Incorporate climate projections to account for anticipated changes in flood frequency, storm intensity, and sea-level rise. Ensure that designs and maintenance plans adapt to these projections to enhance long-term resilience against evolving climate impacts.

**Include a policy including the California Coastal Commission recommendations for adapting to sea level rise.**

In addition, we suggest that the County incorporate a policy on adapting to sea level rise and its adverse impacts modeled on the process California's coastal counties and cities use. *California Coastal Commission Sea Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits* pp. 97 – 140 (2024 Update: Nov. 13, 2024) last accessed on March 13, 2025, at: https://www.coastal.ca.gov/climate/slrguidance.html and enclosed in another email with the filename: "2024AdoptedSLRPolicyGuidanceUpdate.pdf." The process includes seven steps and we recommend a policy incorporating these steps be adopted.

1. Initiate planning effort, identify key goals and stakeholders, and engage with environmental justice communities and Indian tribes.
2. Determine the range of sea level rise scenarios relevant to Skagit County's marine shorelines. The California Coastal Commission recommends analyzing intermediate and long-term projections because "development constructed today is likely to remain in place over the next 75-100 years, or longer." *Id*. p. 109.
3. Identify potential physical sea level rise impacts in Skagit County's unincorporated marine shorelines.
4. Assess potential risks from sea level rise to coastal resources, development, and environmental justice communities in unincorporated Skagit County.
5. Identify equitable adaptation measures. The *California Coastal Commission Sea Level Rise Policy Guidance* includes recommended adaptation strategies the County can consider. *Id.* pp. 179 – 226.
6. Adopt an updated comprehensive plan and development regulations incorporating the selected adaptation strategies.
7. Implement the updated comprehensive plan and development regulations and monitor and revise as needed. Because the scientific data on sea level rise is evolving, the California Coastal Commission recommends that "[i]t will likely be important to modify maps of current and future hazard areas on a five- to ten-year basis or as necessary to allow for the incorporation of new sea level rise science, monitoring results, and information on coastal conditions." *Id*. p. 139.

**The greenhouse gas emissions reduction subelement must quantify whether the element will reduce greenhouse gas emissions and reduce per capita vehicle miles traveled.**

RCW 36.70A.070(9)(d)(i) provides:

> (d)(i) The greenhouse gas emissions reduction subelement of the comprehensive plan, and its related development regulations, must identify the actions the jurisdiction will take during the planning cycle consistent with the guidelines published by the department pursuant to RCW 70A.45.120 that will:

> (A) Result in reductions in overall greenhouse gas emissions generated by transportation and land use within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; (B) Result in reductions in per capita vehicle miles traveled within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; and
>
> (C) Prioritize reductions that benefit overburdened communities in order to maximize the cobenefits of reduced air pollution and environmental justice.

Please note that subelement and its related development regulations "must identify the actions the jurisdiction will take … that will: … [r]esult in reductions in overall greenhouse gas emissions …. Similarly, the subelement and its related development regulations "must identify the actions the jurisdiction will take … that will: … [r]esult in reductions in per capita vehicle miles traveled …." The element itself "must identify" the reductions.

Further, RCW 36.70A.070 provides that "[t]he plan shall be an internally consistent document and all elements shall be consistent with the future land use map." So these calculations must take into the planned growth over the next 20 years.

While we appreciate the three scenarios described on page 399, the reductions are not quantified and it is not clear if they take into account the proposed growth allocations. This information is needed to document compliance with RCW 36.70A.070(9)(d)(i). It would also be helpful to know if these reductions will over time put the County on a path to address the State's overall target of net-zero emissions by 2050. If this information is in an appendix that will be included with the comprehensive plan in the future that would be sufficient to document compliance.

**The Growth Management Act requires water quantity policies and regulations as part of the 2025 comprehensive plan and development regulations update.**

As was documented above, RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590 require Skagit County to adopt policies and regulations to protect water quality and quantity. These policies and development regulations are required because overuse of surface or ground water often harms senior water rights holders and fish and wildlife habitat and consequently tribal treaty rights. Most water in the Skagit "watershed is already legally spoken for or 'appropriated.'" State of Washington Department of Ecology Water Resources Program, WRIAs 3 & 4 Skagit Watershed Water Availability p. 3 (Publication 20-11-003: May 2023). The Washington State Department of Ecology has summarized water availability in the Skagit basin:

> Increasing demands for water over time, from ongoing population growth, agriculture, and other consumptive uses as well as associated land use practices, have resulted in lower streamflows in some areas. These decreases have impacted important resources for fisheries and general stream health. The impacts of climate change in WRIAs 3 and 4 are also yet to be fully realized. However, it is apparent that water availability is limited throughout the Skagit Watershed.

State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023). "The reduced availability of surface water can have a negative impact on all stages of the salmonid life cycle." *2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40.

To address current and future water shortages and to comply with RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590, the comprehensive plan and development regulations should adopt policies and regulations to ensure development complies with the water codes and the applicable instream flow rules.

RCW 36.70A.590 requires the development regulations to ensure that proposed water uses are consistent with RCW 90.44.050. When the County determines if a development, land division, or use qualifies for a residential

permit-exempt well under RCW 90.44.050, the development regulations must require that the County limit the water used by the proposal and the parent parcel that existed in 2002, any lots created from the parent parcel, and any development built on or after 2002 on those lots to the no more than the 5,000 gallons a day allowed by RCW 90.44.050. Under the State Supreme Court's *Campbell and Gwinn* decision, each lot is entitled to one 5,000 gallon per day permit exempt withdrawal for single or group domestic uses under RCW 90.44.050. *State Dep't of Ecology v. Campbell & Gwinn, L.L.C.*, 146 Wn.2d 1, 14, 43 P.3d 4, 110 (2002). A "developer may not claim multiple exemptions for the homeowners." *Id*. So each lot that existed in 2002, the year the *Campbell and Gwinn* decision was decided, is entitled to one permit-exempt withdrawal under RCW 90.44.050 and is limited to 5,000 gallons per day.

As lots are subdivided or developed over time, part or all of the permit exempt withdrawals are used by the lots created or the development authorized. To qualify for a permit-exempt groundwater withdrawal authorized under RCW 90.44.050, the lot must have some remaining water from the parent parcel's single 5,000 gallon per day permit exempt withdrawal for single or group domestic uses.

Therefore, the required regulations can only authorize the use of a permit exempt-well for single or group domestic uses if the water use allowed under the permit-exemption does not exceed the 5,000 gallons a day allowed by RCW 90.44.050 including the parent parcel that existed in 2002, any lots created from the parent parcel, and any development built on or after 2002. To comply with RCW 36.70A.590, the proposed development regulations must include this important limitation.

Thank you for considering our comments. If you require additional information, please contact me at telephone (206) 343-0681 or email: tim@futurewise.org.

We will be providing the supporting documents in several emails.

Tim Trohimovich (he/him)
Director of Planning & Law

Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org
**futurewise.org**
connect:

ScienceDirect

Energy Policy

Supports open access

15.2
CiteScore

9
Impact Factor

Submit your article

Guide for authors

Menu

Search in this journal

# Guide for authors

Special issue proposals

Your Paper Your Way

**Introduction**

- Types of papers
- Contact details for submission

**Before you begin**

- Ethics in publishing
- Declaration of competing interest
- Declaration of generative AI in scientific writing
- Submission declaration and verification
- Preprint posting on SSRN
- Use of inclusive language
- Reporting sex- and gender-based analyses
- Author contributions
- Changes to authorship
- Copyright
- Role of the funding source
- Open access
- Submission
- Submit your article
- Referees

**Preparation**

- Queries

FEEDBACK

- New submissions
- Peer review
- Revised submissions
- Some general guidance about writing for *Energy Policy*
- Article structure
- Essential title page information
- Highlights
- Abstract
- Keywords
- Tables
- References
- Video
- Data visualization
- Supplementary Material
- Research data
- Research Elements

**After acceptance**

- Online proof correction
- Offprints
- Additional information

**Author inquiries**

Compare journals ↗

## Special issue proposals

Prospective guest editor(s) should submit written proposals that incorporate the rationale for the special issue topic, positions it in the literature, and include some illustrative topics and proposed contributors. Guest Editors should complete and submit this Special Issue Proposal template to be considered for publication in the Journal.

## Your Paper Your Way

We now differentiate between the requirements for new and revised submissions. You may choose to submit your manuscript as a single Word or PDF file to be used in the refereeing process. Only when your paper is at the revision stage, will you be

requested to put your paper in to a 'correct format' for acceptance and provide the items required for the publication of your article.
**To find out more, please visit the Preparation section below.**

## Introduction

*Energy Policy* is an international peer-reviewed journal addressing the policy implications of energy supply and use from their economic, social, planning and environmental aspects. Papers may cover global, regional, national, or even local topics that are of wider policy significance, and of interest to international agencies, governments, public and private sector entities, local communities and non-governmental organisations. Within this broad spectrum, topics of particular interest include energy and environmental regulation, energy supply security, the quality and efficiency of energy services, the effectiveness of market-based approaches and/or governmental interventions, technological innovation and diffusion, and voluntary initiatives where the broader policy implications can be recognised. Policy prescriptions are required to be supported by rigorous analysis and balanced appraisal.
Given the aims and scope of Energy Policy, all submitted papers should explicitly address policy issues involving energy supply or use.

### Types of papers

*Energy Policy* considers the following types of papers for publication:

- **Full Length Articles** normally 4,500-8,000 words. The editors will consider papers of exceptional merit up to 10,000 words. Authors submitting a Full Length Article of more than 8,000 words must submit a brief statement in their cover letter, explaining the exceptional merit of the submission to energy policy.
- **Research Notes** less than 4,500 words. Research Notes should present fully realized research but are shorter in length than Full Length Articles.
- **Invited Review Articles** - by invitation only; maximum of 10,000 words. The journal occasionally publishes Invited Review Articles that are reviews of the literature. It does not publish reviews of the energy situation in a region, country or group of countries as Invited Review Articles. Invited Review Articles are typically initiated by one of the editors inviting a senior person to provide such an article. The editors will consider proposals for outstanding articles that review the literature and well

capture the policy issues, but such proposals are typically expected to be received from individuals with senior standing in the profession.

The journal may also consider the following items.

- **Policy Perspectives** up to 6,000 words. A Policy Perspective is a relatively short contribution that offers judgment on an energy policy issue-normally without original research. Nonetheless, a Policy Perspective should present well-reasoned and fully considered thinking to reach conclusions that are germane to important policy issues in energy supply or use.
- **Comment** up to 2,000 words. A Comment may critique a recently published paper in the journal. The author(s) of the original paper will be invited to write a reply, so that the Comment and the Reply can be published at the same time.

**Please Note**: the word count for all article types does not include the abstract, figures, tables, appendices, footnotes, funding, acknowledgements, and references.

The entire submission process is handled online via: https://www.editorialmanager.com/JEPO/default.aspx. Authors should select the appropriate 'article type' from the drop down menu.

For all article types you will be required to select a category, for guidance and an explanation of each category can be found here.

Editors evaluate all manuscripts first. Manuscripts rejected at this stage are either insufficiently original, or have scientific flaws, poor grammar/English language, or are outside the aims and scope of the journal. Failure to follow the Guide for Authors and the article structure will result in the manuscript being returned to the author.

Manuscripts that meet the minimum criteria are passed to two subject matter experts for in-depth review and we provide our reviewers with a template to assist in their review, click here for template. The Referees advise the Editors. The Editors are responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final. The Editors will not consider papers previously rejected by the Journal.

Revising authors are required to submit the revised version of their manuscript within 30 days. Authors will receive a reminder prior to the end of this period and a final

reminder 7 days after. Without response, manuscripts will be withdrawn after 15 days.

**Contact details for submission**

Enquiries for *Energy Policy* can be sent to: energypolicy@elsevier.com

## Before you begin

**Ethics in publishing**

Please see our information on Ethics in publishing.

**Declaration of competing interest**

Corresponding authors, on behalf of all the authors of a submission, must disclose any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work. Examples of potential conflicts of interest include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding. All authors, including those *without* competing interests to declare, should provide the relevant information to the corresponding author (which, where relevant, may specify they have nothing to declare). Corresponding authors should then use this tool to create a shared statement and upload to the submission system at the Attach Files step. **Please do not convert the .docx template to another file type. Author signatures are not required.**

**Declaration of generative AI in scientific writing**

The below guidance only refers to the writing process, and not to the use of AI tools to analyse and draw insights from data as part of the research process.

Where authors use generative artificial intelligence (AI) and AI-assisted technologies in the writing process, authors should only use these technologies to improve readability and language. Applying the technology should be done with human oversight and control, and authors should carefully review and edit the result, as AI can generate authoritative-sounding output that can be incorrect, incomplete or biased. AI and AI-assisted technologies should not be listed as an author or co-

author, or be cited as an author. Authorship implies responsibilities and tasks that can only be attributed to and performed by humans, as outlined in Elsevier's AI policy for authors.

Authors should disclose in their manuscript the use of AI and AI-assisted technologies in the writing process by following the instructions below. A statement will appear in the published work. Please note that authors are ultimately responsible and accountable for the contents of the work.

***Disclosure instructions***
Authors must disclose the use of generative AI and AI-assisted technologies in the writing process by adding a statement at the end of their manuscript in the core manuscript file, before the References list. The statement should be placed in a new section entitled 'Declaration of Generative AI and AI-assisted technologies in the writing process'.

*Statement: During the preparation of this work the author(s) used [NAME TOOL / SERVICE] in order to [REASON]. After using this tool/service, the author(s) reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.*

This declaration does not apply to the use of basic tools for checking grammar, spelling, references etc. If there is nothing to disclose, there is no need to add a statement.

**Submission declaration and verification**

Submission of an article implies that the work described has not been published previously (except in the form of an abstract, a published lecture or academic thesis, see 'Multiple, redundant or concurrent publication' for more information), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder. To verify compliance, your article may be checked by Crossref Similarity Check and other originality or duplicate checking software.

***Preprints***

Please note that preprints can be shared anywhere at any time, in line with Elsevier's sharing policy. Sharing your preprints e.g. on a preprint server will not count as prior publication (see 'Multiple, redundant or concurrent publication' for more information).

**Preprint posting on SSRN**

In support of Open Science, this journal offers its authors a free preprint posting service. Preprints provide early registration and dissemination of your research, which facilitates early citations and collaboration.

During submission to Editorial Manager, you can choose to release your manuscript publicly as a preprint on the preprint server SSRN once it enters peer-review with the journal. Your choice will have no effect on the editorial process or outcome with the journal. Please note that the corresponding author is expected to seek approval from all co-authors before agreeing to release the manuscript publicly on SSRN.

You will be notified via email when your preprint is posted online and a Digital Object Identifier (DOI) is assigned. Your preprint will remain globally available free to read whether the journal accepts or rejects your manuscript.

For more information about posting to SSRN, please consult the SSRN Terms of Use and FAQs.

**Use of inclusive language**

Inclusive language acknowledges diversity, conveys respect to all people, is sensitive to differences, and promotes equal opportunities. Content should make no assumptions about the beliefs or commitments of any reader; contain nothing which might imply that one individual is superior to another on the grounds of age, gender, race, ethnicity, culture, sexual orientation, disability or health condition; and use inclusive language throughout. Authors should ensure that writing is free from bias, stereotypes, slang, reference to dominant culture and/or cultural assumptions. We advise to seek gender neutrality by using plural nouns ("clinicians, patients/clients") as default/wherever possible to avoid using "he, she," or "he/she." We recommend avoiding the use of descriptors that refer to personal attributes such as age, gender, race, ethnicity, culture, sexual orientation, disability or health condition unless they

are relevant and valid. When coding terminology is used, we recommend to avoid offensive or exclusionary terms such as "master", "slave", "blacklist" and "whitelist". We suggest using alternatives that are more appropriate and (self-) explanatory such as "primary", "secondary", "blocklist" and "allowlist". These guidelines are meant as a point of reference to help identify appropriate language but are by no means exhaustive or definitive.

**Reporting sex- and gender-based analyses**

***Reporting guidance***

For research involving or pertaining to humans, animals or eukaryotic cells, investigators should integrate sex and gender-based analyses (SGBA) into their research design according to funder/sponsor requirements and best practices within a field. Authors should address the sex and/or gender dimensions of their research in their article. In cases where they cannot, they should discuss this as a limitation to their research's generalizability. Importantly, authors should explicitly state what definitions of sex and/or gender they are applying to enhance the precision, rigor and reproducibility of their research and to avoid ambiguity or conflation of terms and the constructs to which they refer (see Definitions section below). Authors can refer to the Sex and Gender Equity in Research (SAGER) guidelines and the SAGER guidelines checklist. These offer systematic approaches to the use and editorial review of sex and gender information in study design, data analysis, outcome reporting and research interpretation - however, please note there is no single, universally agreed-upon set of guidelines for defining sex and gender.

***Definitions***

Sex generally refers to a set of biological attributes that are associated with physical and physiological features (e.g., chromosomal genotype, hormonal levels, internal and external anatomy). A binary sex categorization (male/female) is usually designated at birth (""sex assigned at birth""), most often based solely on the visible external anatomy of a newborn. Gender generally refers to socially constructed roles, behaviors, and identities of women, men and gender-diverse people that occur in a historical and cultural context and may vary across societies and over time. Gender influences how people view themselves and each other, how they behave and interact and how power is distributed in society. Sex and gender are often incorrectly portrayed as binary (female/male or woman/man) and unchanging whereas these constructs actually exist along a spectrum and include additional sex categorizations and gender identities such as people who are intersex/have differences of sex

development (DSD) or identify as non-binary. Moreover, the terms ""sex"" and ""gender"" can be ambiguous—thus it is important for authors to define the manner in which they are used. In addition to this definition guidance and the SAGER guidelines, the resources on this page offer further insight around sex and gender in research studies.

**Author contributions**

For transparency, we require corresponding authors to provide co-author contributions to the manuscript using the relevant CRediT roles. The CRediT taxonomy includes 14 different roles describing each contributor's specific contribution to the scholarly output. The roles are: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Visualization; Roles/Writing - original draft; and Writing - review & editing. Note that not all roles may apply to every manuscript, and authors may have contributed through multiple roles. More details and an example.

**Changes to authorship**

Authors are expected to consider carefully the list and order of authors **before** submitting their manuscript and provide the definitive list of authors at the time of the original submission. Any addition, deletion or rearrangement of author names in the authorship list should be made only **before** the manuscript has been accepted and only if approved by the journal Editor. To request such a change, the Editor must receive the following from the **corresponding author**: (a) the reason for the change in author list and (b) written confirmation (e-mail, letter) from all authors that they agree with the addition, removal or rearrangement. In the case of addition or removal of authors, this includes confirmation from the author being added or removed.
Only in exceptional circumstances will the Editor consider the addition, deletion or rearrangement of authors **after** the manuscript has been accepted. While the Editor considers the request, publication of the manuscript will be suspended. If the manuscript has already been published in an online issue, any requests approved by the Editor will result in a corrigendum.

***Article transfer service***
This journal uses the Elsevier Article Transfer Service to find the best home for your

manuscript. This means that if an editor feels your manuscript is more suitable for an alternative journal, you might be asked to consider transferring the manuscript to such a journal. The recommendation might be provided by a Journal Editor, a dedicated Scientific Managing Editor, a tool assisted recommendation, or a combination. If you agree, your manuscript will be transferred, though you will have the opportunity to make changes to the manuscript before the submission is complete. Please note that your manuscript will be independently reviewed by the new journal. More information.

**Copyright**

Upon acceptance of an article, authors will be asked to complete a 'Journal Publishing Agreement' (see more information on this). An e-mail will be sent to the corresponding author confirming receipt of the manuscript together with a 'Journal Publishing Agreement' form or a link to the online version of this agreement.

Subscribers may reproduce tables of contents or prepare lists of articles including abstracts for internal circulation within their institutions. Permission of the Publisher is required for resale or distribution outside the institution and for all other derivative works, including compilations and translations. If excerpts from other copyrighted works are included, the author(s) must obtain written permission from the copyright owners and credit the source(s) in the article. Elsevier has preprinted forms for use by authors in these cases.

For gold open access articles: Upon acceptance of an article, authors will be asked to complete a 'License Agreement' (more information). Permitted third party reuse of gold open access articles is determined by the author's choice of user license.

***Author rights***
As an author you (or your employer or institution) have certain rights to reuse your work. More information.

***Elsevier supports responsible sharing***
Find out how you can share your research published in Elsevier journals.

**Role of the funding source**

You are requested to identify who provided financial support for the conduct of the

research and/or preparation of the article and to briefly describe the role of the sponsor(s), if any, in study design; in the collection, analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication. If the funding source(s) had no such involvement, it is recommended to state this.

**Open access**

Please visit our Open Access page for more information about open access publishing in this journal.

***Elsevier Researcher Academy***
Researcher Academy is a free e-learning platform designed to support early and mid-career researchers throughout their research journey. The "Learn" environment at Researcher Academy offers several interactive modules, webinars, downloadable guides and resources to guide you through the process of writing for research and going through peer review. Feel free to use these free resources to improve your submission and navigate the publication process with ease.

***Language (usage and editing services)***
Please write your text in good English (American or British usage is accepted, but not a mixture of these). Authors who feel their English language manuscript may require editing to eliminate possible grammatical or spelling errors and to conform to correct scientific English may wish to use the Language Editing service available from Elsevier's Language Services.

**Submission**

Our online submission system guides you stepwise through the process of entering your article details and uploading your files. The system converts your article files to a single PDF file used in the peer-review process. Editable files (e.g., Word, LaTeX) are required to typeset your article for final publication. All correspondence, including notification of the Editor's decision and requests for revision, is sent by e-mail.

**Submit your article**

Please submit your article via https://www.editorialmanager.com/JEPO/default.aspx

### Referees

Please submit the names and institutional e-mail addresses of several potential referees. The best referees are those who do research that is closely related to your submission. The editors of *Energy Policy* are not generally available as reviewers and should not be recommended as such. Given the potential conflict of interest, people at the same institution(s) as the author(s) also should not be recommended as reviewers. Note that the editors retain the sole right to decide whether or not the suggested reviewers are used.

## Preparation

### Queries

For questions about the editorial process (including the status of manuscripts under review) or for technical support on submissions, please visit our Support Center.

**NEW SUBMISSIONS**

Submission to this journal proceeds totally online and you will be guided stepwise through the creation and uploading of your files. The system automatically converts your files to a single PDF file, which is used in the peer-review process.
As part of the Your Paper Your Way service, you may choose to submit your manuscript as a single file to be used in the refereeing process. This can be a PDF file or a Word document, in any format or lay-out that can be used by referees to evaluate your manuscript. It should contain high enough quality figures for refereeing. If you prefer to do so, you may still provide all or some of the source files at the initial submission. Please note that individual figure files larger than 10 MB must be uploaded separately.

***TECHNICAL SCREENING***
Before it is assigned to an editor, each new manuscript is screened by Elsevier's technical staff to assure that it complies with submission requirements. The technical expectations are:

1) The submission includes all the expected files, including Cover Letter, Highlights, Manuscript File, Tables (if needed), and Figures (if needed);
2) The manuscript file contains all of the following elements in this order: Title,

Authors, Affiliations, Abstract, Keywords, Main text, References, Appendix;
3) The authors listed on the manuscript match the list of authors specified in the submission;
4) 1-6 keywords are present in the manuscript file;
5) All headings and subheadings are numbered throughout and in the journal's style;
6) The first main heading is labelled 'Introduction' and the last main heading is labelled 'Conclusion and Policy Implications';
7) In text citations are provided in the journal's style (author + year);
8) The paper is formatted with double-line spacing;
9) All of the submission questions have been answered correctly;
10) The word count is below the maximum, and that the number matches the actual word count of the paper (according to the counting rules specified in the Guide for Authors);
11) 3-6 Reviewers are suggested, ideally with a doctoral degree, and none of them are at the same institution as any of the authors; and
12) The abstract is of no more than 200 words.

***References***

There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the article number or pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct.

***Formatting requirements***

There are no strict formatting requirements but all manuscripts must contain the essential elements needed to convey your manuscript, i.e. Highlights, Abstract, Keywords, Introduction, Methodology, Results, Conclusions and Policy Implications. Artwork and Tables with Captions.
If your article includes any Videos and/or other Supplementary material, this should be included in your initial submission for peer review purposes.
Divide the article into clearly defined sections. Request you to submit all equations and tables in editable format.

***Figures and tables embedded in text***

Please ensure the figures and the tables included in the single file are placed next to

the relevant text in the manuscript, rather than at the bottom or the top of the file. The corresponding caption should be placed directly below the figure or table.

**Peer review**

This journal operates a single anonymized review process. All contributions will be initially assessed by the editor for suitability for the journal. Papers deemed suitable are then typically sent to a minimum of two independent expert reviewers to assess the scientific quality of the paper. The Editor is responsible for the final decision regarding acceptance or rejection of articles. The Editor's decision is final. Editors are not involved in decisions about papers which they have written themselves or have been written by family members or colleagues or which relate to products or services in which the editor has an interest. Any such submission is subject to all of the journal's usual procedures, with peer review handled independently of the relevant editor and their research groups. More information on types of peer review.

**REVISED SUBMISSIONS**

**Some general guidance about writing for *Energy Policy***

*Energy Policy* is a multidisciplinary journal that focuses on policy issues involving energy supply and use, and it has a multidisciplinary readership that includes academics, policymakers and policy analysts. Writing for all these audiences simultaneously demands much from our authors and the editorial process.

The ideal Full-Length Article or Research Note would contain original research and be built around the policy issue on which it intends to shed light. The title should convey the policy relevance of the work rather than the technical content.The abstract also should contain at least one statement about the policy content.

***Use of word processing software***
Regardless of the file format of the original submission, at revision you must provide us with an editable file of the entire article. Keep the layout of the text as simple as possible. Most formatting codes will be removed and replaced on processing the article. The electronic text should be prepared in a way very similar to that of conventional manuscripts (see also the Guide to Publishing with Elsevier). See also the section on Electronic artwork.

To avoid unnecessary errors you are strongly advised to use the 'spell-check' and 'grammar-check' functions of your word processor.

### *LaTeX*

You are recommended to use the latest Elsevier article class to prepare your manuscript and BibTeX to generate your bibliography.
Our Guidelines has full details.

## Article structure

### *Subdivision-numbered sections*

Divide your article into clearly defined and numbered sections, 1., 2., etc. Subsections should be numbered 2.1 (then 2.1.1, 2.1.2, ...), 2.2, etc. (the abstract is not included in section numbering, and the introduction should be sufficiently concise to make subsections in it unnecessary). Use this numbering also for internal cross-referencing: do not just refer to 'the text'. Any subsection should be given a brief heading. Each heading (or subhead) and its number should appear on its own separate line.

### *Introduction*

This section is mandatory. In this required section, concisely state the objectives of the work, provide an adequate background to provide for the context of the work, and indicate the contribution of the work to the energy policy literature. In the introduction, discussions of the background and literature should be limited to that necessary for informing readers about the motivation and significance of a paper. The Introduction should be understandable by most *Energy Policy* readers - a multidisciplinary audience comprising academics, policymakers and policy analysts. As such, the section should be relatively free of disciplinary jargon and acronyms.

### *Background and Literature Review Sections*

If considered necessary, any background and literature review sections would be placed between the introduction and the methodology sections. Extensive discussions of background information and the literature do not belong in either the introduction or the methodology sections. In general, we recommend that authors who find it necessary to write background and literature review sections to consider minimizing them in length before submitting the final manuscript.

### *Methodology*

Provide sufficient detail to allow the work to be reproduced. Methods already

published should be indicated by a reference with only relevant modifications described.

***Data***
The data should be presented clearly and concisely.

***Data Availability***
Authors are encouraged to include a 'Data Availability' section in their manuscript which is visible in ALL reading formats and may refer to data hosted in ANY repository. It should be placed before the references to provide readers with information about where they can obtain the research data required to reproduce the work reported in the manuscript, and typically consists of a simple sentence giving the URL(s) of and citation(s) to the dataset(s). Full information can be found here.

***Results and Discussion***
This section (these sections) should describe the results and explore the significance of the results of the work. A combined Results and Discussion section is often appropriate. Although comparisons with the findings in previous research may be appropriate, avoid extensive citations and discussion of already published literature.

***Conclusions and Policy Implications***
This section is mandatory, and it should present the main conclusions and policy implications of the study. The section should be comprehensible without reading the entire paper, and it needs to be understood by a multidisciplinary audience that includes academics, policymakers and policy analysts. As such, the section should be relatively free of disciplinary jargon and acronyms. Given the aims and scope of *Energy Policy*, it is essential that all manuscripts provide a discussion of the implications for policy.

***Appendices***
If there is more than one appendix, they should be identified as A, B, etc. Formulae and equations in appendices should be given separate numbering: Eq. (A.1), Eq. (A.2), etc.; in a subsequent appendix, Eq. (B.1) and so on. Similarly for tables and figures: Table A.1; Fig. A.1, etc.

**Essential title page information**

- ***Title.*** Concise and informative. Titles are often used in information-retrieval

systems. Avoid abbreviations and formulae where possible.

• ***Author names and affiliations.*** Please clearly indicate the given name(s) and family name(s) of each author and check that all names are accurately spelled. You can add your name between parentheses in your own script behind the English transliteration. Present the authors' affiliation addresses (where the actual work was done) below the names. Indicate all affiliations with a lower-case superscript letter immediately after the author's name and in front of the appropriate address. Provide the full postal address of each affiliation, including the country name and, if available, the e-mail address of each author.

• ***Corresponding author.*** Clearly indicate who will handle correspondence at all stages of refereeing and publication, also post-publication. This responsibility includes answering any future queries about Methodology and Materials. **Ensure that the e-mail address is given and that contact details are kept up to date by the corresponding author.**

• ***Present/permanent address.*** If an author has moved since the work described in the article was done, or was visiting at the time, a 'Present address' (or 'Permanent address') may be indicated as a footnote to that author's name. The address at which the author actually did the work must be retained as the main, affiliation address. Superscript Arabic numerals are used for such footnotes.

**Highlights**

Highlights are mandatory for this journal as they help increase the discoverability of your article via search engines. They consist of a short collection of bullet points that capture the novel results of your research as well as new methods that were used during the study (if any). Please have a look at the example Highlights.

Highlights should be submitted in a separate editable file in the online submission system. Please use 'Highlights' in the file name and include 3 to 5 bullet points (maximum 85 characters, including spaces, per bullet point).

**Abstract**

A concise and factual abstract, of no more than 200 words that includes a statement about the policy content of the paper, is required. Please include the abstract in the manuscript file, right at the beginning of the document. The abstract should state briefly, the purpose of the research, the principal results and major conclusions. An abstract must be able to stand on its own. For this reason, references should be

avoided, but if essential, then cite the author(s) and year(s). Also, non-standard or uncommon abbreviations should be avoided, but if essential they must be defined at their first mention in the abstract itself.

**Keywords**

Immediately after the abstract, in the main manuscript file, provide a maximum of 6 keywords, using British spelling and avoiding general and plural terms and multiple concepts (avoid, for example, 'and', 'of'). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes.

***Abbreviations***
Define abbreviations that are not standard in this field in a footnote to be placed on the first page of the article. Such abbreviations that are unavoidable in the abstract must be defined at their first mention there, as well as in the footnote. Ensure consistency of abbreviations throughout the article.

***Acknowledgements***
Collate acknowledgements in a separate section at the end of the article before the references and do not, therefore, include them on the title page, as a footnote to the title or otherwise. List here those individuals who provided help during the research (e.g., providing language help, writing assistance or proof reading the article, etc.).

***Formatting of funding sources***
List funding sources in this standard way to facilitate compliance to funder's requirements:

Funding: This work was supported by the National Institutes of Health [grant numbers xxxx, yyyy]; the Bill & Melinda Gates Foundation, Seattle, WA [grant number zzzz]; and the United States Institutes of Peace [grant number aaaa].

It is not necessary to include detailed descriptions on the program or type of grants and awards. When funding is from a block grant or other resources available to a university, college, or other research institution, submit the name of the institute or organization that provided the funding.

If no funding has been provided for the research, it is recommended to include the following sentence:

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

***Units***

Follow internationally accepted rules and conventions: use the international system of units (SI). If other units are mentioned, please give their equivalent in SI.

***Math formulae***

Please submit math equations as editable text and not as images. Present simple formulae in line with normal text where possible and use the solidus (/) instead of a horizontal line for small fractional terms, e.g., X/Y. In principle, variables are to be presented in italics. Powers of e are often more conveniently denoted by exp. Number consecutively any equations that have to be displayed separately from the text (if referred to explicitly in the text).

***Footnotes***

Footnotes should be used sparingly. Number them consecutively throughout the article. Many word processors build footnotes into the text, and this feature may be used. Should this not be the case, indicate the position of footnotes in the text and present the footnotes themselves separately at the end of the article.

***Electronic artwork***

*General points*

- Make sure you use uniform lettering and sizing of your original artwork.
- Preferred fonts: Arial (or Helvetica), Times New Roman (or Times), Symbol, Courier.
- Number the illustrations according to their sequence in the text.
- Use a logical naming convention for your artwork files.
- Indicate per figure if it is a single, 1.5 or 2-column fitting image.
- For Word submissions only, you may still provide figures and their captions, and tables within a single file at the revision stage.
- Please note that individual figure files larger than 10 MB must be provided in separate source files.

A detailed guide on electronic artwork is available.

**You are urged to visit this site; some excerpts from the detailed information are given**

**here.**

*Formats*

Regardless of the application used, when your electronic artwork is finalized, please 'save as' or convert the images to one of the following formats (note the resolution requirements for line drawings, halftones, and line/halftone combinations given below):

EPS (or PDF): Vector drawings. Embed the font or save the text as 'graphics'.

TIFF (or JPG): Color or grayscale photographs (halftones): always use a minimum of 300 dpi.

TIFF (or JPG): Bitmapped line drawings: use a minimum of 1000 dpi.

TIFF (or JPG): Combinations bitmapped line/half-tone (color or grayscale): a minimum of 500 dpi is required.

**Please do not:**

• Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); the resolution is too low.

• Supply files that are too low in resolution.

• Submit graphics that are disproportionately large for the content.

***Color artwork***

Please make sure that artwork files are in an acceptable format (TIFF (or JPEG), EPS (or PDF) or MS Office files) and with the correct resolution. If, together with your accepted article, you submit usable color figures then Elsevier will ensure, at no additional charge, that these figures will appear in color online (e.g., ScienceDirect and other sites) in addition to color reproduction in print.

Further information on the preparation of electronic artwork.

***Figure captions***

Ensure that each illustration has a caption. A caption should comprise a brief title (**not** on the figure itself) and a description of the illustration. Keep text in the illustrations themselves to a minimum but explain all symbols and abbreviations used.

**Tables**

Please submit tables as editable text and not as images. Tables should be cited in the article, but loaded as a separate file under the category 'table'(it is not necessary to embed tables within the manuscript). Number tables consecutively in accordance with their appearance in the text and place any table notes below the table body. Be

sparing in the use of tables and ensure that the data presented in them do not duplicate results described elsewhere in the article. Please avoid using vertical rules.

## References

### *Citation in text*

Please ensure that every reference cited in the text is also present in the reference list (and vice versa). Any references cited in the abstract must be given in full. Unpublished results and personal communications are not recommended in the reference list, but may be mentioned in the text. If these references are included in the reference list they should follow the standard reference style of the journal and should include a substitution of the publication date with either 'Unpublished results' or 'Personal communication'. Citation of a reference as 'in press' implies that the item has been accepted for publication.

### *Web references*

As a minimum, the full URL should be given and the date when the reference was last accessed. Any further information, if known (DOI, author names, dates, reference to a source publication, etc.), should also be given. Web references can be listed separately (e.g., after the reference list) under a different heading if desired, or can be included in the reference list.

### *Data references*

This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. The [dataset] identifier will not appear in your published article.

### *Preprint references*

Where a preprint has subsequently become available as a peer-reviewed publication, the formal publication should be used as the reference. If there are preprints that are central to your work or that cover crucial developments in the topic, but are not yet formally published, these may be referenced. Preprints should be clearly marked as such, for example by including the word preprint, or the name of the preprint server, as part of the reference. The preprint DOI should also be provided.

***References in a special issue***

Please ensure that the words 'this issue' are added to any references in the list (and any citations in the text) to other articles in the same Special Issue.

***Reference management software***

Most Elsevier journals have their reference template available in many of the most popular reference management software products. These include all products that support Citation Style Language styles, such as Mendeley. Using citation plug-ins from these products, authors only need to select the appropriate journal template when preparing their article, after which citations and bibliographies will be automatically formatted in the journal's style. If no template is yet available for this journal, please follow the format of the sample references and citations as shown in this Guide. If you use reference management software, please ensure that you remove all field codes before submitting the electronic manuscript.
More information on how to remove field codes from different reference management software

.

***Reference formatting***

There are no strict requirements on reference formatting at submission. References can be in any style or format as long as the style is consistent. Where applicable, author(s) name(s), journal title/book title, chapter title/article title, year of publication, volume number/book chapter and the article number or pagination must be present. Use of DOI is highly encouraged. The reference style used by the journal will be applied to the accepted article by Elsevier at the proof stage. Note that missing data will be highlighted at proof stage for the author to correct. If you do wish to format the references yourself they should be arranged according to the following examples:

***Reference style***

*Text:* All citations in the text should refer to:
1. *Single author:* the author's name (without initials, unless there is ambiguity) and the year of publication;
2. *Two authors:* both authors' names and the year of publication;
3. *Three or more authors:* first author's name followed by 'et al.' and the year of publication.

Citations may be made directly (or parenthetically). Groups of references can be listed either first alphabetically, then chronologically, or vice versa.

Examples: 'as demonstrated (Allan, 2000a, 2000b, 1999; Allan and Jones, 1999).... Or, as demonstrated (Jones, 1999; Allan, 2000)... Kramer et al. (2010) have recently shown ...'

*List:* References should be arranged first alphabetically and then further sorted chronologically if necessary. More than one reference from the same author(s) in the same year must be identified by the letters 'a', 'b', 'c', etc., placed after the year of publication.

*Examples:*

Reference to a journal publication:

Van der Geer, J., Hanraads, J.A.J., Lupton, R.A., 2010. The art of writing a scientific article. J. Sci. Commun. 163, 51–59. https://doi.org/10.1016/j.Sc.2010.00372.

Reference to a journal publication with an article number:

Van der Geer, J., Hanraads, J.A.J., Lupton, R.A., 2018. The art of writing a scientific article. Heliyon. 19, e00205. https://doi.org/10.1016/j.heliyon.2018.e00205.

Reference to a book:

Strunk Jr., W., White, E.B., 2000. The Elements of Style, fourth ed. Longman, New York.

Reference to a chapter in an edited book:

Mettam, G.R., Adams, L.B., 2009. How to prepare an electronic version of your article, in: Jones, B.S., Smith , R.Z. (Eds.), Introduction to the Electronic Age. E-Publishing Inc., New York, pp. 281–304.

Reference to a website:

Cancer Research UK, 1975. Cancer statistics reports for the UK. http://www.cancerresearchuk.org/aboutcancer/statistics/cancerstatsreport/ (accessed 13 March 2003).

Reference to a dataset:

[dataset] Oguro, M., Imahiro, S., Saito, S., Nakashizuka, T., 2015. Mortality data for Japanese oak wilt disease and surrounding forest compositions. Mendeley Data, v1. https://doi.org/10.17632/xwj98nb39r.1.

Reference to software:

Coon, E., Berndt, M., Jan, A., Svyatsky, D., Atchley, A., Kikinzon, E., Harp, D., Manzini, G., Shelef, E., Lipnikov, K., Garimella, R., Xu, C., Moulton, D., Karra, S., Painter, S., Jafarov, E., & Molins, S., 2020. Advanced Terrestrial Simulator (ATS) v0.88 (Version 0.88). Zenodo. https://doi.org/10.5281/zenodo.3727209.

***Journal abbreviations source***

Journal names should be abbreviated according to the List of Title Word Abbreviations.

**Video**

Elsevier accepts video material and animation sequences to support and enhance your scientific research. Authors who have video or animation files that they wish to submit with their article are strongly encouraged to include links to these within the body of the article. This can be done in the same way as a figure or table by referring to the video or animation content and noting in the body text where it should be placed. All submitted files should be properly labeled so that they directly relate to the video file's content. In order to ensure that your video or animation material is directly usable, please provide the file in one of our recommended file formats with a preferred maximum size of 150 MB per file, 1 GB in total. Video and animation files supplied will be published online in the electronic version of your article in Elsevier Web products, including ScienceDirect. Please supply 'stills' with your files: you can choose any frame from the video or animation or make a separate image. These will be used instead of standard icons and will personalize the link to your video data. For more detailed instructions please visit our video instruction pages. Note: since video and animation cannot be embedded in the print version of the journal, please provide text for both the electronic and the print version for the portions of the article that refer to this content.

**Data visualization**

Include interactive data visualizations in your publication and let your readers interact and engage more closely with your research. Follow the instructions here to find out about available data visualization options and how to include them with your article.

**Supplementary Material**

Supplementary material such as applications, images and sound clips, can only be published online with your article to enhance it. Submitted supplementary items are published exactly as they are received (Excel or PowerPoint files will appear as such online). Please submit your material together with the article and supply a concise, descriptive caption for each supplementary file. If you wish to make changes to supplementary material during any stage of the process, please make sure to provide an updated file. Do not annotate any corrections on a previous version. Please switch off the 'Track Changes' option in Microsoft Office files as these will appear in the published version.

**Research data**

This journal requires and enables you to share data that supports your research publication where appropriate, and enables you to interlink the data with your published articles. Research data refers to the results of observations or experimentation that validate research findings, which may also include software, code, models, algorithms, protocols, methods and other useful materials related to the project.

Below are a number of ways in which you can associate data with your article or make a statement about the availability of your data when submitting your manuscript. When sharing data in one of these ways, you are expected to cite the data in your manuscript and reference list. Please refer to the "References" section for more information about data citation. For more information on depositing, sharing and using research data and other relevant research materials, visit the research data page.

***Data linking***

If you have made your research data available in a data repository, you can link your article directly to the dataset. Elsevier collaborates with a number of repositories to link articles on ScienceDirect with relevant repositories, giving readers access to underlying data that gives them a better understanding of the research described.

There are different ways to link your datasets to your article. When available, you can directly link your dataset to your article by providing the relevant information in the submission system. For more information, visit the database linking page.

For supported data repositories a repository banner will automatically appear next to your published article on ScienceDirect.

In addition, you can link to relevant data or entities through identifiers within the text of your manuscript, using the following format: Database: xxxx (e.g., TAIR: AT1G01020; CCDC: 734053; PDB: 1XFN).

**To maximise the visibility of your data, authors are invited to add a citation to their datasets by including a data reference in their Reference List as per the 'Data References' instructions elsewhere on this page.**

**Research Elements**

This journal enables you to publish research objects related to your original research – such as data, methods, protocols, software and hardware – as an additional paper in a Research Elements journal.

Research Elements is a suite of peer-reviewed, open access journals which make your research objects findable, accessible and reusable. Articles place research objects into context by providing detailed descriptions of objects and their application, and linking to the associated original research articles. Research Elements articles can be prepared by you, or by one of your collaborators.

During submission, you will be alerted to the opportunity to prepare and submit a manuscript to one of the Research Elements journals.

More information can be found on the Research Elements page.

***Data statement***

To foster transparency, we require you to state the availability of your data in your submission if your data is unavailable to access or unsuitable to post. This may also be a requirement of your funding body or institution. You will have the opportunity to provide a data statement during the submission process. The statement will appear with your published article on ScienceDirect. For more information, visit the Data Statement page..

***Submission Checklist***

The following list will be useful during the final checking of an article prior to sending it to the journal for review. Please consult this Guide for Authors for further details of any item.

Ensure that the following items are present:

One author has been designated as the corresponding author with contact details:

- E-mail address
- Full postal address
- Phone numbers

All necessary files have been uploaded, and contain:

- Keywords
- All figure captions
- All tables (including title, description, footnotes)

Further considerations:

- Manuscript has been 'spell-checked' and 'grammar-checked'
- All references mentioned in the Reference list are cited in the text, and vice versa
- Permission has been obtained for use of copyrighted material from other sources (including the Web)
- Color figures are clearly marked as being intended for color reproduction on the Web (free of charge) and in print, or to be reproduced in color on the Web (free of charge) and in black-and-white in print
- If only color on the Web is required, black-and-white versions of the figures are also supplied for printing purposes For any further information please visit our customer support site at https://service.elsevier.com.

## After acceptance

### Online proof correction

To ensure a fast publication process of the article, we kindly ask authors to provide us with their proof corrections within two days. Corresponding authors will receive an e-mail with a link to our online proofing system, allowing annotation and correction of proofs online. The environment is similar to MS Word: in addition to editing text, you can also comment on figures/tables and answer questions from the Copy Editor. Web-based proofing provides a faster and less error-prone process by allowing you to directly type your corrections, eliminating the potential introduction of errors.
If preferred, you can still choose to annotate and upload your edits on the PDF version. All instructions for proofing will be given in the e-mail we send to authors, including alternative methods to the online version and PDF.
We will do everything possible to get your article published quickly and accurately. Please use this proof only for checking the typesetting, editing, completeness and correctness of the text, tables and figures. Significant changes to the article as accepted for publication will only be considered at this stage with permission from the Editor. It is important to ensure that all corrections are sent back to us in one communication. Please check carefully before replying, as inclusion of any

subsequent corrections cannot be guaranteed. Proofreading is solely your responsibility.

**Offprints**

The corresponding author will, at no cost, receive a customized Share Link providing 50 days free access to the final published version of the article on ScienceDirect. The Share Link can be used for sharing the article via any communication channel, including email and social media. For an extra charge, paper offprints can be ordered via the offprint order form which is sent once the article is accepted for publication. Corresponding authors who have published their article gold open access do not receive a Share Link as their final published version of the article is available open access on ScienceDirect and can be shared through the article DOI link.

**Additional information**

Although Energy Policy does not have mandatory structure, authors may want to consider the following structure as a point of departure:

1. Introduction
2. Methodology and Data
3. Results and Discussion
4. Conclusion and Policy Implications

Manuscripts that do not meet the requirements as stipulated in the Guide for Authors will fail the technical screening of *Energy Policy* and cannot be considered by the Editors.

## Author inquiries

Visit the Elsevier Support Center to find the answers you need. Here you will find everything from Frequently Asked Questions to ways to get in touch.
You can also check the status of your submitted article or find out when your accepted article will be published.

All content on this site: Copyright © 2024 Elsevier B.V., its licensors, and contributors. All rights are reserved, including those for text and data mining, AI training, and similar technologies. For all open access content, the Creative Commons licensing terms apply.

# Chapter Summary

The Northwest Indian Fisheries Commission member tribes have fished, hunted, gathered and practiced their cultural identities along the rivers, tributaries and waters of the Puget Sound since time immemorial. No one on this earth is more connected to the watersheds, its water, plants, fish and animals than the region's tribes. At the heart of that connection is salmon which has always been a primary source of life.

The primary limiting factors to salmon recovery are the quantity and quality of habitat in the watersheds where salmon begin and end their lives. The treaty tribes believe the salmon recovery effort should focus on those watersheds.

The State of Our Watersheds Report examines key indicators of habitat quality and quantity across the watersheds in the tribe's Usual and Accustomed fishing areas as defined by *U.S. v. Washington* (Boldt decision). The 1974 ruling upheld tribal treaty-reserved rights, including the right to half of the harvestable salmon returning to Washington waters every year, and established the tribes as co-managers of the salmon resource.

The goal of the State of Our Watersheds Report is to provide tribes with a basic assessment of the health of their watersheds and to gauge progress toward salmon recovery. This report is part of the Treaty Rights at Risk initiative begun by the tribes in 2011 as a call to action for the federal government to exercise its trust responsibility to the tribes and lead a more coordinated and effective salmon recovery effort. More information is available at *www.treatyrightsatrisk.org*.

For this status report of the Puget Sound, the tribes have focused on the issues that are of greatest concern because of habitat loss and degradation. It is important to note that the State of Our Watersheds Report is a living document that will be updated as new data become available, providing both a metric for assessing changes in salmon habitat and a method for monitoring those changes. The report also will be used to quantify the progress made with the region's salmon recovery plans.

## *Principal Findings*

### Shoreline Armoring Continuing to Threaten Salmon and Forage Fish Spawning Habitat

Of the total 2,460 miles of shoreline within the Puget Sound Region, 715 miles (or 29%) is armored. Hydraulic project permits issued between 2015 and 2018 showed a net reduction of about 1 mile of armoring and an additional 6.7 miles of shoreline armoring replacement in the Puget Sound Region. While this reduction is a positive sign, the shoreline ecological functions have been severely impacted by past shoreline armoring and more restoration work needs to done. For example, the Puyallup watershed's marine shoreline is 92% impacted by armoring, resulting in lost foraging opportunities and reduced residence times for juvenile salmonids which in turn result in a decreased survival rate of these runs.

### Impervious Surface Continues to Increase

Excluding federal lands, impervious surface area increased to about 7% in 2016, an increase of 1.2% since 2011. By 2040, the forecast population for Puget Sound will increase an additional 1,100,000 beyond 2016; with an associated increase to almost 8.5% impervious surface area. The Puget Sound Salmon Recovery Plan lists minimizing impervious surfaces as a key strategy for protecting habitat.

### Forest Cover Loss Continues in Puget Sound Lowlands

From 2011 to 2016, an additional 243 square miles (2% net reduction) of forest cover was lost in the Puget Sound lowlands. The projected trend is to see continuing high rate of forest cover loss if protective actions are not taken. Minimizing forest cover removal will reduce the long-term impacts of forest cover loss and is key strategy for protecting and restoring habitat within Puget Sound.

### Diminished Riparian Forest Cover

Diminishing riparian forests in the lowlands of western Washington continue to impair habitats critical to the recovery of the region's anadromous salmon. The number of 6th-level HUCs rated for properly functioning riparian forest cover shrank by 37.9% between 2011 and 2016. In 2011, NMFS identified for most of Puget Sound that degraded riparian areas are a limiting factor to the recovery of chinook salmon.

### Blocking Culverts Impact Salmonid Survival

During the first six years of implementing the *U.S. v. Washington* culvert case injunction, the state of Washington has corrected 150 fish-blocking culverts. At the current rate, if additional support is not gained, the corrections of the remaining 799 culverts would be completed in 32 years in 2052.

### Water Quality

In 2014 only 7% of the PSR stream miles were assessed for water quality, a total of ~3,867 miles. Of the assessed streams, 87% were determined to be impaired for one or more parameters and are listed in WA Ecology's 305b report to EPA. Of the 305b listed impaired streams, 56% are identified as salmonid bearing.

### Groundwater Withdrawals Impact Surface Flows

Since 1980, over 67,000 wells have been developed in the Puget Sound Region. Of these, 5,815 were built between 2015-2019, a 40% increase in the number of wells built during the previous five years (2010-2014). This increasing rate of new well installations threatens groundwater availability, which has effects on instream flows and overall ecosystem health across the region.

### European Green Crab Threaten Native Species

Between 2016 and 2019, over 360 European green crabs were captured in the Puget Sound Region by Washington Sea Grant, Washington State Department of Fish and Wildlife, tribes, U.S. Fish and Wildlife Service, and partners. Although European green crab occurrences in the Puget Sound Region have so far been relatively rare, the impacts of their populations in other parts of the world indicate the potential for widespread changes to Puget Sound's ecosystem if action is not taken to limit their spread. Green crab are outcompeting juvenile native Dungeness crab for space, increasing the threat to Dungeness crab from predators and decreasing food availability.

### Commercial Shellfish Growing Conditions Remain a Concern in Puget Sound Region

Since 2014, there has been an increase of nearly 6,000 acres of approved or conditionally approved commercial shellfish growing areas in the Puget Sound Region due to improved water quality conditions. However, there remains a considerable amount of prohibited and restricted growing areas across the region. Of the over

280,000 total acres of growing areas in 2020, 34% (98,052 acres) had either prohibited or restricted status. This prompts concerns about water quality issues across the region.

### Climate Change Impacts Puget Sound and Tribal Traditional Practices

Today, Puget Sound watersheds are experiencing the effects of a changing climate and it is predicted that these effects are going to continue or accelerate into the future. Tribal communities are on the front line of the climate crisis as their traditional practices are now threatened by broad-scale and far-reaching environmental changes. The harms caused by climate change are compounded by ongoing damage to the ecological integrity and resilience of our watersheds. In the Pacific Northwest (PNW), the observed and projected trends include warmer air temperatures; shrinking glaciers and snowpack; lower summer streamflows; higher winter flood flows; shifts in streamflow patterns and timing; higher stream temperatures; larger and more frequent wildfires; warmer ocean temperatures; rising sea levels; and changing ocean chemistry, including ocean acidification and low levels of dissolved oxygen.

## *Conclusion*

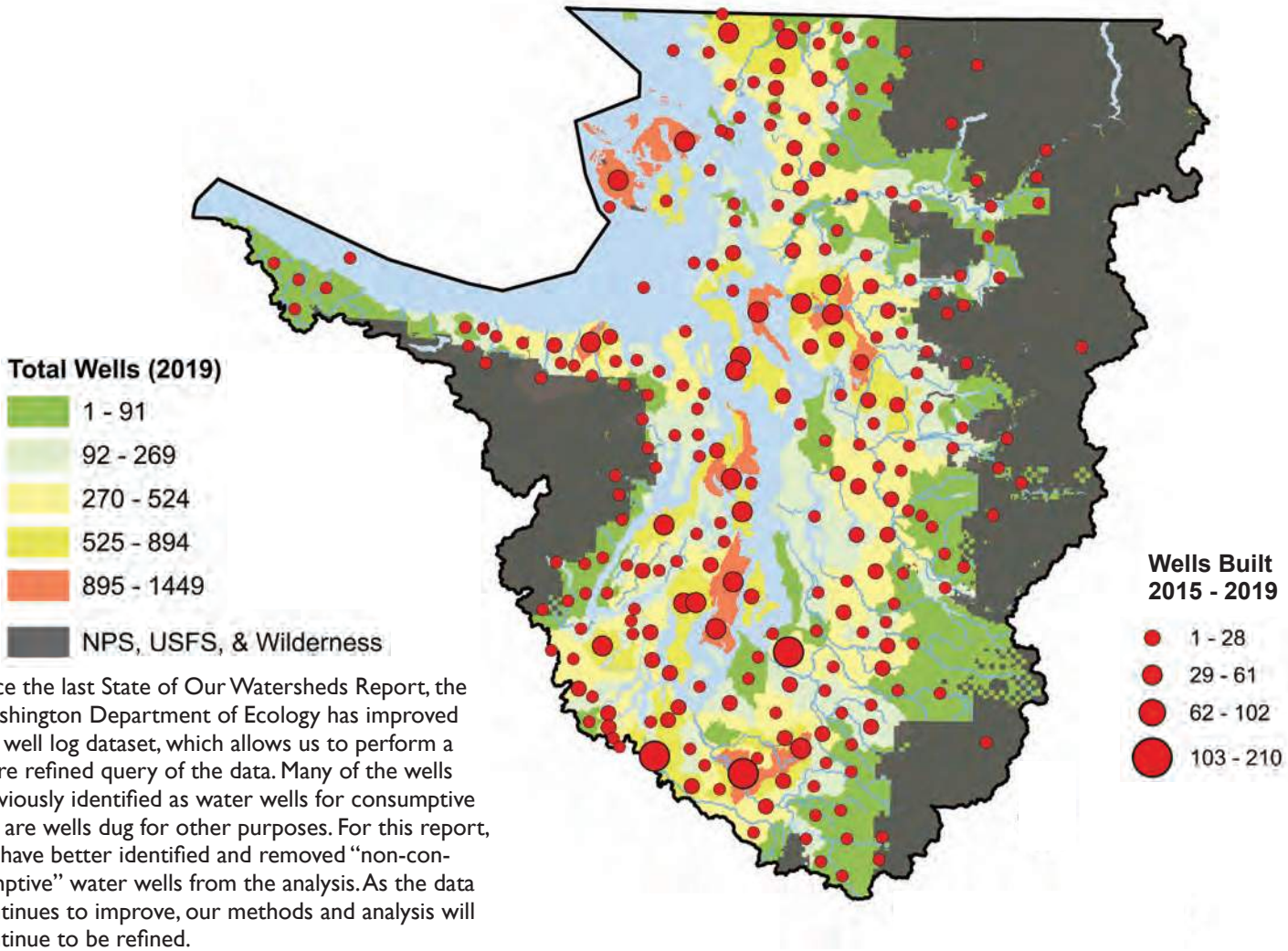
The tribes want to maintain and restore ecological processes that support natural ecosystem conditions that will sustain salmon productivity in all watersheds of Puget Sound in perpetuity. While habitat improvement is a major component to sustain salmon productivity, it is recognized that without protecting existing habitat functions, restoration activities cannot reverse the decline of salmon populations within Puget Sound. In this regard, conclusions on the State of Our Watersheds in 2020 are mixed.

There are clear strategies for recovery that are resulting in the acquisition and restoration of critical salmon habitat in Puget Sound. However, restoration is expensive and funding remains a challenge. As well, restoration requires the participation of willing political leaders and landowners, which is not always readily available. As restoration and acquisition projects continue, these two factors (political support and willing landowners) greatly affect the pace at which it occurs.

The legacy of European colonization on the landscape remains largely unchanged. Floodplain riparian forest cover is in poor condition, too much of the marine nearshore remains armored, and nonpoint pollution continues to threaten shellfish harvest. People continue to move into the Puget Sound Region, either reinforcing development patterns of the past, or bringing new development to previously undeveloped areas. Changing this legacy of land use is a long, slow and very contentious process. It requires adherence to the laws and regulations of federal, state and local governments. Implementation of those laws, which happens locally, is often left to the goodwill of landowners. Politically, this is most palatable, but it has proven inadequate for the needs of salmon habitat recovery. Moving forward, as more people move into the region, better enforcement of the existing regulatory framework or an overall shift in how we manage development will become even more necessary.

# Groundwater Withdrawals Impact Surface Flows

*Since 1980, over 67,000 wells have been developed in the Puget Sound Region. Of these, 5,815 wells were built between 2015-2019, which is a 40% increase in the number of wells built during the previous five years (2010-2014). This increasing rate of new well installations threatens groundwater availability and stream ecosystem health across the region.*




Since the last State of Our Watersheds Report, the Washington Department of Ecology has improved the well log dataset, which allows us to perform a more refined query of the data. Many of the wells previously identified as water wells for consumptive use are wells dug for other purposes. For this report, we have better identified and removed "non-consumptive" water wells from the analysis. As the data continues to improve, our methods and analysis will continue to be refined.

Population growth within the Puget Sound Region, will continue to have increased demands on groundwater resources. Washington state instream flow rules allocate river flow for ecological requirements, but state law allows new wells to withdraw 5,000 gallons of groundwater per day without obtaining a permit that requires scientific evidence that water is legally available.[1] Groundwater withdrawals can cumulatively affect streamflows, especially in late summer when flows are naturally low.

An aquifer's natural outflow discharges into lakes, wetlands, streams and seawater through springs and seeps on the land surface and through groundwater. Adequate natural outflow is essential for sustaining stream base flows, maintaining lake levels, providing fresh water inputs to the nearshore and preventing seawater intrusion.

As development occurs and more groundwater is extracted than is being recharged, the natural outflow from groundwater subsequently decreases. This reduces the amount of fresh water available to lakes, wetlands, streams and the Puget Sound nearshore. Reduced freshwater inputs to the Puget Sound nearshore can have a negative impact on shellfish and out-migrating juvenile salmonids.

The reduced availability of surface water can have a negative impact on all stages of the salmonid life cycle. Water quality (e.g. temperature, flows) is affected by decreased inputs from groundwater. Lessened groundwater input concentrates pollutants, increases temperature, and diminishing dissolved oxygen. This is detrimental to salmonid migration, spawning and rearing.

Wells are drilled without regard to aquifer sensitivity and stream recharge needs. As Puget Sound Region's freshwater demand increases, something has to change. Unchecked growth and its associated increased demand for groundwater must be addressed, if implementation of the Puget Sound Salmon Recovery plan is to successfully move forward.

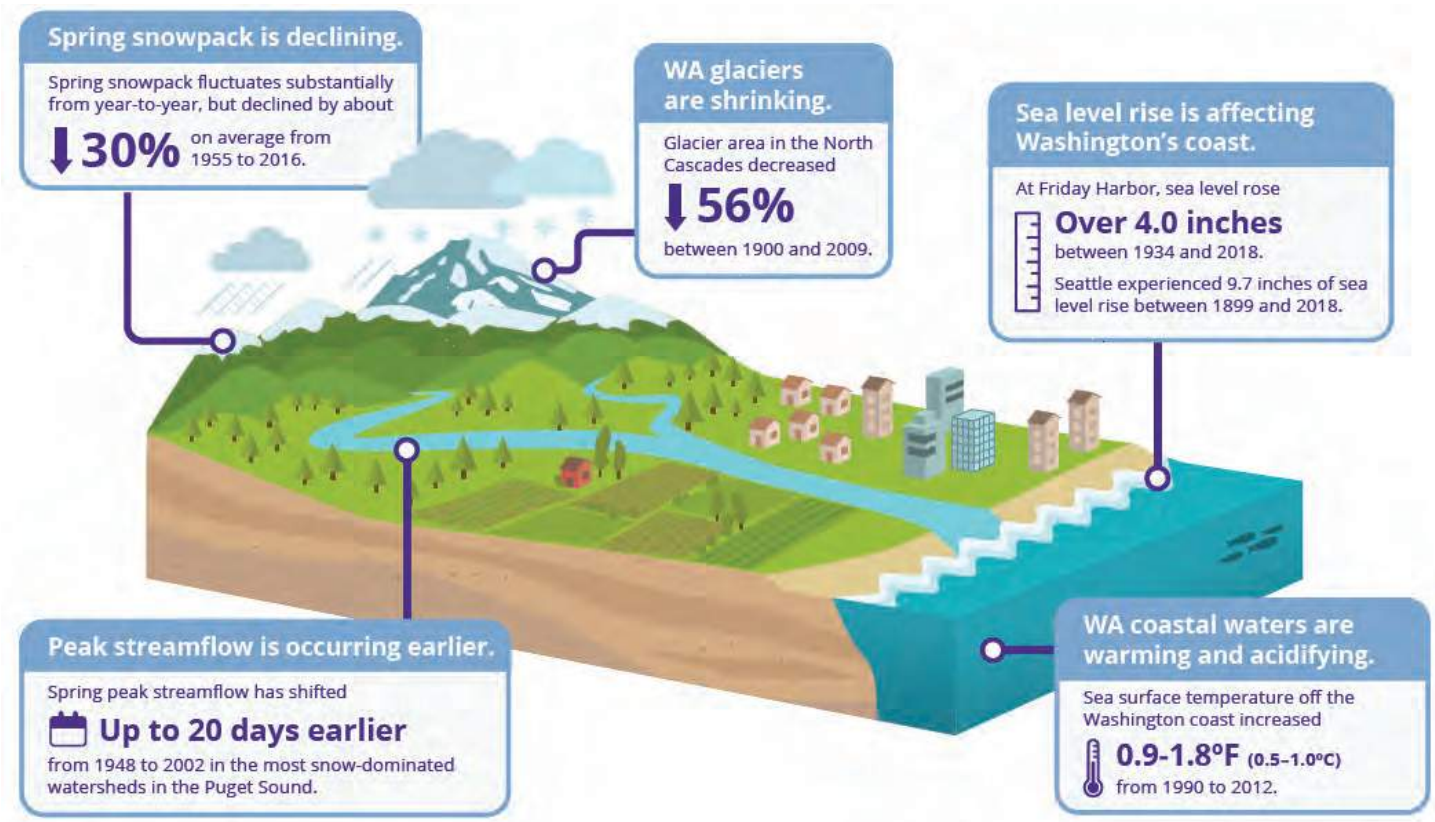
*Map Data Sources: USGS 2018,[2] WADNR 2016,[3] WAECY 2018,[4] WAECY 2019[5]*

# Climate Change Impacts Puget Sound and Tribal Traditional Practices

The watersheds of Puget Sound are experiencing the effects of a changing climate and these trends are projected to continue or accelerate into the future. Tribal communities are on the front line of the climate crisis as traditional practices that have been sustained since time immemorial are now threatened by broad-scale environmental changes. The harms caused by the climate crisis are compounded by ongoing damage to the ecological integrity and resilience of our watersheds as described in this report.

In the Pacific Northwest (PNW), the observed and projected trends include warmer air temperatures; shrinking glaciers and snowpack; lower summer streamflows; higher winter flood flows; shifts in streamflow patterns and timing; higher stream temperatures; larger and more frequent wildfires; warmer ocean temperatures; rising sea levels; and changing ocean chemistry, including ocean acidification and low levels of dissolved oxygen.

Changing watershed processes pose




An overview of changes observed in the waters of Washington that are expected to continue or worsen in the future.[18]

a threat to salmon populations, which need adequate amounts of cool, clean water to survive. Overall, temperatures in PNW streams warmed by about 0.3°F (0.17°C) per decade from 1976 to 2015.[1] As stream temperatures increase, the length of time that rivers exceed salmon temperature limits for reproduction and survival grows longer. Loss of glaciers and snowpack contributes to lower summer streamflows, warmer waters, greater winter floods and more exposed sediment washing into rivers. In the North Cascade National Park, the loss of glacier area between 1984 and 2015 was 30% of total glacier volume.[2] From 1950 to 2010, summer streamflows decreased 33% in snow-dominated watersheds and 36% in mixed rain-snow watersheds in the PNW.[3] At the same time, winter flood risk is increasing since the top 1% of extreme rainfall events increased in frequency by 12% in the PNW during the 20th century.[4]

In addition to changes in streamflow and water temperatures, climate change leaves salmon and steelhead at risk from lower levels of dissolved oxygen, more sediment in streams, greater susceptibility to disease, competition from warm-water species, and changes to the type and availability of prey.

Terrestrial plants and animals used for traditional food, medicine and cultural practices are vulnerable to major ecosystem disturbances such as wildfire, drought, pests and invasive species.[5] Warmer temperatures, changing precipitation patterns and other disturbances are causing wildlife and birds to migrate farther north or to higher elevations in search of suitable habitat, potentially moving out of traditional tribal hunting grounds.[6] In the western United States, the fire season has lengthened in conjunction with higher summer temperatures and reduced snowpack.[7] Warmer summers, lower soil moisture and higher rates of evapotranspira-

*(Continued on next page)*



Tiffany Royal, NWIFC

Jamestown S'Klallam Tribe shellfish staff count eelgrass plants as part of the Washington Department of Natural Resources' Acidification Nearshore Monitoring Network (ANeMoNe), which seeks to measure changes in marine chemistry in order to evaluate potential impacts on marine organisms.[19]

*(Continued from previous page)*

tion leave Puget Sound forests more prone to fires than in the past.[8]

In marine and coastal ecosystems, changes to water chemistry and temperature can alter the range, distribution and abundance of fish, shellfish, waterfowl and other marine species important to the tribes.[9] For example, ocean acidification interferes with shell formation, and hence development and survival of a number of marine species, including crabs, clams and oysters. In addition, ocean acidification has the potential to alter marine food webs and change distribution of finfish, including Pacific salmon.[10] The marine waters of Washington have become 10-40% more acidified since 1800.[11]

Average annual sea surface temperatures are increasing globally and locally. Ocean temperatures can influence salmon migration routes. For example, the Fraser River sockeye and pink salmon that return from the ocean to their natal streams in Canada usually either go north around Vancouver Island, or they go south through the Strait of Juan de Fuca. When these fish divert to the north and out of U.S. waters, the tribes that fish these runs lose their access. In the past, northern diversion has been very strongly correlated with warmer water off Vancouver Island.[12] Unusually warm ocean conditions in 2015 may have spurred the Fraser runs toward the north and away from tribal fishing grounds, when the estimated northern diversion rates for sockeye and pink salmon were 99% and 91%, respectively.[13]

Low-lying tribal lands are susceptible to sea level rise (SLR), coastal flooding and erosion, which can reduce traditional tribal shellfish harvesting areas, damage culturally important sites, and threaten tribal communities and infrastructure. Global SLR is caused by the physical expansion of warmer water and the melting of ice sheets and glaciers, but locally, relative SLR includes the effects of vertical land movement. In western Washington vertical land movement is dominated by tectonic forces, so the amount of relative sea level rise varies over time and location.[14]

Tidal records show that relative SLR at Cherry Point near Bellingham has occurred at the equivalent of 1.6 inches per century, in Seattle it has been 8.2 inches per century, and in Olympia it has been 9.6 inches per century.[15,16] Due to ground uplift, tidal records in Neah Bay show a relative drop in sea level of the equivalent of 6.7 inches per century and a drop of 1.6 inches per century at Port Angeles.[17]



Kari Neumeyer, NWIFC

Nooksack Tribe water resources manager Oliver Grah (right) and contractor Andy Ingram set up monitoring equipment on the Sholes Glacier, Mount Baker.[20]

# Citations

## 2020 Puget Sound Regional Report


1 PRISM Climate Group. Downloaded September 2015. 30-year normal raster dataset. Corvallis, OR: Oregon State University. http://prism.oregonstateu.edu

2 WAOFM. 2019. April 1, 2019 Population of Cities, Towns and Counties. Olympia, WA: Washington State Office of Financial Management.

3 USFWS. 2018. Polygons of FWS Approved Boundaries. Falls Church, VA: U.S Fish and Wildlife Service.

4 WADNR. 2016. Washington State DNR Managed Land Parcels. Olympia, WA: Washington State Department of Natural Resources.

5 WADNR. 2018. Washington State Non-DNR Major Public Lands (NDMPL) Polygons. Olympia, WA: Washington State Department of Natural Resources.

6 WADOT. 2018. Tribal Lands. Polygons depicting the boundaries of Tribal Lands in Washington State. Olympia, WA: Washington State Department of Transportation.

7 WAECY. 1994. Polygons of Washington State Shorelines and Boundary. Olympia, WA: Washington State Department of Ecology.

8 WAECY. 2000. Water Resource Inventory Area (WRIA) Polygons. Olympia, WA: Washington Department of Ecology.

9 WAECY. 2018a. NHD Major Areas, Streams, and Waterbodies. 1:24000. From U.S. Geological Survey (in cooperation with others) National Hydrography Dataset. Olympia, WA: Washington Department of Ecology.

10 WAECY. 2018b. City Boundaries and Urban Growth Areas Polygons. Olympia, WA: Washington State Department of Ecology.


## Puget Sound Region


1 Shared Strategy for Puget Sound. 2007. Puget Sound Salmon Recovery Plan Volume 1. National Marine Fisheries Service.

2 Ibid.


## Shoreline Armoring Continuing to Threaten Salmon and Forage Fish Spawning Habitat


1 CGS. 2017. Beach Strategies Collected Shoreline Data (GIS Dataset). Coastal Geologic Services. Prepared for: Puget Sound Partnership.

2 PSEMP. 2020. Shoreline Armoring Restoration Monitoring Data. Puget Sound Ecosystem Monitoring Program.

3 Penttila. 2007. Marine Forage Fishes of Puget Sound. Puget Sound Nearshore Partnership Report No. 2007-03. Published by Seattle District, U.S. Army Corps of Engineers, Seattle, Washington.

4 Simenstad, C.A., B.S. Miller, C.F. Nyblade, K. Thornburgh and L.J. Bledsoe. 1979. Foodweb relationships of northern Puget Sound and the Strait of Juan de Fuca, a synthesis of available knowledge. DOC/EPA report no. EPA-600/7-79-259. Environmental Protection Agency, Region 10, Seattle, Washington.

5 Nisqually Salmon Recovery Team. 2010. Nisqually 2010 Three-Year Work Program.

6 WDFW. 2017. Documented Sand Lance Spawning dataset. Washington Department of Fish and Wildlife: Olympia, WA.

7 WDFW. 2014. Documented Smelt Spawning dataset. Washington Department of Fish and Wildlife: Olympia, WA.

8 Duffy, E., D. Beauchamp, R. Sweeting, R. Beamish & J. Brennan. 2010. Ontogenetic diet shifts of juvenile chinook salmon in nearshore and offshore habitats of Puget Sound. Transactions of the American Fisheries Society 139: 803-823.

9 Shared Strategy for Puget Sound. Puget Sound Salmon Recovery Plan.

10 WDFW. 2018. HPA Permitted Shoreline Armoring Projects on Puget Sound. Spreadsheet PSSA_2014-2018_Data_summaries_for_NWIFC.xlsx received 2019-10-29, in email from D. Small. Olympia, WA: Washington Department of Fish and Wildlife.

11 CGS. 2017. Beach Strategies Collected Shoreline Data (GIS Dataset). Coastal Geologic Services. Prepared for: Puget Sound Partnership.

12 WAECY. 2018. NHD Major Areas, Streams, and Waterbodies. 1:24000. From U.S. Geological Survey (in cooperation with others) National Hydrography Dataset. Olympia, WA: Washington State Department of Ecology.

13 WADOT. 2010. City Points. Olympia, WA: Washington Department of Transportation.

14 WADOT. 2018. Linear Representation of Washington State Routes (GIS Feature Class SR500kLRSSPS). Olympia, WA: Washington Department of Transportation.

15 WDFW. 2017. Documented Sand Lance Spawning dataset. Washington Department of Fish and Wildlife: Olympia, WA.

16 WDFW. 2014. Documented Smelt Spawning dataset. Washington Department of Fish and Wildlife: Olympia, WA.

17 WDFW. 2019. Documented Sand Lance Spawning dataset. Washington Department of Fish and Wildlife: Olympia, WA.

18 SSHIAP. 2004. Hillshade derived from University of Washington Digital Elevation Model (DEM). Olympia, WA: Northwest Indian Fisheries Commission.


## Impervious Surface Continues to Increase


1 Shared Strategy for Puget Sound. 2007. Puget Sound Salmon Recovery Plan Volume 1. National Marine Fisheries Service.

2 Schueler, T. 2003. Impacts of impervious cover on aquatic systems. Watershed protection research monograph no. 1. Ellicott City, MD: Center for Watershed Protection.

3 Fisheries Service. 2012 Water Quality: How toxic runoff affects Pacific salmon & steelhead. National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

4 Schueler. 2003. Impacts of impervious cover on aquatic.

5 Shared Strategy for Puget Sound. Puget Sound Salmon Recovery Plan.

6 NLCD. 2006. National Land Cover Dataset Percent Developed Impervious. 2011 edition. Multi-Resolution Land Characteristics.

7 NLCD. 2011. National Land Cover Dataset Percent Developed Impervious. 2011 edition. Multi-Resolution Land Characteristics.

8 USGS. 2014. Watershed Boundary Dataset 12-Digit (Sixth Level) Hydrologic Unit Codes (HUCs) Polygons. Downloaded from Washington Department of Ecology. U.S. Geological Survey, in cooperation with others.

9 WAECY. 1994. Polygons of Washington State Shorelines and Boundary. Olympia, WA: Washington Department of Ecology.
10 WAECY. 2000. Water Resource Inventory Area (WRIA) Polygons. Olympia, WA: Washington Department of Ecology.
11 WAOFM. 2017. January, 2018 Supplemental Projections of the Total Resident Population for Growth Management. Olympia, WA: Washington State Office of Financial Management.
12 NLCD. 2016. January, 2019, National Land Cover Dataset Percent Developed Impervious. 2016 edition. Multi-Resolution Land Characteristics.

## Forest Cover Loss Continues in Puget Sound Lowlands

1 National Marine Fisheries Service. 2007. Final Supplement to the Shared Strategy's Puget Sound Salmon Recovery Plan. National Marine Fisheries Service Northwest Region.
2 National Marine Fisheries Service. 2011. Evaluation and Determination of the 2010 Puget Sound Chinook Resource Management Plan. Seattle, WA: National Marine Fisheries Service.
3 WADNR. 2017. Washington State Non-DNR Major Public Lands (NDMPL) Polygons. Olympia, WA: Washington State Department of Natural Resources.
4 NOAA. 2016. Office of Coastal Management, 2019: NOAA's Coastal Change Analysis Program (CCAP) 2016 Regional Land Cover Data – Coastal United States.
5 NOAA. 2011. Office of Coastal Management, 2019: NOAA's Coastal Change Analysis Program (CCAP) 2011 Regional Land Cover Data – Coastal United States.
6 NAIP. 2017. USGS and U.S. Department of Agriculture's Farm Service Agency: Aerial imagery of the state of Washington, from National Agricultural Imagery Program (NAIP) 2017 4 band Imagery.
7 NAIP. 2011. USGS and U.S. Department of Agriculture's Farm Service Agency: Aerial imagery of the state of Washington, from National Agricultural Imagery Program (NAIP) 2011 4 band Imagery.

## Diminished Riparian Forest Cover

1 Judge, M. 2011. 2011 Implementation Status Assessment. Final Report. A qualitative assessment of implementation of the Puget Sound Chinook Recovery Plan. Prepared for the National Marine Fisheries Services. Task Order 2002.
2 Ibid.
3 Ibid.
4 Ibid.
5 SWIFD. Statewide Washington Integrated Fish Distribution. 2014. Washington State Department of Fish and Wildlife & Northwest Indian Fisheries Commission.
6 WADNR. 2015. Washington State Non-DNR Major Public Lands (NDMPL) Polygons. Olympia, WA: Washington State Department of Natural Resources.
7 WADOT. 2010. City Points. Olympia, WA: Washington State Department of Transportation.
8 WAECY. 2000. Water Resource Inventory Area (WRIA) Polygons. Olympia, WA: Washington Department of Ecology.
9 NOAA. 2011. Office of Coastal Management, 2019: NOAA's Coastal Change Analysis Program (CCAP) 2011 Regional Land Cover Data – Coastal United States
10 NOAA. 2016. Office of Coastal Management, 2019: NOAA's Coastal Change Analysis Program (CCAP) 2016 Regional Land Cover Data – Coastal United States.

## Blocking Culverts Impacts Salmonid Survival

1 Shared Strategy For Puget Sound. 2007. Puget Sound Salmon Recovery Plan Volume 1. Plan Adopted by the National Marine Fisheries Service (NMFS).
2 Joint Natural Resources Cabinet. Statewide Strategy to Recover Salmon: Extinction is Not an Option. 1999.
3 Subproceeding 01-01 Memorandum and Decision. 2013. United States of America, et al. v. State of Washington, et al. Case No. CV 70-9213. United States District Court, Western District of Washington at Seattle.
4 Shared Strategy For Puget Sound. 2007. Puget Sound Salmon Recovery Plan Volume 1. Plan Adopted by the National Marine Fisheries Service (NMFS).
5 Joint Natural Resources Cabinet. Statewide Strategy to Recover Salmon: Extinction is Not an Option. 1999.
6 Subproceeding 01-01 Memorandum and Decision. 2013. United States of America, et al. v. State of Washington, et al. Case No. CV 70-9213. United States District Court, Western District of Washington at Seattle.
7 Ibid.
8 Joint Natural Resources Cabinet. Statewide Strategy to Recover Salmon: Extinction is Not an Option. 1999.
9 Subproceeding 01-01 Memorandum and Decision. 2013. United States of America, et al. v. State of Washington, et al. Case No. CV 70-9213. United States District Court, Western District of Washington at Seattle.
10 Subproceeding 01-01 Memorandum and Decision. 2013. United States of America, et al. v. State of Washington, et al. Case No. CV 70-9213. United States District Court, Western District of Washington at Seattle.
11 WDFW. 2019. Spreadsheet WDFW_List_of_Barriers_for_NWIFC.xlsx received from M. Curtis in November 2019. Olympia, WA: Washington Department of Fish and Wildlife.
12 WADNR. 2019. Spreadsheet DNR_AnnualTables_2019_Accomplishments_etc.xlsx received from A. Nagygyor in November 2019. Olympia, WA: Washington Department of Natural Resources.
13 WADNR. 2019b. Spreadsheet Wadnr_culverts_nwifc_20191114 received from K. Kozak in November 2019. Olympia, WA: Washington Department of Natural Resources.
14 WADOT. 2020. Washington State Department of Transportation Case Culvert Proposed Updates. Obtained from S. Kanzler in January 2020. Olympia, WA: Washington Department of Transportation.
15 WADOT. 2019. GIS geodatabase FPDeliveryPlanEtc received from K. Prosser in November 2019. Olympia, WA: Washington Department of Transportation.
16 Curtis, M. 2019. PowerPoint presentation from Sixth Annual Inunction Meeting. Olympia, WA: Washington State Department of Fish and Wildlife.
17 WAECY. 2000. Water Resource Inventory Area (WRIA) Polygons. Olympia, WA: Washington Department of Ecology.
18 WASPS. 2016. Spreadsheet DRAFT_WSPRC_InjunctionCulvertDispositionJanuary2016 received from D. Petersen in March 2016. Olympia, WA: Washington State Parks and Recreation Commission.

## Water Quality

1 Spence, B. C., G. A. Lomnicky, R. M. Hughes, and R. P. Novitzki. 1996. An ecosystem approach to salmonid conservation. TR-4501-96-6057. ManTech Environmental Research Services Corp., Corvallis, OR.

2 WAECY. 2016. Water Quality Assessment 305(b). Olympia, WA: Washington Department of Ecology.
3 WAECY. 2016. Water Quality Assessment 303(d). Olympia, WA: Washington Department of Ecology.
4 WDFW/NWIFC 2014. Statewide Integrated Fish Distribution 2014. Olympia, WA: Washington Department of Fish & Wildlife/Northwest Indian Fisheries Commission.
5 WAECY 2014. NHD Major Areas, Streams, and Waterbodies. 1:24000. From U.S. Geological Survey (in cooperation with others) National Hydrography Dataset. Olympia, WA: Washington Department of Ecology.
6 WAECY. 2016. Water Quality Assessment 305(b) Polygons. Olympia, WA: Washington Department of Ecology.
7 WAECY. 2016. Water Quality Assessment 303(d) Polygons. Olympia, WA: Washington Department of Ecology.

## Groundwater Withdrawals Impact Surface Flows

1 Revised Code of Washington 90.44.050
2 USGS. 2014. Watershed Boundary Dataset 12-Digit (Sixth Level) Hydrologic Unit Codes (HUCs) Polygons. Downloaded from Washington Department of Ecology. U.S. Geological Survey, in cooperation with others.
3 WADNR. 2014b. Washington State Non-DNR Major Public Lands (NDMPL) Polygons. Olympia, WA: Washington Department of Natural Resources.
4 WAECY. 2013. City Boundaries and Urban Growth Areas Polygons. Olympia, WA: Washington Department of Ecology.
5 WAECY. 2015. Water Well Logs Points. Olympia, WA: Washington Department of Ecology.

## European Green Crab Threaten Native Species

1 Grason et al. 2018a. Citizen science program detects range expansion of the globally invasive European green crab in Washington State (USA). Management of Biological Invasions.
2 Grason E, Adams J, McDonald P, Martin K, Litle K. 2018b. Crab Team: European Green Crab Early Detection and Monitoring, Phase 2. Final Report.
3 WSG. 2020. European Green Crabs Captured in Washington State. Spreadsheet WSG_CrabTeam_EGCData.5.15.20.csv received from E. Grason in May 2020. Seattle, WA: Washington Sea Grant.
4 WADNR. 2016. Washington State Non-DNR Major Public Lands (NDMPL) Polygons. Olympia, WA: Washington State Department of Natural Resources.
5 WAECY. 2018. NHD Major Areas, Streams, and Waterbodies. 1:24000. From U.S. Geological Survey (in cooperation with others) National Hydrography Dataset. Olympia, WA: Washington State Department of Ecology.
6 WAECY. 2000. WAECY. 2000. Water Resource Inventory Area (WRIA) Polygons. Olympia, WA: Washington Department of Ecology.
7 WADOT. 2010. City Points. Olympia, WA: Washington Department of Transportation.
8 WADOT. 2018. Linear Representation of Washington State Routes (GIS Feature Class SR500kLRSSPS). Olympia, WA: Washington Department of Transportation.

## Commercial Shellfish Growing Conditions Remain a Concern in Puget Sound Region

1 WADOH. 2020. Commercial Shellfish Growing Areas. Olympia, WA: Washington State Department of Health.
2 WADOH. 2014. Commercial Shellfish Growing Areas. Olympia, WA: Washington State Department of Health.
3 WADNR. 2016. Washington State Non-DNR Major Public Lands (NDMPL) Polygons. Olympia, WA: Washington State Department of Natural Resources.
4 WAECY. 2018. NHD Major Areas, Streams, and Waterbodies. 1:24000. From U.S. Geological Survey (in cooperation with others) National Hydrography Dataset. Olympia, WA: Washington State Department of Ecology.
5 WADOT. 2010. City Points. Olympia, WA: Washington Department of Transportation.
6 WADOT. 2018. Linear Representation of Washington State Routes (GIS Feature Class SR500kLRSSPS). Olympia, WA: Washington Department of Transportation.

## Climate Change Impacts Puget Sound and Tribal Traditional Practices

1 Isaak, D.J., S.J. Wenger, E.E. Peterson, J.M. Ver Hoef, D.E. Nagel, C.H. Luce, S.W. Hostetler, J.B. Dunham, B.B. Roper, S.P. Wollrab, G.L. Chandler, D.L. Horan, and S. Parkes-Payne. 2017. The NorWeST summer stream temperature model and scenarios for the western U.S.: A crowd-sourced database and new geospatial tools foster a user community and predict broad climate warming of rivers and streams. Water Resources Research 53(11):9181-9205.
2 Pelto, M.S. 2018. How Unusual Was 2015 in the 1984–2015 Period of the North Cascade Glacier Annual Mass Balance? Water, 2018, 10 (543). doi:10.3390/w10050543.
3 Safeeq, M., G.E. Grant, S.L Lewis, and C.L. Tague. 2013. Coupling snowpack and groundwater dynamics to interpret historical streamflow trends in the western United States. Hydrological Processes 27: 655-668.
4 U.S. Global Change Research Program. 2009. Global Climate Change Impacts in the United States, T.R. Karl, J. M. Melillo, and T.C. Peterson (Eds.). New York, NY: Cambridge University Press.
5 Dalton, M.M., P.W. Mote, and A.K. Snover [Eds.]. 2013. Climate Change in the Northwest: Implications for Our Landscapes, Waters, and Communities. Washington, DC: Island Press.
6 Chen, I.C., J.K. Hill, R. Ohlemüller, D.B. Roy, and C.D. Thomas. 2011. Rapid range shifts of species associated with high levels of climate warming. Science 333: 1024-1026.
7 Westerling, A.L., H.G. Hidalgo, D.R. Cayan, and T.W. Swetnam. 2006. Warming and earlier spring increase Western U.S. forest wildfire activity. Science 313 (5789): 940-943.
8 Littell, J.S., E.E. Oneil, D. McKenzie, J.A. Hicke, J.A. Lutz, R.A. Norheim, and M.M. Elsner. 2010. Forest ecosystems, disturbance, and climatic change in Washington State, USA. Climatic Change 102(1-2): 129-158.
9 Tillmann, P. and D. Siemann. 2011. Climate Change Effects and Adaptation Approaches in Marine and Coastal Ecosystems of the North Pacific Landscape Conservation Cooperative Region: A Compilation of Scientific Literature – Phase I Final

Report. Produced by the National Wildlife Federation for the U.S. Fish and Wildlife Service North Pacific Landscape Conservation Cooperative.

10 Dalton, M.M., P.W. Mote, and A.K. Snover [Eds.]. 2013. Climate Change in the Northwest: Implications for Our Landscapes, Waters, and Communities. Washington, DC: Island Press.

11 Feely, R.A., S. Alin, J. Newton, C. Sabine, M. Warner, A. Devol, C. Krembs, and C. Maloy. 2010. The combined effects of ocean acidification, mixing, and respiration on pH and carbonate saturation in an urbanized estuary. Estuarine, Coastal and Shelf Science 88: 442-449.

12 Hamilton, K. 1985. A study of the variability of the return migration route of Fraser River sockeye salmon (Oncorhynchus nerka). Canadian Journal of Zoology 63: 1930-1943.

13 Pacific Salmon Commission. 2015. News Release No. 10, September 11, 2015. Vancouver, B.C. Available at http://cars.fisheries.org/wp-content/uploads/2015/10/PSC-NewsRelease10-Sept-11-2015-1.pdf

14 Miller, I.M., Yang, Z., VanArendonk, N., Grossman, E., Mauger, G. S., Morgan, H., 2019. Extreme Coastal Water Level in Washington State: Guidelines to Support Sea Level Rise Planning. A collaboration of Washington Sea Grant, University of Washington Climate Impacts Group, Oregon State University, University of Washington, Pacific Northwest National Laboratory and U.S. Geological Survey. Prepared for the Washington Coastal Resilience Project.

15 NOAA. 2017. Sea Levels Online: Sea Level Variations of the United States Derived from National Water Level Observation Network Stations 1854 to present. National Oceanic and Atmospheric Administration Ocean Service, Center for Operational Oceanographic Products and Services (CO-OPS). Available at http://tidesandcurrents.noaa.gov/sltrends/sltrends.html

16 Craig, D. 1993. Preliminary Assessment of Sea Level Rise in Olympia, Washington: Technical and Policy Implications. Policy and Program Development Division, Olympia Public Works Department, Olympia, WA.

17 NOAA. 2017. Sea Levels Online: Sea Level Variations of the United States Derived from National Water Level Observation Network Stations 1854 to present. National Oceanic and Atmospheric Administration Ocean Service, Center for Operational Oceanographic Products and Services (CO-OPS). Available at tidesandcurrents.noaa.gov/sltrends/sltrends.html

18 Roop, H.A., G.S. Mauger, H. Morgan, A.K. Snover, and M. Krosby. 2020. Shifting Snowlines and Shorelines: The Intergovernmental Panel on Climate Change's Special Report on the Ocean and Cryosphere and Implications for Washington State. Briefing paper prepared by the Climate Impacts Group, University of Washington, Seattle. doi.org/10.6069/KTVN-WY66. Updated 01/2020.

19 Northwest Treaty Tribes. September 20, 2019. ANeMoNe Project Helps Jamestown S'Klallam Tribe Track Ocean Acidification. Available at https://nwtreatytribes.org/anemone-project-helps-jamestown-sklallam-tribe-track-ocean-acidification/

20 Northwest Treaty Tribes. October 28, 2015. What Will Salmon Do After the Glaciers Are Gone? Available at https://nwtreatytribes.org/what-will-salmon-do-after-the-glaciers-are-gone/

# Chapter Summary

The Swinomish Indian Tribal Community is primarily made up of descendants of four treaty-time groups: the aboriginal Swinomish, the Lower Skagit, the Kikiallus and the aboriginal Samish. They all came together to sign the Treaty of Point Elliott with the United States in 1855. The treaty established a reservation for future use. The Swinomish Reservation is on Fidalgo Island surrounded by the Swinomish Tribal Community's ancestral homelands, including the Skagit Valley and Samish River Valley, the coastal areas surrounding Skagit, Padilla and Fidalgo bays, Saratoga Passage and numerous islands including Fidalgo, Camano, Whidbey and the San Juan Islands.

For thousands of years, the people of the Swinomish Indian Tribal Community maintained a culture centered on abundant saltwater resources that included salmon, shellfish and marine mammals, as well as upland resources such as cedar, camas, berries and wild game. Since European settlement began in the middle of the 19th century, the landscape has changed to support cities, residences and agriculture, and not to support the natural estuaries, large floodplains and riparian-lined tributaries needed for healthy populations of salmon, shellfish and all the resources the Swinomish people relied upon historically. That pattern continues today, and with a growing population of people, the degrading impact it has on salmon habitat has intensified.

The primary limiting factors to salmon recovery are the quantity and quality of habitat in the watersheds where salmon begin and end their lives. The treaty tribes believe the salmon recovery effort should focus on those waters.

The State of Our Watersheds Report examines key indicators of habitat quality and quantity across the watersheds in the tribe's Usual and Accustomed fishing areas as defined by *U.S. v. Washington* (Boldt decision). The 1974 ruling upheld tribal treaty-reserved rights, including the right to half of the harvestable salmon returning to Washington waters every year, and established the tribes as co-managers of the salmon resource.

The goal of the State of Our Watersheds Report is to provide tribes with a basic assessment of the health of their watersheds and to gauge progress toward salmon recovery. This report is part of the Treaty Rights at Risk initiative begun by the tribes in 2011 as a call to action for the federal government to exercise its trust responsibility to the tribes and lead a more coordinated and effective salmon recovery effort. More information is available at *www.treatyrightsatrisk.org*.

For this report, the Swinomish Indian Tribal Community has focused on portions of their watersheds that are of greatest concern because of habitat loss and degradation. It is important to note that the State of Our Watersheds Report is a living document that will be updated as new data become available, providing both a metric for assessing changes in salmon habitat and a method for monitoring those changes. The report also will be used to quantify the progress made with the region's salmon recovery plans.

## *Principal Findings*

### Habitat Mitigation Is Offsetting the Negative Impact of Riprap Repair to Riverine Edge Habitat

As part of the 2011 Environmental Assessment (EA) for the batched 2007 and 2011 repairs at 60 sites along the lower Skagit River mainstem, the U.S. Army Corps of Engineers was required to complete habitat mitigation. Monitoring was conducted at 13 of the 60 sites, and when compared with baseline riprap conditions, the mitigation sites as a whole were found to have offset impacts to riparian vegetation, rearing habitat, refuge habitat and forage habitat for fish. This should not be interpreted as restoration or recovery of habitat, this mitigation only means that the riprap repair actions taken by the Corps that negatively impacted riverine edge habitat and riparian habitat in the lower Skagit River were at least partially offset by habitat mitigation.

### Skagit River Tidal Delta Habitat Restoration Successful, but the Pace Has Slowed Since 2009

From 2004 to 2013, the tidal habitat footprint in the Skagit River delta increased from 3,384.65 hectares to 3,467.68 hectares, from 80% to 81.9% of the desired future condition (DFC) of the Skagit River Chinook Recovery Plan. Continued focus is necessary, as the pace of habitat restoration has slowed considerably since 2009. From 2005 to 2009,103.3 hectares of tidal delta extent were restored (25.8 hectares per year) and since 2009, only 71.2 hectares have been restored (10.2 hectares per year).

### Pocket Estuary Restoration Remains Important to Skagit River Chinook Recovery

Through 2015, pocket estuary restoration was completed at 6 sites totaling 33.6 acres of usable habitat area and chinook smolt production was estimated to have increased by 48,457 smolts. Since 2015, there has been a small amount of active restoration in Dugualla Lagoon, and Similk Beach has entered a more active restoration phase, but nothing has been completed.

### Nearshore Armoring Continues to Impact the Intertidal Zone

Continued survey of the shoreline in the Skagit and Samish marine nearshore areas has found an additional 5 miles of nearshore armoring since 2008. Current estimates are that 118 miles of this area are armored or modified. Marine shoreline restoration that removes shoreline armoring to restore the nearshore to its natural condition is the best option for salmon recovery. Another opportunity to improve shoreline condition is to prioritize "soft armoring" options when existing "hard armoring" is being permitted to be repaired or replaced along the shoreline.

### High Stream Temperatures Remain a Limiting Factor for Skagit River Chinook and Steelhead Recovery

The 2004 Lower Skagit tributaries temperature TMDL failed to meet its goal of "100 percent of all stream miles of these creeks to be protected by riparian shade or enrolled as part of larger creek restoration and improvement projects by 2020." In March 2020, Washington Department of Ecology published guidance on a renewed effort to revitalize action on the TMDL.

The renewed effort continues to emphasize voluntary actions and relies on financial incentives to achieve riparian planting on private properties. Sole reliance on voluntary efforts will never be sufficient to meet water quality standards for salmon streams or the needs of Skagit chinook or steelhead recovery in a timely manner, particularly as climate change creates warmer, drier and longer summers. This is an urgent issue about which Swinomish and its treaty tribe partners have been sounding the alarm for two decades

and Ecology must take action far beyond its sole, passive reliance on voluntary measures.

### Public and Private Culverts in the Skagit River Watershed Continue to Block Anadromous Salmon Habitat

A recent comprehensive survey of culvert barriers to anadromous fish passage in the Skagit watershed documented 443 culverts on anadromous fish-bearing streams. Of these, 352 culverts are fish-passage blockages and 91 culverts are unknown but may be fish-passage blockages. Over 74% of the blocking and unknown culverts are either privately owned (204 culverts, 46%) or county owned (122 culverts, 28%). The remaining 117 culverts (26%) are spread across other public ownerships.

### Climate Change Impacts to Streamflow Will Threaten Steelhead Recovery in the Skagit

Results from climate change modeling for a collection of sites throughout the Skagit River system show increasing winter peak flow and decreasing summer low flow as more future annual precipitation is expected to fall as rain than snow. By 2099, results from an ensemble of models forecast that the 2-year high flow event will increase from its historic average by 22% under a low emission scenario, and by 33% under a high emission scenario. The same ensemble of climate models forecast that by 2099, the lowest 7-day 2-year low flow event will decrease from its historic average by 33% under a low emission scenario and by 45% under a high emission scenario.

## *Conclusion*

Restoration of salmon habitat continues to occur in the Skagit River freshwater and intertidal environments. However, the pace of restoration has slowed in the last five years, and this is compounded by a rapidly changing climate and continued discovery of habitat impairments. For restoration to lead to recovery, the schedule needs to accelerate.

While it does not carry the positive impact of restoration, mitigation does at least partially offset the negative impacts to habitat of infrastructure maintenance within the Skagit River system. Monitoring mitigation showing some success and failure should lead to increased mitigation success in the future.

Enforcement of the regulatory framework that is in place to protect salmon habitat continues to be greatly lacking in the Skagit River system. There continues to be a reliance on volunteerism towards compliance of environmental laws and regulations, and the result is much less habitat being protected and/or restored than needs to be. Salmon habitat is in critical condition in many areas within the Skagit River system, and the urgency of regulation enforcement is needed to move quickly out of that critical condition.

# Recovery Efforts Show Improvement But Still Lagging in Key Indicators

At the 15-year mark of the Puget Sound Salmon Recovery Plan, a review of key environmental indicators for the Skagit basin reveals mixed results in progress toward the recovery plan's goals and objectives. Priority issues continue to be improving degradation of water quantity, repair of fish-passage barriers and shoreline conditions. There has been progress in two indicators: restoration of tidal deltas and positive signs from monitoring of habitat mitigation sites.

Stepping back and looking at the big picture, there is still a shortage of staff at all levels (e.g., federal, state, tribal, county) needed to address the issues and implement actions to restore and protect habitat and to monitor and enforce compliance of existing regulations. In addition, funding shortfalls for large-scale projects contribute to the slow the pace of progress.



*Kari Neumeyer, NWIFC*

Illabot Creek

Review of the trend for these key environmental indicators since the 2016 State of Our Watersheds Report shows improvement for some indicators, no trend for a few and a steady loss for others in habitat status:

| Tribal Indicator | Status | Trend Since SOW 2016 Report |
|---|---|---|
| Habitat Mitigation | Habitat mitigation monitoring at 13 of 60 sites along the lower Skagit River mainstem demonstrated to offset impacts to riparian vegetation, rearing habitat, refuge habitat and forage habitat for fish. | Improving |
| Restoration - Tidal Delta | From 2004 to 2013, the tidal habitat footprint in the Skagit River delta increased from 3,384.65 hectares to 3,467.68 hectares, from 80% to 81.9% of the desired future condition (DFC) of the Skagit River Chinook Recovery Plan. Continued focus is necessary, as the pace of habitat restoration has slowed considerably since 2009. | Improving |
| Restoration - Pocket Estuary | Through 2015, pocket estuary restoration was completed at 6 sites totaling 33.6 acres of usable habitat area and Chinook smolt production was estimated to have increased by 48,461 smolts. Since 2015, there has been a small amount of active restoration in Dugualla Lagoon, and Similk Beach has entered a more active restoration phase, but nothing has been completed. | No Trend |
| Shoreline Modifications | Shoreline survey data through 2017 revealed 118 miles of shoreline armoring and modification including nearshore tidal barriers in the marine nearshore of Skagit and Samish Rivers intertidal areas. In 2008, published data for that same region showed 113 miles of shoreline armoring and modification including nearshore tidal barriers. It is assumed that the majority of the 5-mile increase is due to improved data, including for areas not previously surveyed. | No Trend |
| Water Quality - Temperature | The Department of Ecology's voluntary riparian planting program has failed to meet its 100 percent goal of riparian planting by 2020. This failure has put into serious jeopardy the 2080 goal of temperature compliance for the nine lower Skagit tributaries, as well as the habitat recovery needs for ESA-listed Chinook and steelhead. | Declining |
| Stream Blockages - Culverts | A recent, comprehensive survey of culvert barriers to anadromous fish passage in the Skagit watershed documented 443 culverts on anadromous fish bearing streams. 352 of these culverts are fish passage blockages and 91 of these culverts are unknown but may be fish passage blockages. Over 74% of the blocking and unknown culverts are either privately owned (204 culverts, 46%) or county owned (122 culverts, 28%). The remaining 117 culverts (26%) are spread across other public ownerships. | Declining |
| Climate Change Impacts | Results from climate change modeling for a collection of sites throughout the Skagit river system show increasing winter peak flow and decreasing summer low flow as more future annual precipitation is expected to fall as rain than snow. | Concern |

The tribe continues to work toward the protection and restoration of healthy and functional nearshore, estuarine and river habitat, restoring those areas that are degraded and conducting research to understand the organisms and the habitats they occupy.

# Looking Ahead

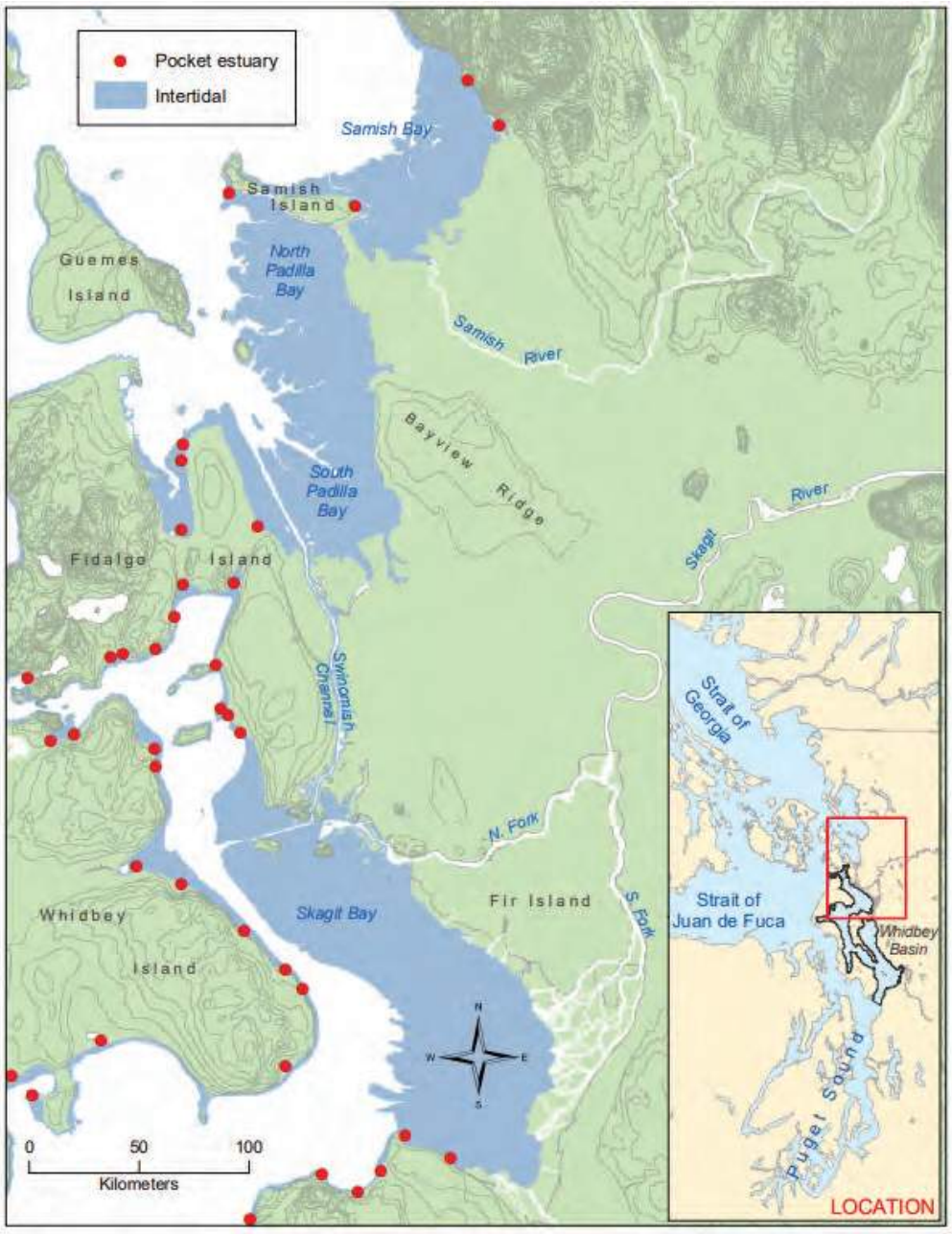
The Swinomish Tribe has prioritized restoration and protection efforts throughout the Skagit River watershed to recover all six species of wild salmon for current and future generations. Unfortunately, many exemptions exist for ongoing land uses, and the state has been unwilling to ensure that there is sufficient cold, clean water in all of our salmon streams. This has hindered the pace of restoration, causing salmon recovery to be behind schedule in meeting the Recovery Plan goals.

The state needs to adopt and expeditiously implement a regulatory framework that serves to protect and restore salmon habitat if the recovery goals for chinook, steelhead and other wild Skagit River salmonids are to be realized. Federal agencies with a trust responsibility need to exert leadership to ensure that the spirit and letter of environmental protection laws are implemented as fully and equitably as possible.

Climate change will continue to exacerbate many of the long-standing recovery challenges in the Skagit basin, especially without adequate riparian habitat. We and our state co-managers and federal trustees need to redouble our efforts to enforce existing habitat protection laws, create and implement innovative new programs that restore full function to our watershed, and continue to do the hard work necessary to achieve salmon recovery goals for current and future generations.

# Critical Chinook Habitat Restoration in the Skagit River Intertidal Zone Continues, but the Pace Has Slowed

**Skagit River Nearshore and Intertidal Region[5]**




Nearshore and estuarine habitats throughout the Skagit River intertidal zone provide juvenile Skagit chinook forage for growth, refuge from predators, a transition zone for physiological change from a freshwater fish to a saltwater fish, and migratory routes to more food in the ocean.[1] These habitats have been greatly impacted through agricultural and residential development since the late 19th century, and these land-use impacts have directly impacted Skagit River chinook productivity. How well the nearshore and estuarine habitats of the Skagit River Intertidal Zone support these four functions directly influences the recovery and future viability of Skagit River chinook.[2]

Skagit River delta habitat, preferred for rearing by tidal delta rearing juvenile chinook, has decreased by 87.9%.[3] Pocket estuary habitat in the intertidal zone, preferred for rearing by fry migrant ocean type juvenile chinook salmon, has decreased by roughly 80% in area.[4] The construction of bulkheads and tidal barriers along the intertidal shorelines has had a significant impact on chinook rearing habitat in the tidal delta and pocket estuaries, as well as an impact on chinook forage by impacting beach spawning habitats of surf smelt and Pacific sand lance (forage fish).

Restoration in each of these areas of the intertidal zone has been ongoing for over two decades. There have been significant strides made since 2005, through implementation of the scientifically based and well-coordinated Skagit River Chinook Recovery Plan. However, restoration progress has slowed in recent years. When this is coupled with climate based changes in the sea level of the intertidal zone, and with improved survey methods discovering more impacts than previously expected, it becomes clear that restoration of the intertidal zone will need to accelerate into the future if chinook recovery is to occur.

*(Continued on next page)*

*(Continued from previous page)*

## Skagit River Tidal Delta Habitat Restoration Successful, but the Pace Has Slowed Since 2009

*From 2004 to 2013, the tidal habitat footprint in the Skagit River delta increased from 3,384.65 hectares to 3,467.68 hectares, from 80% to 81.9% of the desired future condition (DFC) of the Skagit River Chinook Recovery Plan.[6] Continued focus is necessary, as the pace of habitat restoration has slowed considerably since 2009.[7] From 2005 to 2009, 103.3 hectares of tidal delta extent were restored (25.8 hectares per year) and since 2009, only 71.2 hectares have been restored (10.2 hectares per year).*

**Skagit River Tidal Delta Restoration Sites (2004-2016)**







*Map Data Sources: GSRO 2019,[10] ESRI 2020[11]*

Tidal delta marsh grows naturally through a process of progradation, which is the result of river sediment input depositing within the delta over time. In the Skagit River delta, progradation rates have been declining since the early 1970s, with marsh loss already occurring in the Skagit Bay frontal marsh and to a lesser degree in the South Fork marsh.[8] The Skagit River remains leveed in many places and peak water and sediment-moving flows occur with stream power like a "fire hose" that pushes sediment further into Skagit Bay instead of depositing it into the delta to create tidal marsh. As well, sea level rise is creating periods of higher wave energy, which in some instances, is beginning to erode marshlands that aren't naturally protected, especially along the Skagit Bay frontal marsh.

If tidal habitat restoration continues at the pace that has been occurring since 2009, it will take until 2096 (90 years in total) to reach the desired future conditions (DFC) laid out in the 50-year Skagit River Chinook Recovery plan. To reach DFC for tidal marsh by 2030 (midpoint of a 50-year recovery plan), the pace of restoration needs to increase, and there must be explicit consideration of sea level rise, storm surge and sediment routing as an update to the current tidal habitat restoration plan.[9]

**Skagit River Tidal Delta Habitat Restoration between 2004 and 2016[12,13]**

| Restoration | Year | Hectares Gained |
|---|---|---|
| Fisher Slough | 2011 | 18.66 |
| South Fork Dike Setback | 2007 | 8.37 |
| Smokehouse | 2008 | 26.9 |
| Swinomish Channel | 2008 | 3.37 |
| Wiley Slough | 2009 | 64.62 |
| Fisher Island Farms | 2016 | 52 |

*(Continued on next page)*

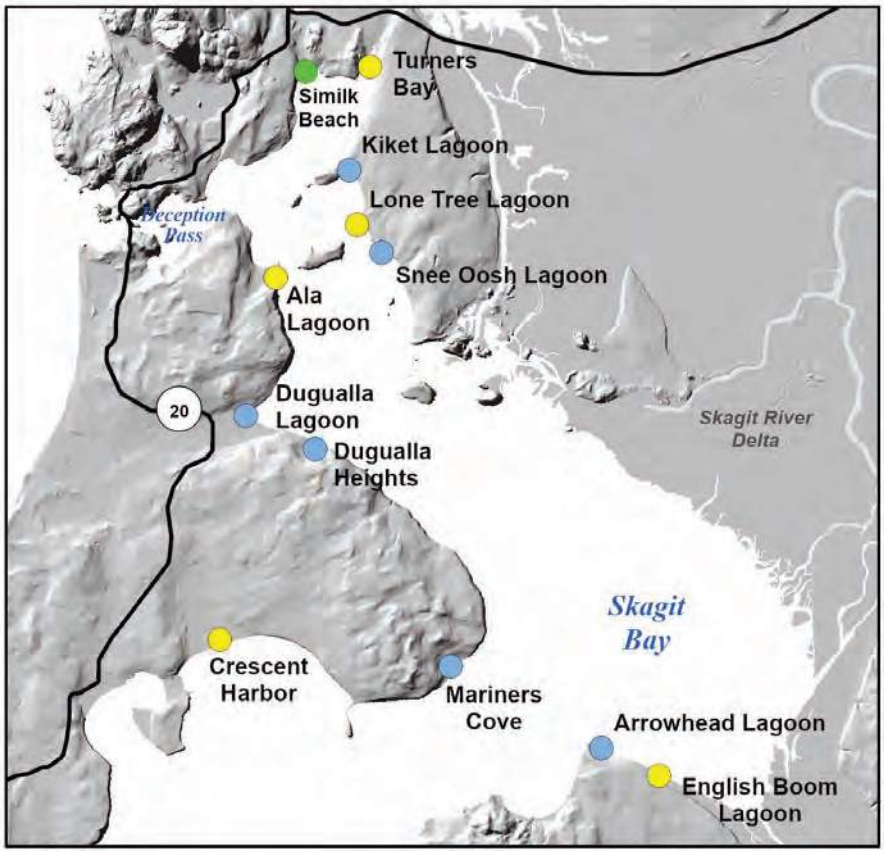
*(Continued from previous page)*

## Pocket Estuary Restoration Remains Important to Skagit River Chinook Recovery

*Through 2014, pocket estuary restoration was completed at 5 of the 12 prioritized Skagit Chinook Plan sites. Habitat status and trends monitoring reveals the restoration increased usable pocket estuary habitat area for chinook smolt production by over 240 acres. The Dugualla Heights restoration site entered the design phase, but was not completed due to concern of the design not having enough salmon habitat benefit. It is still considered as a restoration target, and can be completed with a better design. Since 2014, no additional restoration has occurred at the 12 prioritized sites although Similk Beach has entered an active planning/design phase with restoration anticipated in the near future.*[14]

Within the Whidbey basin, modeling and field surveys have led researchers to conclude that over two-thirds of historic pocket estuaries have been completely lost to juvenile salmon use, and the remaining one-third has been reduced in size by approximately 50%.

In response, the Skagit Chinook Recovery Plan prioritized the restoration of 12 pocket estuaries, all of which are within a day's swimming distance for Skagit River juvenile chinook. Restoration of these 12 sites is expected to result in the production of over 147,000 additional smolts. Over 63% of the increased production, or over 93,000 smolts will come from the completed restoration of the Dugualla Lagoon project.[15]




There are 12 prioritized pocket estuary restoration projects. 5 have been completed, 1 is active and 6 remain conceptual.

| Site | Hectares of habitat | | | Acres of habitat | | |
|---|---|---|---|---|---|---|
| | Year 2005 | Year 2014 | Change | Year 2005 | Year 2014 | Change |
| English Boom Lagoon | 1.07 | 1.35 | 0.29 | 2.64 | 3.34 | 0.71 |
| Ala Lagoon | 8.21 | 7.05 | -1.16 | 20.28 | 17.42 | -2.86 |
| Crescent Harbor | 0.00 | 94.13 | 94.13 | 0.00 | 232.61 | 232.61 |
| Lone Tree Lagoon | 2.22 | 2.44 | 0.22 | 5.48 | 6.02 | 0.55 |
| Turners Bay | 18.75 | 22.49 | 3.75 | 46.32 | 55.58 | 9.26 |
| **Total** | **30.23** | **127.46** | **97.23** | **74.71** | **314.97** | **240.26** |

Pocket estuary restoration has resulted in over 240 acres of usable pocket estuary habitat area for chinook smolt production.[21]

*(Continued on next page)*

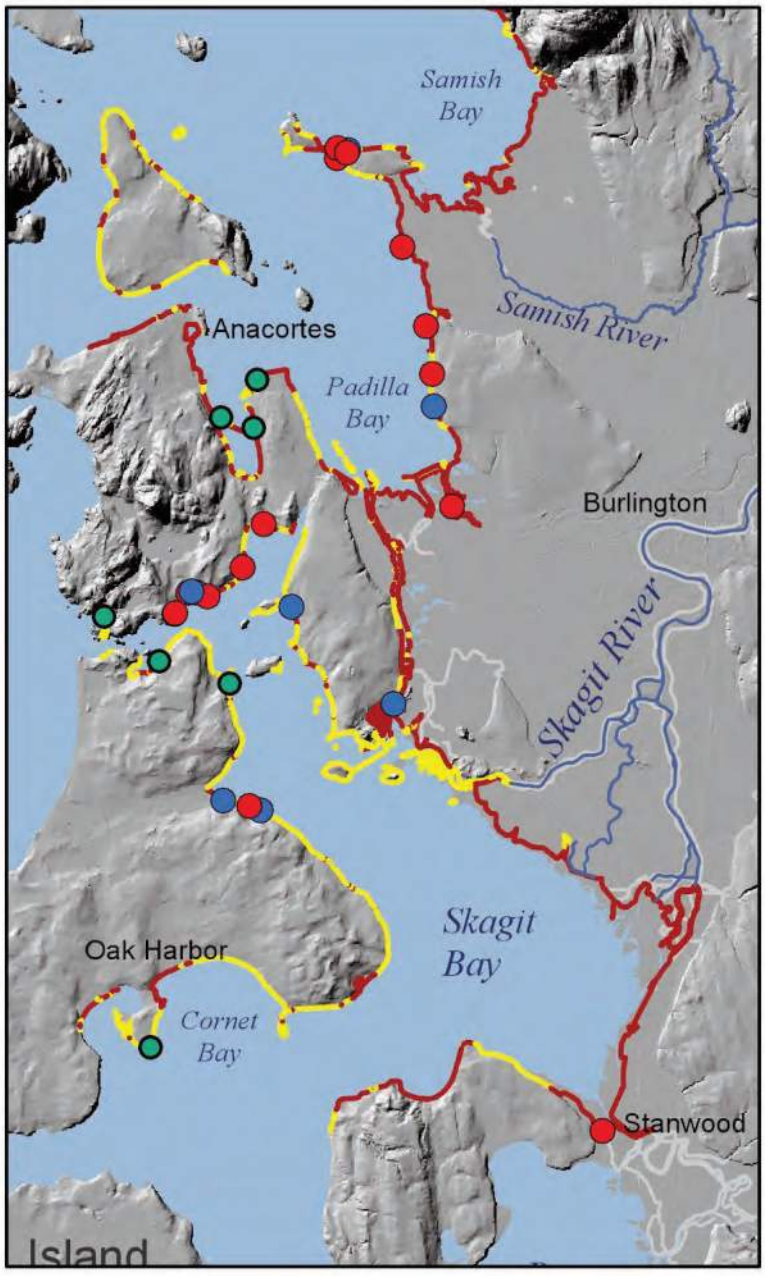
*Map Data Sources: SRSC and WDFW 2005,[16] SRSC and WDFW 2012,[17] HWS 2020,[18] SSHIAP 2004,[19] WADNR 2014c[20]*

*(Continued from previous page)*

## Nearshore Armoring Continues to Impact the Intertidal Zone

*Shoreline survey data through 2017 revealed 118 miles of shoreline armoring and modification including nearshore tidal barriers in the marine nearshore of Skagit and Samish river intertidal areas. In 2008, published data for that same region showed 113 miles of shoreline armoring and modification including nearshore tidal barriers.[22,23] It is assumed that the majority of the 5-mile increase is due to improved data, including for areas not previously surveyed.*

**Skagit and Samish River Marine Nearshore Projects 2014 through 2019: WDFW Permitted Projects and PSEMP Monitored Restoration Projects**



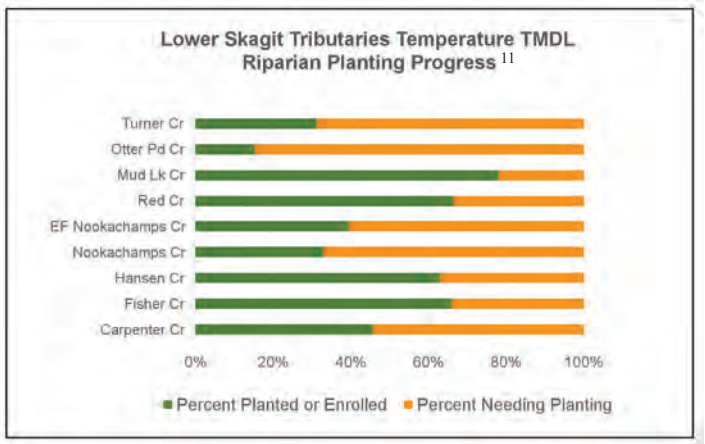

Since 2015, WDFW has issued marine shoreline armoring permits for 22 Hydraulic Permit Applications (HPA) within the Skagit chinook intertidal area. Of those permits, 4 were for new armoring and 18 were for repair or replacement of existing armoring. More ecologically suitable or soft armoring was included in 40% (9 of the 22 projects), and removed in 1 of the 22 projects.[24] Since 2015, there have been 4 nearshore restoration projects resulting in the removal of 4,295 feet of shoreline armoring.[25]

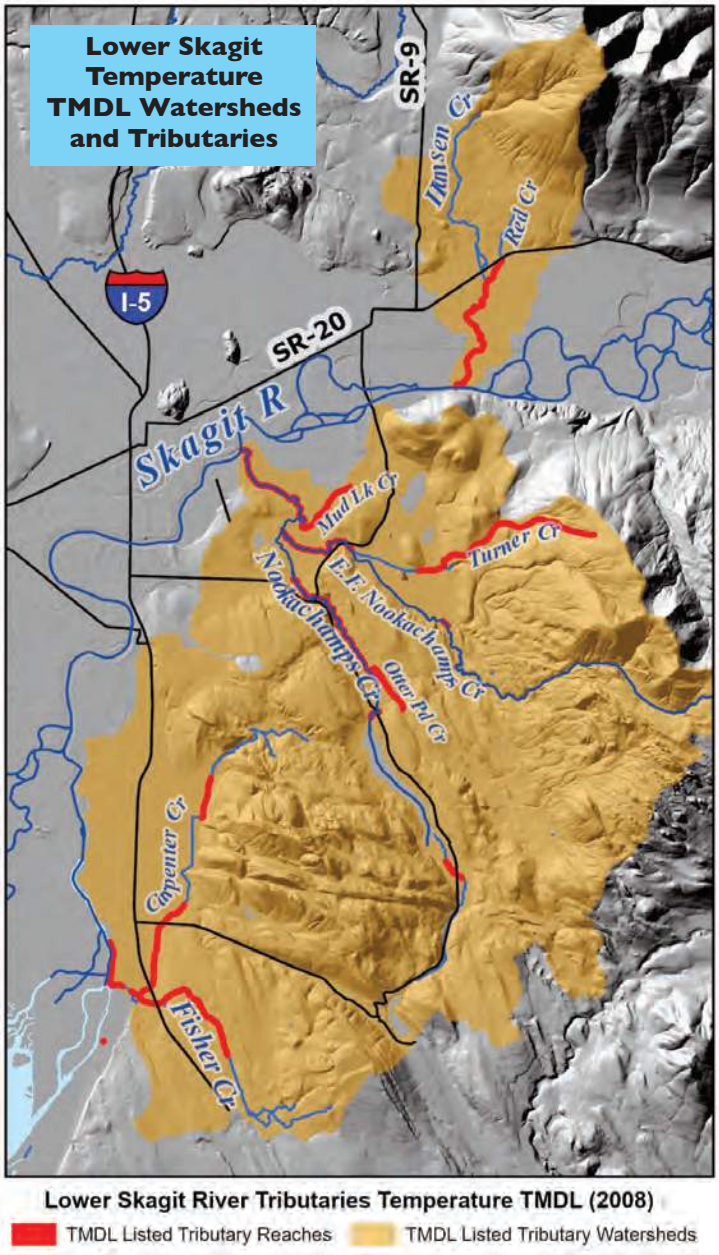
The best opportunity for improving the shoreline is through armoring removal as part of nearshore restoration projects. Another opportunity is the repair/replacement of existing shoreline and these efforts will require continued coordination between state and local permitting agencies to prioritize soft armoring replacement as the repair/replacement option.

*Map Data Sources: CGS 2017,[26] PSEMP 2020,[27] WDFW 2020,[28] SSHIAP 2004[29]*

# High Stream Temperatures Remain a Limiting Factor for Skagit River Chinook and Steelhead Recovery

*The Department of Ecology's voluntary riparian planting program has failed to meet its 100 percent goal of riparian planting by 2020. This failure has put into serious jeopardy the 2080 goal of temperature compliance for the nine lower Skagit tributaries, as well as the habitat recovery needs for ESA-listed chinook and steelhead.*




In 2004, Washington State Department of Ecology established total maximum daily load (TMDL) limits for high stream temperatures on nine tributaries, including chinook, coho and steelhead streams, in the Lower Skagit Tributaries Temperature TMDL. The 2008 Lower Skagit TMDL Improvement Plan charted a path for these nine tributaries to become temperature compliant by 2080 if the TMDL implementation goal was met that "100 percent of all stream miles of these creeks to be protected by riparian shade or enrolled as part of larger creek restoration and improvement projects by 2020."[1] Unfortunately, Ecology has failed to meet its 100 percent goal of riparian planting by 2020.

Ecology has relied entirely on voluntary programs to recover the water quality of these important salmon streams. For two decades, Swinomish has pointed out the insufficiency of this, noting that voluntary programs are part of the solution but alone would never be adequate to reach water quality standards within sufficient time for restoring degraded salmon habitat. Based on a recent LIDAR technical analysis, approximately 50% of overall stream length within the nine-tributary watershed is currently forested or planted in trees. In Nookachamps Creek, the largest salmon stream in the sub-basin that historically has been home to chinook and steelhead, only 30% of creek miles have been planted. That's far short of the 100% goal that was supposed to be reached this year.[2]

What is the consequence of this failure to be only halfway toward meeting its 2020 goal of 100% planting to implement the Lower Skagit Temperature TMDL? It puts into serious jeopardy the 2080 goal of temperature compliance for the nine lower Skagit tributaries, as well as the habitat recovery needed for Endangered Species Act-listed chinook and steelhead. It also makes it far less likely that Lower Skagit salmon streams can achieve the level of climate resiliency needed as temperatures warm and summers become longer and drier. High stream temperatures were identified as a limiting factor to Skagit River chinook survival and recovery in the 2005 Skagit River Chinook Recovery Plan and to Puget Sound steelhead recovery in the 2019 Puget Sound Steelhead Recovery Plan.[3,4]

The 2004 Lower Skagit Temperature TMDL called for average riparian buffers of a minimum 100 feet in width on either side of the stream, assuming water quality would not be further degraded by reduced streamflows.[5] The degradation of riparian vegetation throughout the Lower Skagit river system, and a lack of regulato-

*(Continued on next page)*

*Map Data Sources: WADNR 2014c,[7] WAECY 2018,[8] WAECY 2014b,[9] SSHIAP 2004[10]*

*(Continued from previous page)*

ry framework to require tree planting for compliance with water quality standards, has allowed higher water temperatures throughout the system to persist, to the peril of salmon and treaty rights.

Efforts to restore riparian vegetation are ongoing, and with some clear successes throughout the Skagit watershed as a result of tribal, conservation district and local nonprofit leadership and partnership. **The real problem, though, is that the pace of restoration has been far too slow – largely because Ecology has been unwilling to create a regulatory framework for enforcing water quality standards for temperature in salmon streams – and so no regulatory action has been taken.** Sole reliance on voluntary efforts has been and will continue to be insufficient to meet water quality standards for salmon streams or the needs of Skagit chinook or steelhead recovery in a timely manner, particularly as climate change creates warmer, drier and longer summers. This is an urgent issue about which Swinomish and its treaty tribe partners have been sounding the alarm for two decades, and the time for regulatory action is undeniable.

Unfortunately the Skagit is not alone – approximately 1,800 miles of salmon streams throughout western Washington are not meeting water quality standards from temperature pollution. To compound this, climate change is forecast to cause dramatic increases in stream temperatures throughout our region over the next 20 to 60 years, without urgent action to plant trees, climate change is going to wreak havoc on recovering salmon for decades and generation to come.

## Ecology's new voluntary plan

As a result of Swinomish's efforts, the Puget Sound Partnership's Leadership Council passed a resolution in March 2019 urging Ecology to use all available tools at its disposal, including regulatory tools, to remedy the Lower Skagit Temperature TMDL expeditiously. Swinomish was hopeful that real change was on the way.

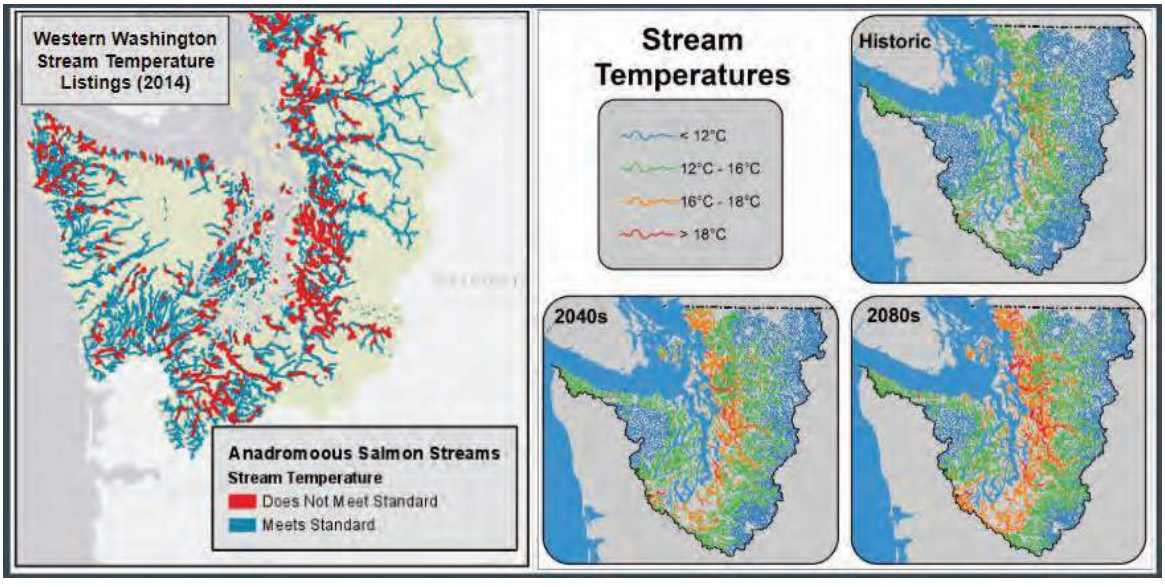
In fall 2019, Ecology held meetings with stakeholders and tribal government representatives to create a new "strategy" to "revitalize regional efforts to reduce water temperatures." Unfortunately, Ecology staff were prevented from discussing or addressing any regulatory solutions - they were given authorization only to discuss voluntary measures despite the clear intent from the Leadership Council resolution. The document produced by Ecology in December 2019 purportedly replaced the 2008 Lower Skagit Water Quality Improvement Plan, but in doing so it maintained sole reliance on voluntary measures, and provided no timeline for achieving the 100% goal of riparian plantings or water quality standards. The new voluntary plan also ignored the worsening impacts to stream temperatures predicted from climate models and recommended no actions to address increasing temperatures and longer, drier, warmer summers as a result of climate change.[6] The Swinomish Tribe strongly objected to the plan.

## Gov. Inslee's Centennial Accord Commitment to Climate Resilient Salmon Streams

Gov. Jay Inslee exercised his strong leadership at the 2019 Centennial Accord in both acknowledging the importance of healthy riparian habitats for salmon and clean water and directing all state agencies to work with the tribes on a proposal that will engage current science and chart a new path toward achieving climate resilient salmon streams. Swinomish is hopeful that by working together, the state and tribal communities can take the important, urgent action needed to protect and recover salmon.

The difficult truth of the matter is that the tribes are running out of fish, and we are running out of time to take the action needed to recover the degraded habitat and water quality our fish need to thrive. Swinomish has watched its salmon harvest decline by over 80% in the past decades – no industry has suffered similar losses. Climate change is worsening the impacts to salmon, so it is equitable, timely and just to develop and implement regulatory measures to rapidly recover and protect our streams and salmon resources.

We can make up for lost time and the harm caused to Swinomish, other treaty tribes and the salmon that are our cultural lifeblood, but only if we prioritize action and move expeditiously to implement science-based solutions.

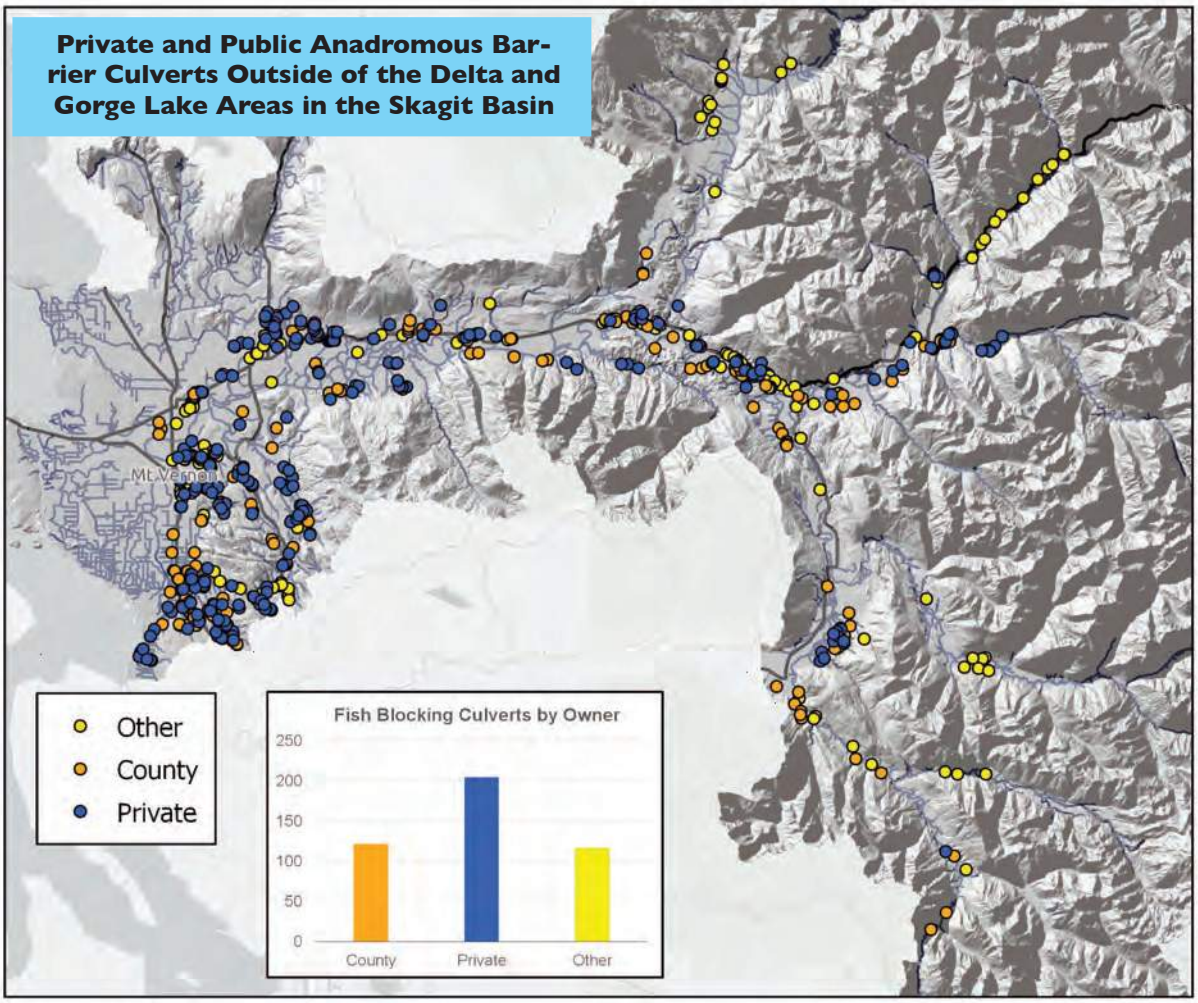



Nearly 1,800 miles of anadromous salmon streams are not meeting stream temperature standards in western Washington. Stream temperatures in Puget Sound are projected to increase dramatically if climate change continues on its current trajectory.

*Map Data Sources: ESRI 2020,[12] SWIFD 2014,[13] WAECY 2016,[14] Mauger, et.al. 2015[15]*

# Public and Private Culverts in the Skagit River Watershed Continue to Block Anadromous Salmon Habitat

*A recent, comprehensive survey of culvert barriers to anadromous fish passage in the Skagit watershed documented 443 culverts on anadromous fish-bearing streams. Of these, 352 culverts are fish-passage blockages and 91 culverts are unknown but may be fish-passage blockages. Over 74% of the blocking and unknown culverts are either privately owned (204 culverts, 46%) or county-owned (122 culverts, 28%). The remaining 117 culverts (26%) are spread across other public ownerships.*[1]




Culverts make up more than 70% of known fish-passage barriers in the Skagit River watershed.[2] This survey, which included participation from the Skagit River System Cooperative (SRSC), the Upper Skagit Indian Tribe (USIT), Skagit County (SKCO), and the Skagit Fish Enhancement Group (SFEG) is the first comprehensive update of these barriers in 20 years. This survey is focused on anadromous fish-bearing streams within a selected survey area, and excludes the Samish River watershed, the Skagit estuary, Fidalgo Island and the portion of the Skagit Watershed upstream of the Gorge Dam at Newhalem due to complicating factors in those areas.[3]

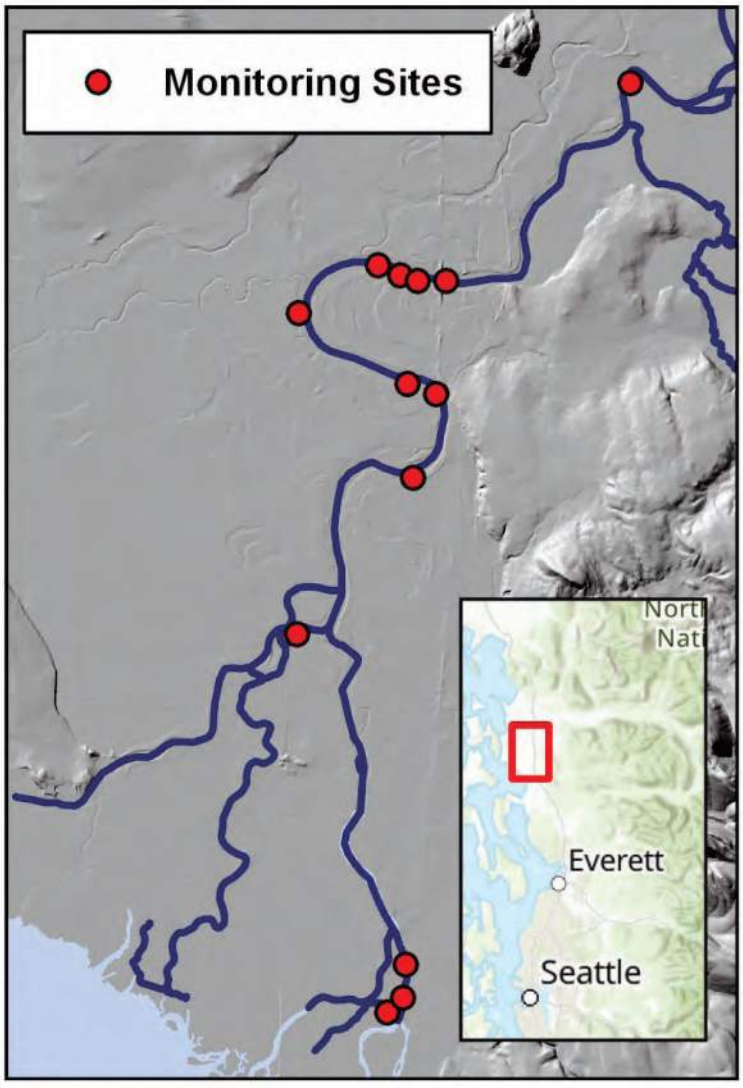
The barrier survey identified 443 culverts, known barriers and unknown but potential barriers within the study area. These barriers are to be considered as a group from which land managers and restoration planners in the Skagit River watershed can strategically locate projects to open up barriers to fish passage. This survey also identified barrier "clusters" to inform land managers and restoration planners where upstream and downstream are barriers located on the same stream system. This allows for strategic planning of multi-culvert removal in locations where up and/or downstream culverts are also blocking anadromous salmon habitat.[4]

The Skagit Watershed Chinook Recovery Plan recommends that each governmental entity identify each culvert on their lands or under their jurisdiction that have man-made barriers to chinook salmon.[5] With the tool now available from this barrier survey, it is even more possible for the culvert barrier owner, regardless of jurisdiction, to take responsibility for fixing their blockage to fish passage, as is required through current Washington state statute.

*Map Data Sources: WDFW 2019,[6] SWIFD 2019,[7] WADNR 2014c,[8] SSHIAP 2004,[9] ESRI 2020[10]*

# Habitat Mitigation Is Partially Offsetting the Negative Impact of Riprap Repair to Riverine Edge Habitat

*As part of the 2011 Environmental Assessment the U.S. Army Corps of Engineers was required to complete habitat mitigation for the batched 2007 and 2011 repairs at 60 sites along the lower Skagit River mainstem.[1] Monitoring was conducted at 13 of the 60 sites, and when compared with baseline riprap conditions, the mitigation sites as a whole were found to have offset impacts to riparian vegetation, rearing habitat, refuge habitat and forage habitat for fish. Individual sites partially or not providing functions were most often the result of habitat features not being installed during levee repair.[2]*




U.S. Army Corps of Engineers Mitigation Monitoring Sites Along the Lower Skagit River mainstem.

The Corps developed the 2011 Habitat Capacity Mitigation Tool (HCMT) in conjunction with the Environmental Assessment (EA) to have metrics for salmon habitat that could be used as a basis to measure the performance of compensatory mitigation. The habitat focus of the HCMT are rearing, foraging and refuge riverine edge habitat for juvenile chinook, as well as the riparian corridor. Monitoring for the 13 sites resulted in a performance status for each of these four focus areas reported as "functions met (+)", "functions unmet (-)", or "functions partially met (+/-)".[3]

The majority of functions were met, at least partially, for the 13 sites. Functions were not met for rearing and riparian at one site, not for foraging at another site, nor for riparian at two other sites.[4] As a whole, the negative impacts of Corps riprap repair appear to have been mitigated for through the HCMT. This should not be interpreted as restoration or recovery of habitat; this mitigation only means that the riprap repair actions taken by the Corps that negatively impacted riverine edge habitat and riparian habitat in the lower Skagit River were at least partially offset by habitat mitigation. The legacy habitat impacts of extensive riprap along the lower Skagit River mainstem continue mostly unmitigated.

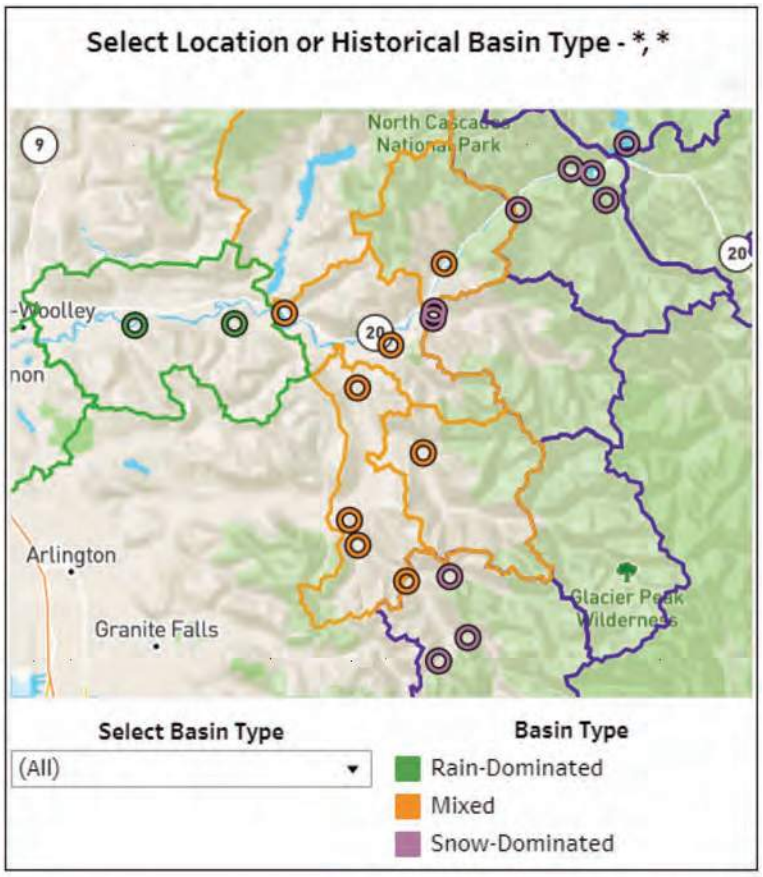
**Performance Results for 13 Monitoring Sites[8]**

| | 2017 Results – Habitat Functions | | | |
|---|---|---|---|---|
| Site ID | Rearing | Refuge | Forage | Riparian |
| 1-3 | — | + | + | — |
| 3-5 | + | | + | |
| 3-6 | + | + | + | ± |
| 3-8 | + | + | + | — |
| 3-11 | | + | + | — |
| 12-6 | + | + | ± | + |
| 12-9 | + | + | ± | + |
| 12-13 | + | + | ± | + |
| 12-14 | + | ± | — | + |
| 17-2 | + | + | | |
| 17-9 | | + | ± | + |
| 17-16 | | + | ± | ± |
| 22-7 | + | + | + | ± |

*Map Data Sources: WAECY 2018,[5] USACE 2017,[6] SSHIAP 2004[7]*

# Climate Change Impacts to Streamflow Will Threaten Steelhead Recovery in the Skagit

*Results from climate change modeling for a collection of sites throughout the Skagit River system show increasing winter peak flow and decreasing summer low flow as more future annual precipitation is expected to fall as rain than snow. By 2099, results from an ensemble of models forecast that the 2-year high flow event will increase from its historic average by 22% under a low emission scenario, and by 33% under a high emission scenario. The same ensemble of climate models forecast that by 2099, the lowest 7-day 2-year low flow event will decrease from its historic average by 33% under a low emission scenario and by 45% under a high emission scenario.[1]*




Skagit River steelhead are more susceptible to streamflow changes driven by climate change than some other anadromous species in the basin because they are in freshwater for a longer period of time (over a year in some cases). The changes in summer base flow and in peak winter flow are likely to impact adult steelhead river entry, pre-spawn mortality, spawning, egg incubation and juvenile steelhead rearing.[2] That means Skagit steelhead will potentially be stressed at nearly every point in their freshwater life cycle in the near future.

In light of the relatively high impact climate change will have on Skagit steelhead in the freshwater environment, even more needs to be done to increase habitat resilience so that they have time to adapt. Adaptation measures should include all of the following:

- Protecting instream flows and improving flows in the Skagit River by enforcing regulations,
- Restricting permit-exempt wells in areas that are hydraulically linked to waterways with low summer flows,
- Supporting incentive programs for water banking or water rights lease or purchase,
- Protecting and restoring groundwater recharge areas and riparian buffer habitat and
- Improving other hydrological characteristics like floodplains to provide lower energy habitat during peak flows and wetted habitat during summer low flows.[3]

**2-Year Peak Flow Events (Q2)**

| Change (%) from Historical (1962-2009) - * | | Min | Mean | Max |
|---|---|---|---|---|
| RCP 4.5 (Low) | 2000-2049 | -4 | 5 | 14 |
| | 2025-2074 | -1 | 13 | 29 |
| | 2050-2099 | 1 | 22 | 44 |
| RCP 8.5 (High) | 2000-2049 | 0 | 8 | 20 |
| | 2025-2074 | 3 | 20 | 41 |
| | 2050-2099 | 5 | 33 | 63 |

**Lowest 7-Day 2-Year Flow (7DQ2)**

| Change (%) from Historical (1962-2009) - * | | Min | Mean | Max |
|---|---|---|---|---|
| RCP 4.5 (Low) | 2000-2049 | -39 | -17 | 12 |
| | 2025-2074 | -53 | -27 | 13 |
| | 2050-2099 | -59 | -33 | 7 |
| RCP 8.5 (High) | 2000-2049 | -41 | -18 | 13 |
| | 2025-2074 | -57 | -31 | 6 |
| | 2050-2099 | -68 | -45 | -1 |

The Skagit Climate Science Consortium (SC2) worked with the UW's Climate Impacts Group to create an interactive web-based tool that anyone can use to look at the hydrologic impacts of forecast climate changes under different global emission scenarios. Captured here is Mean Monthly Flow averaged for all sites in the Skagit River watershed for water years 2038 through 2067 under low global emission and high global emission climate change scenarios.[4]

*Map Data Sources: WAECY 2018,[5] USACE 2017,[6] SSHIAP 2004[7]*

# Citations

## Swinomish Indian Tribal Community: Land Jurisdiction


1 Encyclopedia of the Puget Sound.2012.

2 Riedel, J.L., M.A. Larrabee. 2016. Impact of Recent Glacial Recession on Summer Streamflow in the Skagit River. Northwest Science, 90(1):5-22.

3 U.S. Census Bureau. QuickFacts-Skagit County: https://www.census.gov/quickfacts/fact/table/skagitcountywashington/INC110218.

4 CensusViewer – Skagit County: http://censusviewer.com/county/WA/Skagit.

5 Shared Puget Sound Strategy 2007.

6 USFWS. 2018. Polygons of FWS Approved Boundaries. Falls Church, VA: U.S Fish and Wildlife Services.

7 WAECY. 2018a. NHD Major Areas, Streams, and Waterbodies. 1:24000. From U.S. Geological Survey (in cooperation with others) National Hydrography Dataset. Washington Department of Ecology.

8 WAECY. 2018b. City Boundaries and Urban Growth Areas Polygons. Washington Department of Ecology.

9 WAECY. 1994. Polygons of Washington State Shorelines and Boundary. Washington Department of Ecology.

10 WADNR. 2014c. Washington DNR Transportation Polylines. Washington State Department of Natural Resources. Olympia, WA.

11 WADNR. 2014d. Washington State Non-DNR Major Public Lands (NDMPL) Polygons. Olympia, WA: Washington State Department of Natural Resources.

12 WADOT. 2013. Highway Urban Areas Polygons. Olympia, WA: Washington State Department of Transportation.

13 SSHIAP. 2004. Hillshade derived from University of Washington Digital Elevation Model (DEM). Salmon Steelhead and Inventory Assessment Program.


## Critical Chinook Habitat Restoration in the Skagit River Intertidal Zone Continues, but the Pace Has Slowed


1 Beamer, E., A. McBride, C. Greene, R. Henderson, G. Hood, K. Wolf, K. Larsen, C. Rice & K. Fresh. 2005. Delta and nearshore restoration for the recovery of wild Skagit River Chinook Salmon: Linking estuary restoration to wild Chinook Salmon populations. Supplement to: Skagit Chinook Recovery Plan (Appendix D). Skagit River System Cooperative.

2 Ibid.

3 Ibid.

4 Ibid.

5 Ibid.

6 Beamer, E and Wolf, K. 2017. Skagit Chinook Habitat Monitoring Status and Trends: Change in Skagit Tidal Delta Habitat Extent, 2004 – 2013. Skagit River System Cooperative. LaConner, WA.

7 Ibid.

8 Hood, W.G., E.E. Grossman, and C. Veldhuisen. 2016. Assessing tidal marsh vulnerability to sea-level rise in the Skagit Delta. Northwest Science 90(1):79-93. 2016. doi: http://dx.doi.org/10.3955/046.090.0107.

9 Beamer, E and Wolf, K. 2017. Skagit Chinook Habitat Monitoring Status and Trends: Change in Skagit Tidal Delta Habitat Extent, 2004 – 2013. Skagit River System Cooperative. LaConner, WA.

10 GSRO. 2019. Habitat Work Schedule Project Export Points. Washington State Governor's Salmon Recovery Office.

11 ESRI. 2020. Imagery Basemap.

12 Beamer, E and Wolf, K. 2017. Skagit Chinook Habitat Monitoring Status and Trends: Change in Skagit Tidal Delta Habitat Extent, 2004 – 2013. Skagit River System Cooperative. LaConner, WA

13 Beamer, E., R. Henderson, K. Wolf, J. Demma, and W. G. Hood 2018. Juvenile Chinook salmon response to dike setback restoration at Fir Island Farms in the Skagit River tidal delta, 2015 – 2018. Report to Washington Department of Fish and Wildlife under Interagency Agreement Number 15-02641. Skagit River System Cooperative, La Conner, WA 98257.

14 Beamer, E, Wolf K., and Ramsden K. 2018. GIS Census of Pocket Estuaries Accessible to Juvenile Salmon in the Whidbey Basin & Western Shore of Whidbey Island, 2014. Skagit River Systems Cooperative. La Conner, WA.

15 SRSC and WDFW 2005. Skagit Chinook Recovery Plan. Skagit River System Cooperative & Washington Department of Fish and Wildlife

16 Ibid.

17 SRSC and WDFW 2012. Skagit Chinook Recovery 2012: 3-Yr Workplan. Skagit River System Cooperative & Washington Department of Fish and Wildlife.

18 HWS. 2020. Habitat Work Schedule Project Export Points and Tables. Olympia, WA: Governor's Salmon Recovery Office.

19 SSHIAP. 2004. Hillshade derived from University of Washington Digital Elevation Model (DEM). Salmon Steelhead and Inventory Assessment Program.

20 WADNR. 2014c. Washington DNR Transportation Polylines. Washington State Department of Natural Resources. Olympia, WA.

21 Beamer, E, Wolf K., and Ramsden K. 2018. GIS Census of Pocket Estuaries Accessible to Juvenile Salmon in the Whidbey Basin & Western Shore of Whidbey Island, 2014. Skagit River Systems Cooperative. La Conner, WA.

22 CGS. 2017. Beach Strategies Collected Shoreline Data (GIS Dataset). Coastal Geologic Survey. Prepared for: Puget Sound Partnership.

23 PSNERP. 2008. Puget Sound Nearshore and Restoration Project Shoreline Armoring Polylines. Puget Sound Nearshore Ecosystem Restoration Partnership.

24 WDFW Aquatic Protection Permitting System (APPS). 2020: https://www.govonlinesaas.com/WA/WDFW/Public/Client/WA_WDFW/Public/Pages/SubReviewList.aspx

25 PSEMP. 2020. Shoreline Armoring Restoration Monitoring v2.xlsx. Puget Sound Ecosystem Monitoring Program Nearshore Working Group.

26 CGS. 2017. Beach Strategies Collected Shoreline Data (GIS Dataset). Coastal Geologic Survey. Prepared for: Puget Sound Partnership.

27 PSEMP. 2020. Shoreline Armoring Restoration Monitoring v2.xlsx. Puget Sound Ecosystem Monitoring Program Nearshore Working Group.

28 WDFW Aquatic Protection Permitting System (APPS). 2020.

29 SSHIAP. 2004. Hillshade derived from University of Washington Digital Elevation Model (DEM). Salmon Steelhead and Inventory Assessment Program.

## High Stream Temperatures Remain a Limiting Factor for Skagit River Chinook and Steelhead


1 Lawrence, S. 2008. Lower Skagit Tributaries Temperature Total Maximum Daily Load Water Quality Improvement Report. Olympia, WA: Washington State Department of Ecology.

2 Hyatt, T. April 23, 2020. Technical Memorandum: Lower Skagit River Tributaries Temperature Riparian Analysis. SRSC. La Conner, WA.

3 SRSC and WDFW 2005. Skagit Chinook Recovery Plan. Skagit River System Cooperative & Washington Department of Fish and Wildlife.

4 NMFS (National Marine Fisheries Service). 2019. ESA Recovery Plan for the Puget Sound Steelhead Distinct Population Segment (Oncorhynchus mykiss). National Marine Fisheries Service. Seattle, WA.

5 Zalewsky, B. and D. Bilhimer. 2004. Lower Skagit River tributaries temperature total maximum daily load study. Washington State Department of Ecology. Olympia, WA.

6 Washington State Department of Ecology. 2020. Lower Skagit Tributaries Temperature Implementation Strategy: Actions to Revitalize Regional Efforts to Reduce Wqter Temperatures. Water Quality Program, WDOE. Olympia, WA.

7 WADNR. 2014c. Washington DNR Transportation Polylines. Washington State Department of Natural Resources. Olympia, WA

8 WAECY. 2018. NHD Major Areas, Streams, and Waterbodies. 1:24000. From U.S. Geological Survey (in cooperation with others) National Hydrography Dataset. Washington Department of Ecology.

9 WAECY. 2014b. Total Maximum Daily Load (TMDL) Boundaries Polygons. Olympia, WA: Washington State Department of Ecology.

10 SSHIAP. 2004. Hillshade derived from University of Washington Digital Elevation Model (DEM). Salmon Steelhead and Inventory Assessment Program

11 Hyatt, T. April 23, 2020. Technical Memorandum: Lower Skagit River Tributaries Temperature Riparian Analysis. SRSC. LaConner, WA.

12 ESRI. 2020. Base map: White and Gray. ArcGIS Online.

13 SWIFD. 2014. Statewide Washington Integrated Fish Distribution. Washington Department of Fish and Wildlife & Northwest Indian Fisheries Commission.

14 WAECY. 2016. 2014 Washington State 305(b) and 303(d) Integrated Report listings submitted to and accepted by U.S. EPA.

15 Mauger, G.S., J.H. Casola, H.A. Morgan, R.L. Strauch, B. Jones, B. Curry, T.M. Busch Isaksen, L. Whitely Binder, M.B. Krosby, and A.K. Snover. 2015. State of Knowledge: Climate Change in Puget Sound. Report prepared for the Puget Sound Partnership and the National Oceanic and Atmospheric Administration. Climate Impacts Group, University of Washington, Seattle. doi:10.7915/CIG93777D


## Comprehensive Culvert Survey Has Been Completed in the Skagit River Watershed


1 Michelson, E., D. Smith, and S. Hinton. 2020. Skagit Basin Barrier Culvert Analysis: Public and Private Stream Crossings. Skagit River System Cooperative. La Conner, WA.

2 Ibid.

3 Ibid.

4 Ibid.

5 SRSC and WDFW 2005. Skagit Chinook Recovery Plan. Skagit River System Cooperative & Washington Department of Fish and Wildlife.

6 WDFW. 2019. Fish Passage and Diversion Screening Inventory (FPDSI) database. Olympia, WA: Washington Department of Fish and Wildlife

7 SWIFD. 2019. Statewide Washington Integrated Fish Distribution. 2019. Washington State Department of Fish and Wildlife & Northwest Indian Fisheries Commission.

8 WADNR. 2014c. Washington DNR Transportation Polylines. Washington State Department of Natural Resources. Olympia, WA.

9 SSHIAP. 2004. Hillshade derived from University of Washington Digital Elevation Model (DEM). Salmon Steelhead and Inventory Assessment Program.

10 ESRI. 2020. White and Gray Base Map.


## Habitat Mitigation Is Offsetting the Negative Impact of Riprap Repair to Riverine Edge Habitat


1 USACE. 2017. Skagit River Diking Districts 1, 3, 12, 17 and 22 Levees Rehabilitation of Flood Control Works Final Habitat Feature Monitoring Report – Year One. U.S. Army Corps of Engineers. Seattle, WA.

2 Ibid.

3 Ibid.

4 Ibid.

5 WAECY. 2018. NHD Major Areas, Streams, and Waterbodies. 1:24000. From U.S. Geological Survey (in cooperation with others) National Hydrography Dataset. Washington Department of Ecology.

6 USACE. 2017. Skagit River Diking Districts 1, 3, 12, 17 and 22 Levees Rehabilitation of Flood Control Works Final Habitat Feature Monitoring Report – Year One. U.S. Army Corps of Engineers. Seattle, WA.

7 SSHIAP. 2004. Hillshade derived from University of Washington Digital Elevation Model (DEM). Salmon Steelhead and Inventory Assessment Program.

8 USACE. 2017. Skagit River Diking Districts 1, 3, 12, 17 and 22 Levees Rehabilitation of Flood Control Works Final Habitat Feature Monitoring Report – Year One. U.S. Army Corps of Engineers. Seattle, WA.


## Climate Change Impacts to Streamflow Will Threaten Steelhead Recovery in the Skagit


1 Skagit Climate Science. 2020. Projected Changes in Streamflow: Based on Climate Change Modeling in the Skagit River Basin. https://public.tableau.com/profile/skagitclimate-science#!/vizhome/Skagit_Streamflow_2019-1202/Introduction

2 NMFS (National Marine Fisheries Service). 2019. ESA Recovery Plan for the Puget Sound Steelhead Distinct Population Segment (Oncorhynchus mykiss). National Marine Fisheries Service. Seattle, WA.

3 NMFS (National Marine Fisheries Service). 2019. ESA Recovery Plan for the Puget Sound Steelhead Distinct Population Segment (Oncorhynchus mykiss). National Marine Fisheries Service. Seattle, WA.

4 Skagit Climate Science. 2020. Projected Changes in Streamflow: Based on Climate Change Modeling in the Skagit River Basin. https://public.tableau.com/profile/skagitclimate-science#!/vizhome/Skagit_Streamflow_2019-1202/Introduction.

## Tara Satushek

**From:** Tim Trohimovich <Tim@futurewise.org>
**Sent:** Thursday, March 13, 2025 5:34 PM
**To:** PDS comments
**Subject:** Re: Comments on "2025 Skagit County Periodic Comprehensive Plan Update"
**Attachments:** HB 1220_Book2_Housing Element Update_230823 Final_updated 240920.pdf

Dear Staff:

Here is our fifth and final set of enclosures.

Thank you for considering our comments.

Tim Trohimovich, AICP
Director of Planning & Law
Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org

---

**From:** Tim Trohimovich <Tim@futurewise.org>
**Sent:** Thursday, March 13, 2025 5:32 PM
**To:** Skagit County PD&S Comments <pdscomments@co.skagit.wa.us>
**Subject:** Re: Comments on "2025 Skagit County Periodic Comprehensive Plan Update"

Dear Staff:

Here is the fourth set of enclosures.

Tim Trohimovich, AICP
Director of Planning & Law
Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org

---

**From:** Tim Trohimovich <Tim@futurewise.org>
**Sent:** Thursday, March 13, 2025 5:31 PM
**To:** Skagit County PD&S Comments <pdscomments@co.skagit.wa.us>
**Subject:** Re: Comments on "2025 Skagit County Periodic Comprehensive Plan Update"

Dear Staff:

Here is the third set of enclosures.

Tim Trohimovich, AICP
Director of Planning & Law
Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org

---

**From:** Tim Trohimovich <Tim@futurewise.org>
**Sent:** Thursday, March 13, 2025 5:30 PM
**To:** Skagit County PD&S Comments <pdscomments@co.skagit.wa.us>
**Subject:** Re: Comments on "2025 Skagit County Periodic Comprehensive Plan Update"

Dear Staff:

Here is the second set of enclosures.

Tim Trohimovich, AICP
Director of Planning & Law
Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org

---

**From:** Tim Trohimovich <Tim@futurewise.org>
**Sent:** Thursday, March 13, 2025 5:29 PM
**To:** Skagit County PD&S Comments <pdscomments@co.skagit.wa.us>
**Subject:** Re: Comments on "2025 Skagit County Periodic Comprehensive Plan Update"

Dear Staff:

Here is the first set of enclosures.

Tim Trohimovich, AICP
Director of Planning & Law
Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org

**From:** Tim Trohimovich
**Sent:** Thursday, March 13, 2025 5:23 PM
**To:** Skagit County PD&S Comments <pdscomments@co.skagit.wa.us>
**Subject:** Comments on "2025 Skagit County Periodic Comprehensive Plan Update"

Dear Staff:

Subject: Comments on the 2025 Skagit County Periodic Comprehensive Plan Update

Thank you for the opportunity to comment on the 2025 Skagit County Periodic Comprehensive Plan Update. Futurewise strongly supports the update. We have comments on the final draft below.

Futurewise works throughout Washington State to support land-use policies that encourage healthy, equitable and opportunity-rich communities, and that protect our most valuable farmlands, forests, and water resources. We have members across Washington State including Skagit County.

## Comments on the Preface

The first sentence under "2025 Forecast" on page 10 of the redlined version has the year 20~~4~~5. It appears that 2025 was intended.

**The Rural Growth Allocations, see redline pages 10 through 12.**

Futurewise has three concerns about the rural growth allocations. First, allocating 20 percent of the county's growth to the rural area will be costly for county taxpayers and ratepayers. A peer-reviewed study shows that "the cost of providing public services in rural areas is 39% greater than in cities." Ron Shani, Yaniv Reingewertz & Eran Vigoda-Gadot, *Far from-sight and expensive: additional costs of public services in rural areas* Local Government Studies p. 1, pp. 11 – 12 (22 Jun 2024), DOI: 10.1080/03003930.2024.2369784 last accessed on March 11, 2025, at: https://www.tandfonline.com/doi/pdf/10.1080/03003930.2024.2369784 and enclosed in another email with the filename: "Far-from-sight and expensive additional costs of public services in rural areas.pdf." The draft comprehensive plan in Appendix C the Transportation Element Technical Appendix on page 572 shows a transportation capital projects deficit of $150,689,518. Reallocating rural growth to cities and towns could reduce this $150 million transportation deficit.

Second, 501 rural housing units are intended to be affordable to households earning 51 to 80 percent of the area median income (AMI). The State of Washington Department of Commerce has documented that to provide housing affordable to families and individuals earning 80 percent or less of the area median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023) last accessed on March 11, 2025, at: https://deptofcommerce.app.box.com/s/1d9d5l7g509r389f0mjpowh8isjpirlh and enclosed in another email with the filename: "HB 1220_Book2_Housing Element Update_230823 Final_updated 240920.pdf." Low-rise multifamily and mid-rise multifamily housing are urban uses and require sewers and other urban services. RCW 36.70A.070(5) prohibits urban uses outside urban growth areas.

Third allocating 20 percent of the county's growth to the rural area will make it difficult to comply with RCW 36.70A.070(9)(d)(i) which provides that:

> The greenhouse gas emissions reduction subelement of the comprehensive plan, and its related development regulations, must identify the actions the jurisdiction will take during the planning

> cycle consistent with the guidelines published by the department pursuant to RCW 70A.45.120 that will:
>
> (A) Result in reductions in overall greenhouse gas emissions generated by transportation and land use within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state;
>
> (B) Result in reductions in per capita vehicle miles traveled within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; and
>
> (C) Prioritize reductions that benefit overburdened communities in order to maximize the cobenefits of reduced air pollution and environmental justice.

Adding twenty percent of the county's growth to rural Skagit County will likely increase greenhouse gas emissions, increase per capital vehicle miles traveled, and not benefit overburdened communities. Rural residents have substantially higher greenhouse gas emissions, particularly higher transport-related direct greenhouse gas emissions than residents in the urban growth areas. Jeffrey Wilson, Jamie Spinney, Hugh Millward, Darren Scott, Anders Hayden, and Peter Tyedmers, *Blame the exurbs, not the suburbs: Exploring the distribution of greenhouse gas emissions within a city region* 62 Energy Policy 1329, pp. 1334 – 35 (2013) enclosed in another email with the filename: "Blame_the_exurbs_not_the_suburbs_Explori.pdf." Energy Policy is a peer reviewed journal. Energy Policy Guide for authors webpage p. *14 last accessed on March 18, 2024, at: https://www.sciencedirect.com/journal/energy-policy/publish/guide-for-authors and in another email with the filename: "Guide for authors - Energy Policy.pdf." The transport-related direct emissions of rural residents are three times those in the inner city, and 1.5 times those in the suburbs. *Id.* p. 1335.

It is better to focus these housing types in cities, towns, and urban growth areas where the public facilities and services they require can be more affordably provided. This is important because if the planned, but not economically feasible, capacity for affordable housing in rural areas is counted towards the affordable housing need then the County and its cities and towns will not have the capacity for the affordable housing the county needs.

## Comments on Element 2: Urban, Open Space, and Land Use.

Futurewise supports the existing and proposed policies in this chapter.

We strongly support policy 2A-1.4 calling for the engagement of federally recognized Indian tribes before expanding urban growth areas.

We also support policies increasing development capacity in urban growth areas where sewer is available. This will increase housing affordability. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023).

## Comments on Element 3 the Rural Element.

**Rural Water on pages 82 and 83 of the Redline Version.**

While we recognize that this section is primarily a historical narrative, RCW 36.70A.070(1) provides that "[t]he land use element shall provide for protection of the quality and quantity of groundwater used for public water supplies." RCW 36.70A.070(5)(c)(iv) provides that "[t]he rural element shall include measures that apply to rural development and protect the rural character of the area, as established by the county, by: … Protecting surface water and groundwater resources." The Growth Management Act (GMA) in RCW 36.70A.590 also provides that:

> For the purposes of complying with the requirements of this chapter [the GMA] relating to surface and groundwater resources, a county or city may rely on or refer to applicable minimum instream flow rules adopted by the department of ecology under chapters 90.22 and 90.54 RCW. Development regulations must ensure that proposed water uses are consistent with RCW 90.44.050 and with applicable rules adopted pursuant to chapters 90.22 and 90.54 RCW when making decisions under RCW 19.27.097 and 58.17.110.

These policies and development regulations are required because overuse of surface or ground water often harms senior water rights holders and fish and wildlife habitat and consequently tribal treaty rights. Ecology has documented that lower streamflows in parts of the Skagit basin "have impacted important resources for fisheries and general stream health." State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023) last accessed on March 12, 2025, at: https://apps.ecology.wa.gov/publications/documents/2011003.pdf and enclosed in another email with the filename: "2011003.pdf."

> The reduced availability of surface water can have a negative impact on all stages of the salmonid life cycle. Water quality (e.g. temperature, flows) is affected by decreased inputs from groundwater. Lessened groundwater input concentrates pollutants, increases temperature, and diminish[es] dissolved oxygen. This is detrimental to salmonid migration, spawning and rearing.

*2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40 last accessed on March 12, 2025, at: https://nwifc.org/publications/state-of-our-watersheds/ and cited excerpts in another email with the filename: "state-of-our-watersheds-sow-2020-final-web excerpts.pdf."

Changes in Skagit County will directly impact the level of development that can be accommodated outside of urban growth areas. Most water in the Skagit "watershed is already legally spoken for or 'appropriated.'" State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023). Water is already limited and changes in hydrology will make water scarcer in the summer in the future. *Id.*; *Skagit River Basin Climate Science Report: Executive Summary* p. 9 last accessed on March 12, 2025, at: https://www.skagitcounty.net/EnvisionSkagit/Documents/ClimateChange/executive_summary.pdf and enclosed in another email with the filename: "executive_summary.pdf." Winter flooding will increase. *Skagit River Basin Climate Science Report: Executive Summary* pp. 9 – 11. These and other changes will make accommodating rural growth more difficult, more costly, and will adversely affect water available for salmon, wildlife, and irrigation. We recommend the County adopt policies consistent with RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590 to protect water quality and quantity.

**Goal 3A-2 revision on page 87 of the redline version.**

Goal 3A-2 is proposed to be amended to provide for a variety of "affordable housing types." The State of Washington Department of Commerce has documented that to provide housing affordable to families and individuals earning 80 percent or less of the county adjusted median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023). Low-rise multifamily and mid-rise multifamily housing are urban uses and require sewers and other urban services. RCW 36.70A.070(5) prohibits urban uses outside urban growth areas. Even if these housing types were allowed, it would not be affordable to provide the public facilities and services they need. A peer-reviewed study shows that "the cost of providing public services in rural areas is 39% greater than in cities." Ron Shani, Yaniv Reingewertz & Eran Vigoda-Gadot, *Far from-sight and expensive: additional costs of public services in rural areas* Local Government Studies p. 1, pp. 11 – 12 (22 Jun 2024), DOI: 10.1080/03003930.2024.2369784. The Appendix C, the Transportation Element Technical Appendix on page 572, shows a transportation capital projects deficit of $150 million.

There is also unlikely to be water available to serve these developments in the rural area. *2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40, p. 348. It is better to focus these housing types in cities, towns, and urban growth areas where the public facilities and services they require can be more affordably provided. This is important because if the planned, but not economically feasible, capacity for affordable housing in rural areas is counted towards the affordable housing need then the County and its cities and towns will not have the capacity for the affordable housing the county needs.

## Comments on Element 4: Natural Resource Lands.

**Policy 4A-1.1 on page 130 of the redline version.**

We appreciate that Policy 4A-1.1 is proposed to be amended to provide the "County may also consider unique farmlands soils and farmlands of statewide importance" in designating agricultural lands of long-term commercial significance. WAC 365-190-050(3)(c)(i) provides that in designating agricultural lands of long-term commercial significance "counties and cities should consider …: (i) The classification of prime and unique farmland soils, and farmlands of statewide importance, as mapped by the Natural Resources Conservation Service[.]" Consistent with WAC 365-190-050(3)(c) "should" should be substituted for "may" in Policy 4A-1.1.

We also support Policy 4A-1.1.(e) which requires that individual dedesignation requests must be deferred until a comprehensive countywide analysis is conducted. This policy is required by WAC 365-190-040 and WAC 365-190-050. These changes will better protect working farms and the county economy.

**Adopt a policy prohibiting the transfer of agricultural water for rural residential development.**

As was documented above, water is very limited in Skagit County. There will be pressure to transfer agricultural water to rural residential uses. Once this water is transferred, it will be lost to agriculture. While Skagit County cannot directly regulate water right transfers, it can use its zoning authority and subdivision authority to prohibit the use of agricultural water to mitigate rural residential and commercial developments. We urge the county to adopt a policy and regulation to prohibit the use of agricultural water to mitigate rural residential and commercial developments. It will aid the agricultural industry and the county economy long-term.

**Policy 4B-1.1 and Policy 4B-3.3 on pages 139 through 140 and page 144 of the redline version.**

We support the revisions to Policy 4B-1.1(e) and Policy 4B-3.3 so the policies comply with the amendments to WAC 365-190-040 and WAC 365-190-060. These amendments will help to conserve forest lands and forest industry jobs.

**New Policy on the Wildland Urban Interface and Policy 4B-2.11 on page 144 of the redline version.**

Wildfire is a significant and increasing risk in Skagit County. *Skagit County Community Wildfire Protection Plan 2019 Update* pp. 20 – 21 last accessed on March 12, 2025, at: https://skagitcounty.net/EmergencyManagement/Documents/Skagit%20County%20CWPP.pdf and enclosed in another email with the filename: "Skagit County CWPP.pdf." The Growth Management Act in RCW 36.70A.070(1) provides in part that:

> The land use element must reduce and mitigate the risk to lives and property posed by wildfires by using land use planning tools, which may include, but are not limited to, adoption of portions or all of the wildland urban interface code developed by the international code council or developing building and maintenance standards consistent with the firewise USA program or similar program designed to reduce wildfire risk, reducing wildfire risks to residential development in high risk areas and the wildland urban

> interface area, separating human development from wildfire prone landscapes, and protecting existing residential development and infrastructure through community wildfire preparedness and fire adaptation measures.

While we appreciate and support Policy 4B-2.11, RCW 36.70A.070(1) requires more. We recommend that development be directed away from the WUI. We also recommend the adoption and enforcement of the Firewise Principles which recommend "'two ways out' of the neighborhood for safe evacuation during a wildfire" along with other important measures to protect people and property. *Firewise USA® Program* p. *9 accessed on March 12, 2025, at: https://www.nfpa.org/en/education-and-research/wildfire/firewise-usa/firewise-usa-resources. We recommend that the following new policy be adopted as part of the Land Use Element or the Climate Change Element:

Policy X: Direct non-resource land uses and development away from the Wildland-Urban Interface (WUI), encourage the implementation of Firewise Principles for existing developments and uses, and require implementation of Firewise Principles for new developments and uses.

**Goal 4D-1 on page 153 of the redline version.**

We support the revisions to Goal 4D-1 to comply with WAC 365-190-040 and WAC 365-190-070. These changes will aid the construction industry and the county economy.

## Comments on Element 5: Environment.

**Designate and protect rare plant categories and listings from the Department of Natural Resources, Natural Heritage Program as the GMA requires. See pages 183 to 184 of the redline version.**

The "GMA requires the County to protect the functions and values of Critical Area Ecosystems." *Whidbey Environmental Action Network v. Island Cnty.*, Western Washington Region Growth Management Hearings Board (WWRGMHB) Case No. 14-2-0009, Final Decision and Order (June 24, 2015), at 21 of 49 last accessed on March 12, 2025, at: https://eluho2022.my.site.com/casemanager/s/case/50082000001BDWk/detail. This includes the "high quality ecosystem and rare plant categories and listings from the department of natural resources, natural heritage program." *Id.* at 32 – 35 of 49, see also WAC 365-190-040(4)(b). The *2024 Washington Vascular Plant Species of Conservation Concern* identifies rare plants in Skagit County. Jesse E. D. Miller, Sienna Wessel, and Walter Fertig, *2024 Washington Vascular Plant Species of Conservation Concern* pp. 8 – 44 (Washington Natural Heritage Program, Natural Heritage Report 2024-07: July 3, 2024) last accessed on March 12, 2025, at: https://www.dnr.wa.gov/publications/amp_nh_vascular_ets.pdf and enclosed in another email with the filename: "amp_nh_vascular_ets.pdf." These plants and ecosystems need to be designated as fish and wildlife habitats and conserved as the Growth Management Act requires.

**Do not change the "shalls" to "shoulds" in Policy 5A-5.1, Policy 5A-5.2, and Policy 5A-5.3 on pages 181 through 188 of the redline version.**

Policy 5A-5.1 is proposed to be amended to add that: "Critical areas shall be designated and protected to maintain no net loss of wetland functions and value." We strongly support this addition. It is also consistent with the Growth Management Act (GMA) which "requires that the regulations for critical areas must protect the 'functions and values' of those designated areas. [RCW 36.70A.172(1).] This means all functions and values." *Whidbey Env't Action Network v. Island Cnty.*, 122 Wn. App. 156, 174–75, 93 P.3d 885, 894 (2004). However, elsewhere in this policy the "shalls" are changed to "should." Shoulds are not consistent with the Growth Management Act requirement and should not be substituted for "shalls."

"Shoulds" are not consistent with the Growth Management Act requirement and also should not be substituted for "shalls in Policy 5A-5.2 and Policy 5A-5.3.

**Do not change "shall" to "should" in policy 5A-5.8 on page 191 of the of the redline version.**

For the same reason, do not change "shall" to "should" in policy 5A-5.8.

**Futurewise supports Goal 5B and its associated policies to address climate hazards and to reduced greenhouse gas pollution on pages 191 and 192 of the redline version.**

We support Goal 5B and its associated policies to address climate hazards and to reduced greenhouse gas pollution. This goal and the policies are required by RCW 36.70A.070(9). We have additional comments on the topic of climate below.

## Comments on Element 7: Housing.

**RCW 36.70A.070(2)(c) requires the housing element to identify sufficient land for affordable housing including STEP housing.**

RCW 36.70A.070(2)(c) requires the County housing element, and the housing elements of the cities, to identify "sufficient capacity of land for housing including, but not limited to, government-assisted housing, housing for moderate, low, very low, and extremely low-income households, manufactured housing, multifamily housing, group homes, foster care facilities, emergency housing, emergency shelters, [and] permanent supportive housing ...." Using the State of Washington Department of Commerce Housing for All Planning Tool (HAPT) methodology, the population targets are converted to needed housing units by income category and beds for permanent supportive housing. The County must then identify the land with the zoning capacities needed to accommodate these housing units by income band or category. We were unable to find the documentation of sufficient capacity in the housing element. It may be in Appendix E Housing Needs Assessment, but we were unable to find this appendix. If it is in the appendix, that is fine. If not, the housing element should document that the County has sufficient capacity for affordable housing types and indoor emergency shelters, transitional housing, emergency housing, and permanent supportive housing (STEP housing).

**Affordable housing should be focused in cities, towns, and urban growth areas.**

The Housing Element on page 226 states: "Skagit County plans to accommodate new housing within its existing land use designations by focusing on limited areas of more intense rural development, specifically the rural village residential zones. The rural village residential zone, which are part of the County's land use and zoning regulations, has been revised to allow for new housing types that are affordable to moderate- and low-income residents." The State of Washington Department of Commerce has documented that to provide housing affordable to families and individuals earning 80 percent or less of the area median income requires low-rise multifamily and mid-rise multifamily housing and potentially accessory dwelling units. Washington States Department of Commerce, Local Government Division Growth Management Services, *Guidance for Updating Your Housing Element: Updating your housing element to address new requirements* p. 35 (Aug. 2023). Middle housing is not affordable to families earning 80 percent or less of the area median income. In addition, as was documented above there is a significant water shortage and placing affordable housing in rural areas increases transportation costs for families and transportation and public service costs for the County. We do not believe this strategy will work and should be discarded. Instead, affordable housing should be focused in cities, towns, and urban growth areas where affordable housing types and densities can actually be constructed.

Similarly, the *Washington Farmworker Housing Needs Assessment* recommended that to provide more affordable farm worker housing cities should be encouraged "to increase zoning and infrastructure investments for multi-family housing within urban growth areas." BERK Consulting, *Washington Farmworker Housing Needs Assessment* p. 184 (The Washington State Department of Commerce: Jan. 2022) last accessed on March 12, 2025,

at: https://www.commerce.wa.gov/wp-content/uploads/2022/04/CommerceReports_CSHD_FarmworkerHousing_Final_4.26.22.pdf and enclosed in a separate email with the filename: "CommerceReports_CSHD_FarmworkerHousing_Final_4.26.22.pdf." The assessment also recommended that cities remove "barriers to the development of rental housing." *Id*. "Encouraging cities to identify and remove barriers to rental housing development is an important strategy to address housing needs for farmworkers." *Id*.

**Comments on Element 12: Climate and Resiliency**

Overall, Futurewise strongly supports the Climate and Resiliency element. We do have some suggestions provided below.

**Futurewise supports Goal 12J on page 396 of the redline version.**

Goal 12J on page 396 calls for integrating climate change projections into land use, infrastructure planning, and development regulations, ensuring long-term safety from sea-level rise, flooding, wildfires, and other climate-exacerbated hazards while protecting natural ecosystems. We support this goal and its associated policies. The deadline for Skagit County to update its development regulations is December 31, 2025. RCW 36.70A.130(1)(a), (5)(b).

**Please clarify policy 12J-1.8 on page 397 of the redline version.**

Futurewise strongly supports policy 12J-1.8. It intends to cover sea level rise which we support. On addition, as the seas are rising and storms become more intense, coastal rivers and streams will be subject to more channel migration. We recommend that policy 12J-1.8 be clarified as follows with our additions underlined.

policy 12J-1.8 All residential and commercial development and accessory uses, port and water related industrial facilities, equipment, and works should be located, designed, and maintained to avoid, or if necessary, withstand 100-year flood frequency flooding, and/or storm tides or surges, channel migration, and tides and water levels likely over the next 100 years without becoming hazards and without the placement of flood hazard reduction measures or other hard structural shoreline stabilization. Incorporate climate projections to account for anticipated changes in flood frequency, storm intensity, and sea-level rise. Ensure that designs and maintenance plans adapt to these projections to enhance long-term resilience against evolving climate impacts.

**Include a policy including the California Coastal Commission recommendations for adapting to sea level rise.**

In addition, we suggest that the County incorporate a policy on adapting to sea level rise and its adverse impacts modeled on the process California's coastal counties and cities use. *California Coastal Commission Sea Level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea Level Rise in Local Coastal Programs and Coastal Development Permits* pp. 97 – 140 (2024 Update: Nov. 13, 2024) last accessed on March 13, 2025, at: https://www.coastal.ca.gov/climate/slrguidance.html and enclosed in another email with the filename: "2024AdoptedSLRPolicyGuidanceUpdate.pdf." The process includes seven steps and we recommend a policy incorporating these steps be adopted.

1. Initiate planning effort, identify key goals and stakeholders, and engage with environmental justice communities and Indian tribes.
2. Determine the range of sea level rise scenarios relevant to Skagit County's marine shorelines. The California Coastal Commission recommends analyzing intermediate and long-term projections because "development constructed today is likely to remain in place over the next 75-100 years, or longer." *Id*. p. 109.
3. Identify potential physical sea level rise impacts in Skagit County's unincorporated marine shorelines.

4. Assess potential risks from sea level rise to coastal resources, development, and environmental justice communities in unincorporated Skagit County.
5. Identify equitable adaptation measures. The *California Coastal Commission Sea Level Rise Policy Guidance* includes recommended adaptation strategies the County can consider. *Id*. pp. 179 – 226.
6. Adopt an updated comprehensive plan and development regulations incorporating the selected adaptation strategies.
7. Implement the updated comprehensive plan and development regulations and monitor and revise as needed. Because the scientific data on sea level rise is evolving, the California Coastal Commission recommends that "[i]t will likely be important to modify maps of current and future hazard areas on a five- to ten-year basis or as necessary to allow for the incorporation of new sea level rise science, monitoring results, and information on coastal conditions." *Id*. p. 139.

**The greenhouse gas emissions reduction subelement must quantify whether the element will reduce greenhouse gas emissions and reduce per capita vehicle miles traveled.**

RCW 36.70A.070(9)(d)(i) provides:

> (d)(i) The greenhouse gas emissions reduction subelement of the comprehensive plan, and its related development regulations, must identify the actions the jurisdiction will take during the planning cycle consistent with the guidelines published by the department pursuant to RCW 70A.45.120 that will:
>
> (A) Result in reductions in overall greenhouse gas emissions generated by transportation and land use within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; (B) Result in reductions in per capita vehicle miles traveled within the jurisdiction but without increasing greenhouse gas emissions elsewhere in the state; and
>
> (C) Prioritize reductions that benefit overburdened communities in order to maximize the cobenefits of reduced air pollution and environmental justice.

Please note that subelement and its related development regulations "must identify the actions the jurisdiction will take … that will: … [r]esult in reductions in overall greenhouse gas emissions …. Similarly, the subelement and its related development regulations "must identify the actions the jurisdiction will take … that will: … [r]esult in reductions in per capita vehicle miles traveled …." The element itself "must identify" the reductions.

Further, RCW 36.70A.070 provides that "[t]he plan shall be an internally consistent document and all elements shall be consistent with the future land use map." So these calculations must take into the planned growth over the next 20 years.

While we appreciate the three scenarios described on page 399, the reductions are not quantified and it is not clear if they take into account the proposed growth allocations. This information is needed to document compliance with RCW 36.70A.070(9)(d)(i). It would also be helpful to know if these reductions will over time put the County on a path to address the State's overall target of net-zero emissions by 2050. If this information is in an appendix that will be included with the comprehensive plan in the future that would be sufficient to document compliance.

**The Growth Management Act requires water quantity policies and regulations as part of the 2025 comprehensive plan and development regulations update.**

As was documented above, RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590 require Skagit County to adopt policies and regulations to protect water quality and quantity. These policies and development regulations are required because overuse of surface or ground water often harms senior water rights holders and fish and wildlife habitat and consequently tribal treaty rights. Most water in the Skagit

"watershed is already legally spoken for or 'appropriated.'" State of Washington Department of Ecology Water Resources Program, WRIAs 3 & 4 Skagit Watershed Water Availability p. 3 (Publication 20-11-003: May 2023). The Washington State Department of Ecology has summarized water availability in the Skagit basin:

> Increasing demands for water over time, from ongoing population growth, agriculture, and other consumptive uses as well as associated land use practices, have resulted in lower streamflows in some areas. These decreases have impacted important resources for fisheries and general stream health. The impacts of climate change in WRIAs 3 and 4 are also yet to be fully realized. However, it is apparent that water availability is limited throughout the Skagit Watershed.

State of Washington Department of Ecology Water Resources Program, *WRIAs 3 & 4 Skagit Watershed Water Availability* p. 3 (Publication 20-11-003: May 2023). "The reduced availability of surface water can have a negative impact on all stages of the salmonid life cycle." *2020 State of Our Watersheds State of Our Watersheds: A Report by the Treaty Tribes in Western Washington* p. 40.

To address current and future water shortages and to comply with RCW 36.70A.070(1), RCW 36.70A.070(5)(c)(iv), RCW 36.70A.070(5), and RCW 36.70A.590, the comprehensive plan and development regulations should adopt policies and regulations to ensure development complies with the water codes and the applicable instream flow rules.

RCW 36.70A.590 requires the development regulations to ensure that proposed water uses are consistent with RCW 90.44.050. When the County determines if a development, land division, or use qualifies for a residential permit-exempt well under RCW 90.44.050, the development regulations must require that the County limit the water used by the proposal and the parent parcel that existed in 2002, any lots created from the parent parcel, and any development built on or after 2002 on those lots to the no more than the 5,000 gallons a day allowed by RCW 90.44.050. Under the State Supreme Court's *Campbell and Gwinn* decision, each lot is entitled to one 5,000 gallon per day permit exempt withdrawal for single or group domestic uses under RCW 90.44.050. *State Dep't of Ecology v. Campbell & Gwinn, L.L.C.*, 146 Wn.2d 1, 14, 43 P.3d 4, 110 (2002). A "developer may not claim multiple exemptions for the homeowners." *Id.* So each lot that existed in 2002, the year the *Campbell and Gwinn* decision was decided, is entitled to one permit-exempt withdrawal under RCW 90.44.050 and is limited to 5,000 gallons per day.

As lots are subdivided or developed over time, part or all of the permit exempt withdrawals are used by the lots created or the development authorized. To qualify for a permit-exempt groundwater withdrawal authorized under RCW 90.44.050, the lot must have some remaining water from the parent parcel's single 5,000 gallon per day permit exempt withdrawal for single or group domestic uses.

Therefore, the required regulations can only authorize the use of a permit exempt-well for single or group domestic uses if the water use allowed under the permit-exemption does not exceed the 5,000 gallons a day allowed by RCW 90.44.050 including the parent parcel that existed in 2002, any lots created from the parent parcel, and any development built on or after 2002. To comply with RCW 36.70A.590, the proposed development regulations must include this important limitation.

Thank you for considering our comments. If you require additional information, please contact me at telephone (206) 343-0681 or email: tim@futurewise.org.

We will be providing the supporting documents in several emails.

Tim Trohimovich (he/him)
Director of Planning & Law

Futurewise
1201 3rd Ave #2200, Seattle, WA 98101
(206) 343-0681
tim@futurewise.org
**futurewise.org**
connect:



Washington State Department of Commerce

We strengthen communities

# Guidance for Updating Your Housing Element

Updating your housing element to address new requirements

LOCAL GOVERNMENT DIVISION
**GROWTH MANAGEMENT SERVICES**

v3.4

# About this document

The Washington State Department of Commerce's Growth Management Services (GMS) team assists and guides local governments, state agencies and others to implement the Growth Management Act (GMA).

In 2021, the Washington Legislature changed the way communities are required to plan for housing. House Bill 1220 (HB 1220)[1] amended the GMA to require local governments to "plan for and accommodate" housing affordable to all income levels. This significantly strengthens the previous goal, which was to "encourage" affordable housing.

# Organization of the guidance

This guidance is part of a suite of documents ("Books") that guide local jurisdictions on how to update their housing elements:

- **Book 1:** Establishing Housing Targets for your Community
  - Countywide Planning Policies*
  - Housing Needs Projection Methodology & Housing for All Planning Tool (HAPT)
  - Guidance for Allocating Projected Countywide Housing Needs to Local Jurisdictions
- **Book 2: Guidance for Updating your Housing Element (this document)**
  - Updated Housing Element Requirements with HB 1220
  - Guidance for Evaluating Land Capacity to Accommodate all Housing Needs
  - Guidance for Making Adequate Provisions to Accommodate all Housing Needs
  - Housing Needs Assessment (see also Guidance for Developing a Housing Needs Assessment[2])*
  - Housing Element Review*
  - Updating Goals and Policies*
  - Identifying Strategies to Implement Your Policies*
  - Adopting, Implementing and Monitoring Your Housing Element*
- **Book 3:** Guidance to Address Racially Disparate Impacts[3]
  - Recommended Process
  - Step 1: Engage the Community
  - Step 2: Gather and Analyze Data
  - Step 3: Evaluate Policies
  - Step 4: Revise Policies
  - Step 5: Review and Update Regulations

**Items are updated from the* Guidance for Updating Your Housing Element[4] *(2021, Commerce).*

For additional information on the GMA housing programs, please visit the GMS Planning for Housing Webpage[5] or contact Anne Fritzel, Housing Programs Manager, at Anne.Fritzel@commerce.wa.gov.

---

[1] https://lawfilesext.leg.wa.gov/biennium/2021-22/Pdf/Bills/Session Laws/House/1220-S2.SL.pdf?q=20211209114015
[2] https://deptofcommerce.box.com/s/mop7xrkzh170th1w51ezbag3pmne9adz
[3] https://deptofcommerce.box.com/s/1l217l98jattb87qobtw63pkplzhxege
[4] https://deptofcommerce.app.box.com/s/ig3pd55wrngxacxjwnt6hv98ue8swaj6
[5] https://www.commerce.wa.gov/serving-communities/growth-management/growth-management-topics/planning-for-housing/

# Acknowledgments

**Washington State Department of Commerce**
Director: Mike Fong
Local Government Division: Mark Barkley, Assistant Director
Growth Management Services: Dave Andersen, AICP, Managing Director

**Editors**
Anne Aurelia Fritzel, AICP, GMS Housing Programs Manager
Laura Hodgson, Senior Planner

**Content Development**
BERK Consulting:
Kevin Gifford
Stefanie Hindmarch
Josh Linden
Kevin Ramsey, PhD

The Cloudburst Group:
Scott Pruitt

**Advisory Committee**
Marc Dones, King County Regional Homelessness Authority
Chad Eiken, City of Vancouver
Byron Gumz, Yakima Valley Council of Governments
Jessica Gwilt, Pierce County Planning Department
Korbie Jorgensen Haley, Office of Rural Farmworker Housing
Jan Himebaugh, Building Industry Association of Washington
Brian Jennings, Spokane Housing Authority
Paul Jewell, Washington State Association of Counties
Tedd Kelleher, Washington State Department of Commerce
Sunaree Marshall, King County Department of Community and Human Services
Mike Mohrman, Washington State Office of Financial Management
Brian Parry, Sound Cities Association
Carl Schroeder, Association of Washington Cities
Michelle Thomas, Washington Low Income Housing Alliance
Lilith Vespier, City of Leavenworth
Steve Walker, Washington State Housing Finance Commission
Bryce Yadon, Futurewise

**Washington State Department of Commerce**
www.commerce.wa.gov

For people with disabilities, this report is available on request in other formats.
To submit a request, please call 360-725-4000 (TTY 360-586-0772).

Published August 2023. Updated September 2024.

# Version changes

**September 2024**

- Chapter 3 was updated since the August 2023 version to clarify:
  - When assumptions in Exhibits 12 and 13 are used to provide guidance relating housing types to affordability levels, that the information should be tailored to individual jurisdiction market conditions.
  - Options available if there is insufficient land capacity.
  - When an emergency housing land capacity analysis is required.
  - Small amounts of vacant or under-utilized commercial space may be considered for emergency housing or shelter capacity.

# Table of contents


Acknowledgments ... 3

**Chapter 1. Introduction and housing element requirements ... 7**

Purpose of a housing element ... 8

Updated requirements for a housing element under GMA ... 9

**Chapter 2. Housing needs assessment ... 11**

Requirements for an HNA ... 11

Housing needs ... 14

**Chapter 3. Land capacity analysis ... 18**

What is a land capacity analysis? ... 18

Evaluating capacity for permanent housing needs ... 20

Evaluating capacity for emergency housing needs ... 43

**Chapter 4. Adequate provisions ... 51**

Consideration for low, very low, extremely low and moderate-income households ... 51

Documenting programs and actions needed to achieve housing availability ... 52

Housing locations in relation to employment location ... 69

Consideration of the role of ADUs in meeting housing needs ... 70

**Chapter 5. Housing element review ... 72**

Purpose of a housing element review ... 72

Review of housing element goals and policies ... 73

Review for new housing element requirements related to racially disparate impacts and displacement ... 77

Consider opportunities and trends not foreseen by the comprehensive plan ... 78

Evaluating progress towards housing needs ... 78

Review the future land use map and designations ... 79

Identify related infrastructure or service needs ... 80

**Chapter 6. Updating goals and policies ... 82**

What are goals and policies? ... 82

Requirements and guidelines for housing goals and policies ... 83

Recent updates to housing laws ... 84

Update existing housing goals and policies ... 85

What policy changes might you need in other comprehensive plan elements? ... 88

Additional housing policy issues ... 89

Evaluating your goals and policies ... 93

**Chapter 7. Identifying strategies to implement your housing policies - ... 94**

Strategies should work together ... 94

Types of housing strategies ... 96

Identifying strategies for implementing housing policies ..... 96

**Chapter 8. Adopting your housing element ..... 99**
Public engagement ..... 99
Adoption process ..... 104
SEPA integration with adoption ..... 105

**Chapter 9. Implementing and monitoring your housing element ..... 107**
Guidance for implementation planning ..... 107
Develop an implementation plan ..... 108
Develop a monitoring program ..... 111

**Appendix A: Acronyms ..... 118**

**Appendix B: Adequate provisions checklists ..... 119**
Barrier review checklists ..... 120
Completed checklist examples ..... 127

**Appendix C: Housing element policy examples ..... 133**

**Appendix D: Resources for funding affordable housing in Washington state ..... 154**

**Appendix E: Housing law and case law ..... 163**
Washington state housing requirements through 2020 ..... 163
Legal cases to consider ..... 165

**Appendix F: Federal and state housing policy history ..... 168**
Federal housing policy timeline ..... 168
Housing policy in Washington state ..... 173

# Chapter 1. Introduction and housing element requirements

Housing is the most basic of human needs. When people can secure stable and affordable housing near locations of jobs and opportunity, they are able to focus on achieving other life goals, such as education, career advancement, health and wellness, or raising a family. Without stable and affordable housing, people face significant and sometimes insurmountable challenges to achieving these life goals.

Local governments do not provide housing, but they can set conditions in place to encourage the market to develop housing affordable to all members of the community. Housing planning and policymaking are integral functions of cities and counties, and essential for supporting inclusive, diverse and economically vibrant communities. Reviewing, evaluating and updating housing plans, policies, and associated development regulations helps jurisdictions meet evolving community needs for housing variety and affordability, as well as achieve other planning goals for land use, economic development, transportation and the environment.

The Growth Management Act (GMA), adopted in 1990, provides the statewide framework for Washington state to manage its growth, including planning for future housing needs. In 2021, House Bill 1220 (HB 1220) changed the requirements for those jurisdictions required to fully plan under the GMA.[6,7] Under this framework, counties and cities in Washington state must review and revise their comprehensive plans and development regulations every ten years (see RCW 36.70A.130).

During this periodic review, jurisdictions should review their housing element policies and assess their performance in implementing development regulations

## Reader's Guide

This guidebook is a resource to support cities and counties updating the housing element of their comprehensive plan, with a focus on the 2021 updates to housing element requirements and the legal and policy framework in Washington state. It is organized in nine parts:

**Chapter 1: Introduction and housing element requirement:** Overview of the guidebook, purpose of preparing a housing element and the housing element requirements.

**Chapter 2: Housing needs assessment:** Required and recommended topics, relationship to projected housing needs and available resources to support preparation.

**Chapter 3: Land capacity analysis:** Recommended steps to demonstrate a jurisdiction has enough land capacity to meet housing needs of all incomes.

**Chapter 4: Adequate provisions:** Recommended steps of this updated requirement, including how to identify barriers to existing and projected housing needs and document programs needed to achieve housing availability.

**Chapter 5: Housing element review:** Guidance for evaluating your current housing element, including alignment with needs, consideration of new trends and opportunities, and new policy requirements.

**Chapter 6: Updating goals and policies:** Best practices for evaluating and updating existing goals and policies and creating clear and effective new ones.

**Chapter 7: Identifying strategies to implement your housing policies:** How to select strategies to implement your policies.

**Chapter 8: Adopting your housing element:** Recommendations for managing the adoption process, including public engagement.

**Chapter 9: Implementing and monitoring your housing element:** Guidance for developing an effective implementation plan and monitoring program.

[6] House Bill 1220: https://lawfilesext.leg.wa.gov/biennium/2021-22/Pdf/Bills/Session%20Laws/House/1220-S2.SL.pdf?q=20230828212744

[7] Cities and counties required to "fully plan" are shown in dark blue, light blue and green on this regional variation map. See https://deptofcommerce.app.box.com/s/96tan14gkwzr2y15rj7a785gf255a0gt.

and programs. Local governments may also amend their comprehensive plans annually in order to address pressing needs and/or requests from the community.

This guidance is a resource to support cities and counties in Washington state to review and update the housing element of their comprehensive plan, particularly with regard to the new housing element requirements in RCW 36.70A.070. This guidance (Book 2) complements two other resource documents, "Establishing Housing Targets for Your Community" (Book 1) and "Guidance for Addressing Racially Disparate Impacts" (Book 3).[8]

## Purpose of a housing element

Every city and county in Washington has its own unique housing context and challenges. Our state's natural beauty, temperate climate and healthy economy continue to attract new residents, but Washington's housing production has not kept pace with growth. This has increased competition for existing housing, resulting in higher prices and increased demand for more housing and a wider variety of housing types. When grappling with the complications of accommodating this projected growth, local governments must take into account the needs of all economic segments of the community while managing impacts to neighborhood character and quality of life.

The housing element provides the opportunity to prioritize local housing problems and trends, and to design solutions appropriate to the local context. Such solutions usually involve a mix of strategies that can work together to shape opportunities for development and encourage the kinds of housing production in greatest need.

Recognizing that most communities already have a comprehensive plan and housing element they need to update, the comprehensive planning process provides an opportunity to evaluate existing housing policies and analyze what has changed within the housing context as well incorporate updated requirements. This exercise may demonstrate a need to strengthen the policies by adding more specificity, shifting policies in a new direction and/or adding policies to address the new requirements.

The main objectives in preparing or updating a housing element are to:

- Understand the countywide housing market(s) and the local community's role in it.
- Identify the jurisdiction's projected housing needs by income level from the countywide allocation process.[9]
- Update the local housing needs assessment (HNA) to understand how the community's housing stock does or does not meet the needs of the population.
- Assess the amount of land available to meet projected housing needs by income level and make adjustments to land use designations and zoning to accommodate those needs.
- Identify barriers to achieving the affordable housing needs of the community and document programs and actions to address those needs.
- Identify policies and regulations that result in racially disparate impacts, displacement and exclusion and identify policies and regulations to begin to undo them.
- Identify areas at higher risk of displacement and establish policies to address those risks.[10]

---

[8] Establishing Housing Targets for Your Community is available at: https://deptofcommerce.box.com/s/chqj8wk1esnnranyb3ewzgd4w0e5ve3a, Guidance for Addressing Racially Disparate Impacts is available at: https://deptofcommerce.box.com/s/1l217l98jattb87qobtw63pkplzhxege.

[9] See "Establishing Housing Targets for Your Community" (Book 1).

[10] Bullets 6 and 7 of this list are addressed in "Guidance for Addressing Racially Disparate Impacts" (Book 3).

- Adopt or update local housing goals, policies and implementation strategies that provide solutions to existing problems and guidance to future housing development.

Ultimately, there is substantial flexibility in how local communities create their housing elements. Beyond integrating the components listed above, there is no prescribed format for the element. Each community should choose an approach that fits its unique context and needs, ensuring the housing element is consistent with the land use element and supported by the other elements of the plan.

## Updated requirements for a housing element under GMA

Cities and counties fully planning under the GMA[11] must include a housing element in their comprehensive plans. RCW 36.70A.070(2) sets out the requirements for a housing element, which must include the following components. Those components that are new or updated with the updated housing element requirements in 2021 are underlined.

- **Housing needs assessment (HNA)**: An inventory and analysis of existing and projected housing needs by income level as provided by the Department of Commerce that identifies the number of housing units necessary to manage projected growth.
- **Goals, policies and objectives:** A statement of goals, policies, objectives and mandatory provisions for the preservation, improvement and development of housing, including policies for moderate density housing options in urban growth areas.
- **Residential land capacity analysis**: Analysis to identify sufficient land to accommodate projected housing needs by income level.
- **Provisions for all economic segments:** Adequate provisions to address existing and projected needs of households at all income levels, including documenting programs and actions needed to achieve housing availability, consideration of housing locations in relation to employment locations and consideration of the role of accessory dwelling units (ADUs) in meeting housing needs.
- **Address racially disparate impacts, exclusion, displacement and displacement risk:** Identify policies and regulations that result in racially disparate impacts, displacement and exclusion, and implement policies and regulations that begin to undo these impacts. Also, identify areas that may be at higher risk of displacement and establish anti-displacement policies.

Exhibit 1 lists both required and recommended topics for a housing element based on RCW 36.70A.070(2) and WAC 365-196-410.[12]

[11] Requirements for who must plan under GMA are defined in RCW 36.70A.040. See footnote #7 on page 6.
[12] WAC 365-196-410 will be updated in 2024 to reflect the new changes to RCW 36.70A.070(2) adopted in 2021.

## Exhibit 1. Required and recommended topics for a housing element

| Topic | Guidance | Notes |
|---|---|---|
| **Housing needs assessment** | | See Chapter 2. Housing needs assessment and Chapter 3. Land capacity analysis. For details on required and recommended contents for an HNA, see Exhibit 2. |
| **Land capacity analysis** | ● Required | See Chapter 3. Land capacity analysis. |
| **Outreach and engagement** | | See "Public engagement" in Chapter 8. Adopting your housing element, as well as Guidance for Developing a Housing Action Plan. See RCW 36.70A.130(2) and RCW 36.70A.140 for engagement requirements. |
| **Adequate provisions for all economic segments** | | See Chapter 4. Adequate provisions. |
| ○ Consideration for low, very low, extremely low, and moderate-income households | ● Required | |
| ○ Document programs and actions needed to achieve housing availability including gaps in local funding, barriers such as development regulations and other limitations | ● Required | |
| ○ Consider housing locations in relation to employment locations | ● Required | |
| ○ Consider the role of ADUs in meeting housing needs | ● Required | To be implemented with HB 1337 (2023). |
| **Address racially disparate impacts, exclusion, displacement and displacement risk** | | See Guidance for Addressing Racially Disparate Impacts (Book 3). |
| ○ Gather and analyze data to determine racially disparate impacts, exclusion, displacement and displacement risk, and engage with the community. | *Recommended* | |
| ○ Evaluate and review policies to assess if they contribute to identified impacts | ● Required | |
| ○ Revise and update policies to address identified impacts and establish anti-displacement policies | ● Required | |
| **Housing element review** | | See Chapter 5. Housing element review. |
| ○ Evaluate progress to meet housing targets (including types and units) and achievement of housing goals and policies | *Recommended* | |
| **Goals, policies, objectives and mandatory provisions for:** | | See Chapter 6. Updating goals and policies. |
| ○ The preservation, improvement and development of housing | ● Required | |
| ○ Moderate density housing options including duplexes, triplexes and townhomes in urban growth areas | ● Required | |
| **Implementation and monitoring** | | See Chapter 9. Implementing and monitoring your housing element. |
| ○ Schedule of programs and actions to implement housing policies | *Recommended* | See WAC 365-196-410 subsection (2)(f). |
| ○ Monitoring program to track progress towards goals and objectives as well as outcomes of implemented policies | *Recommended* | See WAC 365-196-410 subsection (2)(f). |

Source: RCW 36.70A.070(2); WAC 365-196-410

# Chapter 2. Housing needs assessment

This chapter reviews requirements for cities and counties planning under GMA to conduct a housing needs assessment (HNA) as part of their comprehensive plan update. It also provides guidance for evaluating progress towards your housing targets. For detailed guidance on preparing an HNA, see the separate report from Commerce: Guidance for Developing a Housing Needs Assessment.[13]

An HNA identifies current and future housing needs to serve all economic segments of the community. To do this task, your HNA should answer the following kinds of questions:

- Who lives and works here, and what are their demographic and socioeconomic characteristics?
- What types of housing currently exist in the community?
- Are there groups of people unable to find safe and affordable housing that meets their household needs? If so, what are their housing needs?
- How many new units are needed to accommodate current needs, as well as planned population growth over the 20-year planning horizon? How is this broken down by income level?
- What types of housing could accommodate these needs and price points?
- Is there enough buildable land capacity to accommodate this growth and housing diversity?

Answering these questions typically involves quantitative analysis of data from the Census, county assessor, city permit records or other sources. However, jurisdictions can gain important insights through engagement with community members and service providers that can describe challenges not reflected in available data. See the "Public engagement" section of Chapter 8 of this guidance for a more detailed discussion of public and stakeholder engagement.

An HNA typically includes a land capacity analysis (LCA) to determine if a jurisdiction has enough buildable land capacity to accommodate future housing needs by income level. Find the detailed steps of how to conduct an LCA in Chapter 3.

**Incorporating findings from your HNA in the housing element**

Jurisdictions often choose to include some information from the HNA in their housing element to provide clear information about the community at the time of the plan. This information also provides context for the goals and policies.

At a minimum, jurisdictions should include in their housing element an inventory of their existing housing, how many units are needed to accommodate its share of countywide housing need in the future and how this need is broken down by income level.

## Requirements for an HNA

The HNA should assess the existing and future housing needs of the community and compare those needs to existing housing inventory and the zoning capacity to accommodate future needs.[14] This includes:

- *An inventory and analysis of existing and projected housing needs that identifies the number of housing units necessary to manage projected growth, as provided by the department of commerce, including:*
  - *Units for moderate, low, very low, and extremely low-income households; and*
  - *Emergency housing, emergency shelters, and permanent supportive housing.*

[13] Find "Guidance for Development a Housing Needs Assessment" on the Commerce website at: https://www.commerce.wa.gov/serving-communities/growth-management/growth-management-topics/planning-for-housing/
[14] RCW 36.70A.070(2)

- *Identification of sufficient land for housing including, but not limited to, government-assisted housing, housing for moderate, low, very low, and extremely low-income households, manufactured housing, multifamily housing, group homes, foster care facilities, emergency housing, emergency shelters, permanent supportive housing, and within an urban growth area, consideration of duplexes, triplexes, and townhomes.*

Jurisdictions should prepare their HNA as a first step to the comprehensive plan update. The HNA should consider population and housing growth targets and how that will impact land use and capital facility investments.

The Washington Administrative Code (WAC) provides advisory guidance for completing a housing element.[15] It recommends that jurisdictions complete an inventory and HNA, and identifies specific components for analysis. The inventory should include information about current housing including number of units, types of housing and affordability. It should also include information about housing for populations that may have special needs such as the elderly, differently abled or people with low incomes. A needs assessment should also identify housing needs as determined from the allocation process of countywide housing needs provided by the Department of Commerce. See "Establishing Housing Targets for your Community" (Book 1).

Exhibit 2 provides a detailed list of information to consider including in your HNA. It notes which of these topics are required or recommended for cities and counties preparing an HNA as part of their GMA comprehensive plan update (see the "GMA Housing Element" column). For a more detailed description about what each topic entails, see Commerce's Guidance for Developing a Housing Needs Assessment.

These required and recommended topics for a housing element are similar to those included in a Housing Action Plan (HAP), a voluntary housing strategy document described in RCW 36.70A.600(2).[16] Those cities who have prepared a HAP may use the same HNA to support their subsequent housing element update if the data is determined to be up to date and representative of current conditions. Exhibit 2 also indicates where data for a housing element overlaps with a Housing and Urban Development (HUD) Consolidated Plan.[17] Jurisdictions who receive funding directly from HUD generally complete a Consolidated Plan.[18]

[15] WAC 365-196-410
[16] Housing Action Plans were funded through a grant program by the Washington state Legislature in 2019-2021 and 2021-2023.
[17] A Consolidated Plan is designed to help local jurisdictions assess their affordable housing and community development needs and market conditions, and to make data-driven, place-based investment decisions.
[18] https://www.law.cornell.edu/cfr/text/24/91.2.

## Exhibit 2. Comparison of various housing planning requirements

| Housing Needs Assessment | GMA Housing Element | HB-1923 Housing Action Plan | HUD Consolidated Plan |
|---|---|---|---|
| **Community Profile** | | | |
| **Population Characteristics** | | | |
| Count of population | • | • | • |
| Population by age group | | • | • |
| Popualtion diversity: Race, ethnicity, languages spoken, etc | | o | • |
| Population forecasts | 20-year | Planning period | 5 -year |
| **Household Characteristics** | | | |
| Household count | • | • | • |
| Household sizes | | • | • |
| Household types | | o | |
| Household tenure (rental versus ownership) | • | • | • |
| Overcrowding estimates | | | • |
| Household income and cost burden | • | • | • |
| Extremely low-, low-, moderate-, and middle-income families | • | • | • |
| Displacement risk | | • | |
| **Special Housing Needs** | | | |
| Groups with special housing needs | o | o | • |
| Individuals and families experiencing homelessness | o | o | • |
| **Workforce Profile** | | | |
| Local workforce characteristics | | o | |
| Jobs to housing ratio | o | o | |
| Employment trends and projections | o | • | |
| **Housing Supply** | | | |
| **General Housing Inventory** | | | |
| Unit count by type (single or multifamily, manufactured) | • | • | • |
| Size (number of bedrooms) | • | • | • |
| **Housing Market Conditions** | | | |
| Housing development trends | | o | |
| Sales prices | o | o | |
| Rental rates | o | o | |
| Vacancy rate | | o | |
| Housing condition | | | |
| Housing production | | | o |
| Housing affordability | o | o | o |
| **Special Housing Inventory** | | | |
| Subsidized/public housing units | • | • | • |
| Group homes or care facilities | • | • | • |
| Housing for homeless individuals: shelters, transitional housing, etc | o | o | |
| **Gap analysis** | | | |
| Quantity of housing units available to various income brackets | • | • | • |
| Alignment of household size to housing unit sizes | o | o | • |
| Units needed for special demographic groups | o | o | • |
| Projection of future housing demand | • | • | |
| **Land capacity analysis** | | | |
| Land available to meet housing unit demand | • | • | |
| Land available to meet special housing needs | o | o | |

Legend
- • Requirement
- o Recommendation

Sources: WAC 365-196-410, RCW 36.70A.600, HUD Consolidated Plan 24 CFR Part 91

## Housing needs

Typically, the first step in a jurisdiction's comprehensive planning process is to understand the amount of growth they need to be planning for in their plan. As indicated in RCW 36.70A.110 and RCW 36.70A.115, county officials must select a 20-year GMA population growth target within the Low- and High-growth projections prepared by the Washington State Office of Financial Management (OFM). From there, counties and cities use their own process to allocate the projected population to each jurisdiction based on how much the county determines it will grow over the 20-year planning period.

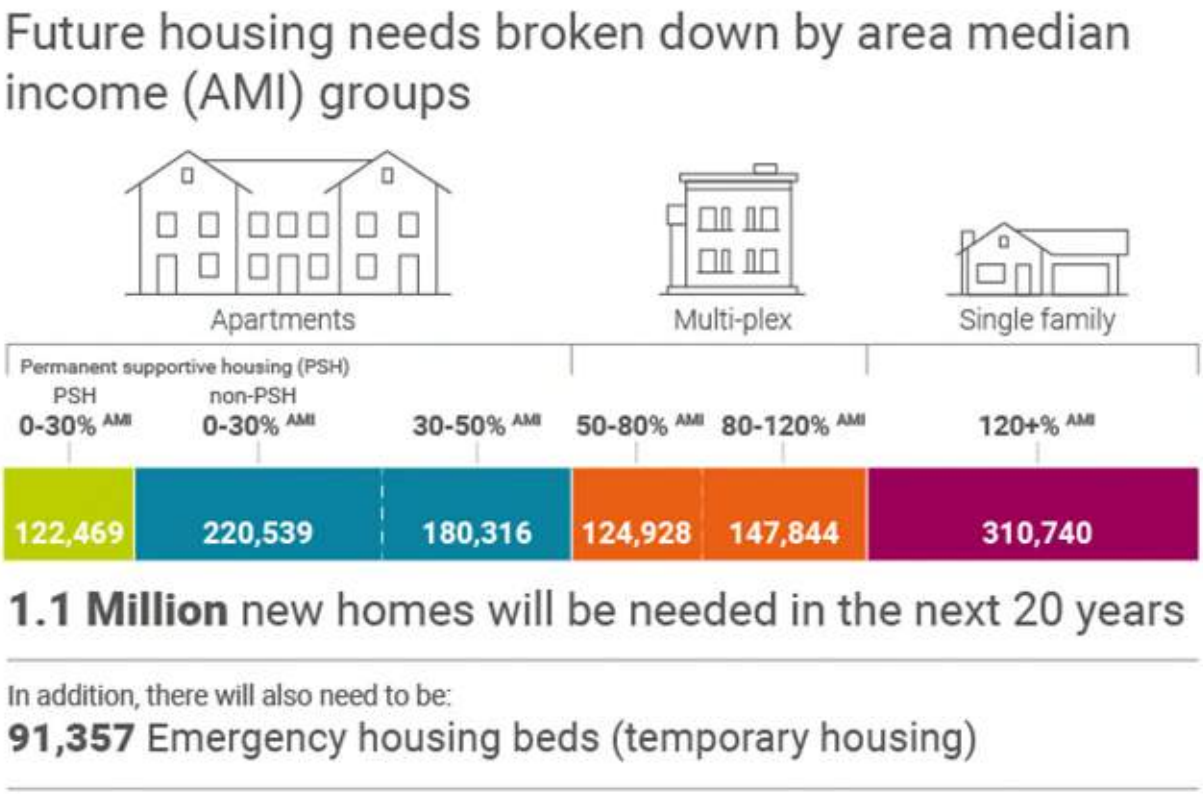
The Department of Commerce will provide the county with future housing needs by income level associated with their chosen population projection. See "Projected housing needs" in "Establishing Housing Targets for Your Community" (Book 1). From there, counties will need to work with their cities and towns to allocate the housing needs by income level to each jurisdiction. See the chapter titled "Allocating housing needs" in the document referenced above.

Based on the allocated housing needs, individual jurisdictions should ensure that their capacity of land and capital facilities can accommodate their portion of the housing needs by income level.[19] This analysis will include an evaluation of what income level housing needs may develop on available land and whether that capacity of housing at each income level is sufficient to meet the housing needs. More details on this analysis are available in Chapter 3 Land capacity analysis.

Based on many different factors, including the fact that incomes have not kept up with housing costs and housing production has not kept up with demand for the past 15 years, a large portion of projected housing needs in jurisdictions will fall below the 80% of area median income (AMI). See the statewide housing needs by 2044 in Exhibit 3.

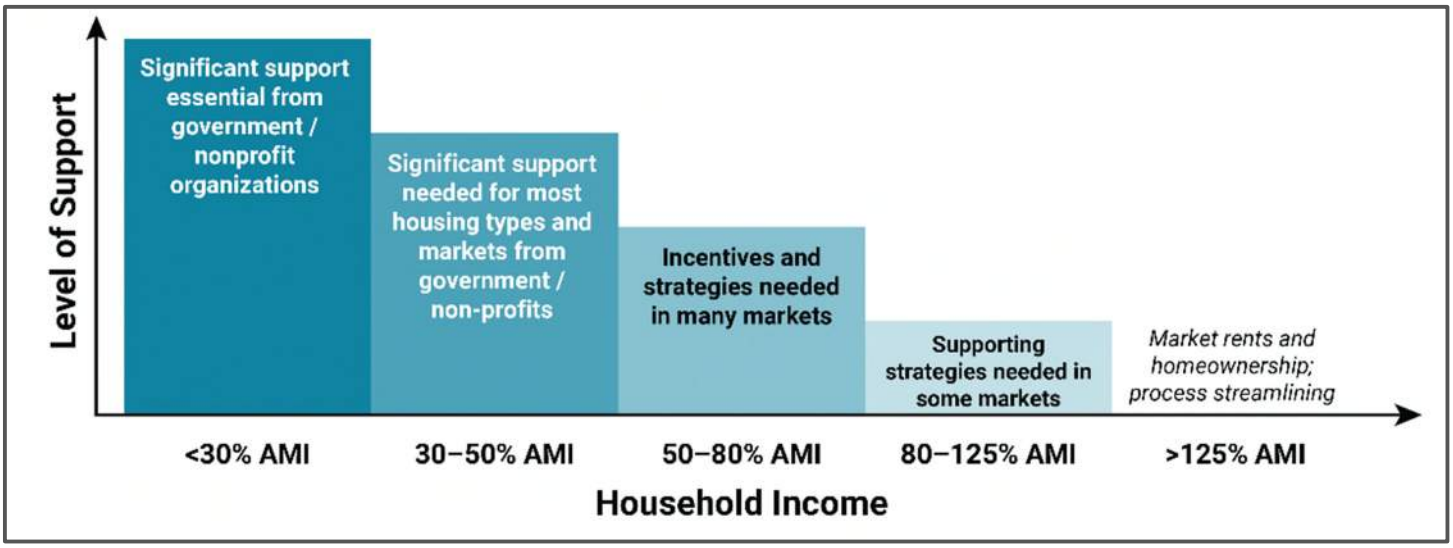
[19] See WAC 365-196-410 (2d)

**Exhibit 3. Statewide housing needs by income level**




Special measures will be needed to encourage and enable production of new housing or rehabilitation of existing housing to meet the needs of these groups. Exhibit 4 below notes that jurisdictions need subsidies, incentives and partnerships to achieve housing for lower income segments (80% AMI and below). In addition to new production, "filtering" may help meet the needs of lower income segments in some markets. Filtering is the idea that as new market-rate housing is built, higher-income people move into it, leaving behind older housing stock for lower-income people. Strategies to address these needs will be discussed more in Chapter4. Adequate provisions and Chapter 7 Identifying strategies to implement your housing policies.

## Exhibit 4. Strategies needed for different income segments




Source: BERK, 2020

## Evaluating progress toward future housing needs

After identifying future housing needs, jurisdictions should use permit records to evaluate their progress towards their housing production targets to meet these needs. It is important to know whether the jurisdiction's rate of growth puts it on track to meet or exceed its planned housing needs. Data about historic housing production can be in city or county permit records or summarized in annual housing unit estimates from OFM.[20] When using permit data, make sure to subtract demolished units to calculate the net new housing units added during the period of analysis.

Exhibit 5 below provides an example summarizing net new units with City of Yakima permit data between 2015 and 2019. During this period, a total of 1,391 net new units were produced, or about 278 units per year. This is slightly short of the 290 units needed each year to reach the city's housing target. However, the last two years analyzed show an uptick in housing production of attached and multifamily types, following adoption of the city's comprehensive plan in 2017 and subsequent implementing actions. Continued monitoring of this trend will help determine whether Yakima needs to take additional actions to encourage an increase in housing production or if additional incentives are necessary to guide production towards attached units for people with lower incomes.

[20] https://ofm.wa.gov/washington-data-research/population-demographics/population-estimates/april-1-official-population-estimates

## Exhibit 5. Permitted housing units in City of Yakima, 2015 - 2019

| Housing Type | 2015 | 2016 | 2017 | 2018 | 2019 | Total |
|---|---|---|---|---|---|---|
| Single Family | 114 | 107 | 90 | 144 | 89 | 544 |
| Duplex | 26 | 40 | 32 | 70 | 96 | 264 |
| Multifamily with 3 & 4 unit in structure | 3 | 0 | 3 | 36 | 35 | 77 |
| Multifamily with 5 + unit in structure | 0 | 0 | 0 | 15 | 616 | 631 |
| Mobile Home | 15 | 10 | 18 | 15 | 16 | 74 |
| **Total New** | **158** | **157** | **143** | **280** | **852** | **1,590** |
| Demolitions (all types) | 40 | 29 | 27 | 48 | 55 | 199 |
| **Net New Units (all types)** | **118** | **128** | **116** | **232** | **797** | **1,391** |
| Average Annual Net New Units (2015-2019) | | | 278 | | | |

Source: City of Yakima; BERK 2020

If the City of Yakima had adopted targets by housing type, rather than a total housing production target, then this same type of analysis could be used to determine whether there has been an over- or under-production of units within any of those types compared to the targets.

Chapter 3 Land capacity analysis links this information with income levels able to afford each of these housing types. This information determines whether jurisdictions need to take additional to allow certain types of housing production to meet future housing needs by income level. Chapter 4, Adequate provisions discusses how jurisdictions will then evaluate whether they need to encourage production of various housing types to meet housing needs by income level.

# Chapter 3. Land capacity analysis

The Growth Management Act (GMA) requires comprehensive plans to include a housing element that identifies "sufficient capacity of land" to accommodate all projected housing needs during the twenty-year planning horizon (RCW 36.70A.070(2)(c)).

In other words, jurisdictions should evaluate whether they have sufficient land capacity available to allow for the types and amount of new housing needed to meet identified housing needs. The 2021 housing element updates amended this section of the Act to require the housing element to include explicit consideration of capacity for the following household needs and building types:

- Moderate, low, very low, and extremely low-income households;
- Permanent supportive housing;
- Emergency housing and emergency shelters; and
- Duplexes, triplexes and townhomes (within an urban growth area boundary).

In this guidance, all references to "housing needs" refer to the jurisdiction's allocated share of countywide housing needs. Counties and cities are expected to work together to allocate countywide projected housing needs to individual jurisdictions, as detailed in Commerce's guidance titled "Establishing Housing Targets for your Community" (2023). Each individual jurisdiction is then required to document sufficient capacity to accommodate all housing needs allotted to them through the countywide allocation process. This section details how a jurisdiction can document the availability of capacity in accordance with RCW 36.70A.070(2)(c).

## What is a land capacity analysis?

Counties and cities must conduct a Land Capacity Analysis (LCA) to measure and document capacity for new housing development on vacant, partially used or under-developed lands. This analysis considers the potential for land within a community's boundaries to accommodate new housing growth, given what is allowed under current zoning and development regulations and what can reasonably be anticipated based on past development and factors that may cause trends to change in the future.[21]

Unlike a Buildable Lands Analysis, which looks backward at performance under the previous period's comprehensive plan, an LCA looks forward to the land uses and development types planned for the next planning period, as described in WAC 365-196-325.[22] While the focus of an LCA is on the potential for new development under current regulations and zoning, past trends and other factors should be considered to ensure that projected capacity is realistic. RCW 36.70A.070(2)(d) includes separate requirements for analyzing barriers and limitations that prevent new development from achieving planned densities and housing types. These requirements are covered in Chapter 4. Adequate provisions, and are separate from the LCA.

Commerce already has detailed guidance for performing an LCA in its Urban Growth Area (UGA) Guidebook (2012), starting on page 84.[23] This new LCA guidance builds on the framework of the UGA Guidebook to provide additional recommendations for how to demonstrate capacity for housing production by income level and for specific housing types, consistent with new GMA requirements.

---

[21] See WAC 365-196-310(4)(b)(ii)(E). At the time of publication, this section had not yet been updated to reflect new GMA requirements for measuring land capacity for different income levels and housing types.
[22] Note, at the time of publication, WAC 365-196-325 had not yet been updated to reflect new GMA requirements for measuring land capacity for different income levels and housing types.
[23] The UGA Guidebook is located at: https://deptofcommerce.app.box.com/s/pnkar5j81ghxrgfdgr3ofa7pmw5v37da

Under GMA, jurisdictions must adopt and implement any necessary changes to achieve the land capacity necessary to accommodate all housing needs by their comprehensive plan periodic update deadline.[24] Cities and counties must "ensure that, taken collectively, adoption of and amendments to their comprehensive plans and development regulations provide sufficient capacity of land suitable for development within their jurisdictions to accommodate their allocated housing and employment growth…" (RCW 36.70A.115).

For example, if a jurisdiction's comprehensive plan identifies a residential land capacity deficit for middle housing types to serve the projected number of moderate-income households, then the implementing development regulations must at least include changes to the zoning code, zoning map and other associated development regulations, as needed, to allow sufficient middle housing to overcome that deficit. That additional capacity should be allowed "by right" to ensure that there are minimal hurdles to building the needed capacity.

This chapter has two sections. The first provides a methodology for evaluating capacity to accommodate permanent housing needs. These include housing needs at all income levels; permanent supportive housing; and, within urban growth areas, duplexes, triplexes and townhomes.[25] The second section addresses capacity for emergency housing and emergency shelter, which provide temporary accommodations for those who are homeless or at imminent risk of becoming homeless. Emergency housing is treated differently in Commerce's guidance, as discussed in more detail in that section below.

[24] RCW 36.70A.130(1)(a): Except as otherwise provided, a county or city shall take legislative action to review and, if needed, revise its comprehensive land use plan and development regulations to ensure the plan and regulations comply with the requirements of this chapter according to the deadlines in subsections (4) and (5) of this section.
[25] See RCW 36.70A.070(2)(c).

**Defining household income segments**

The land capacity requirements of the housing element in RCW 36.70A.070(2)(c) reference moderate, low, very low and extremely low-income households. RCW 36.70A.030 provides definitions for households by income level relative to "median household income adjusted for household size, for the county where the household is located, as reported by the United States department of housing and urban development." The Department of Housing and Urban Development (HUD) publishes this income standard, referred to as Median Family Income or Area Median Income (AMI), for each county on an annual basis.

Exhibit 6 presents the definitions for each income level as stated in RCW 36.70A.030. These are the same income thresholds used for Commerce's projected housing needs, with the exception that Commerce breaks out Moderate Income into two groups: >80-100% of AMI and >100-120% of AMI.

### Exhibit 6. Income level definitions in RCW 36.70A.030

| Household income segment | Income relative to area median income (AMI) |
|---|---|
| **Extremely low-income** | 0-30% of AMI |
| **Very low-income** | >30-50% of AMI |
| **Low-income** | >50-80% of AMI |
| **Moderate income** | >80-120% of AMI |

In addition to these income segments, RCW 36.70A.070(2)(c) notes that land capacity analyses now need to take into consideration permanent supportive housing (PSH), emergency housing and emergency shelters. As noted in Establishing Housing Targets for your Community (Book 1),

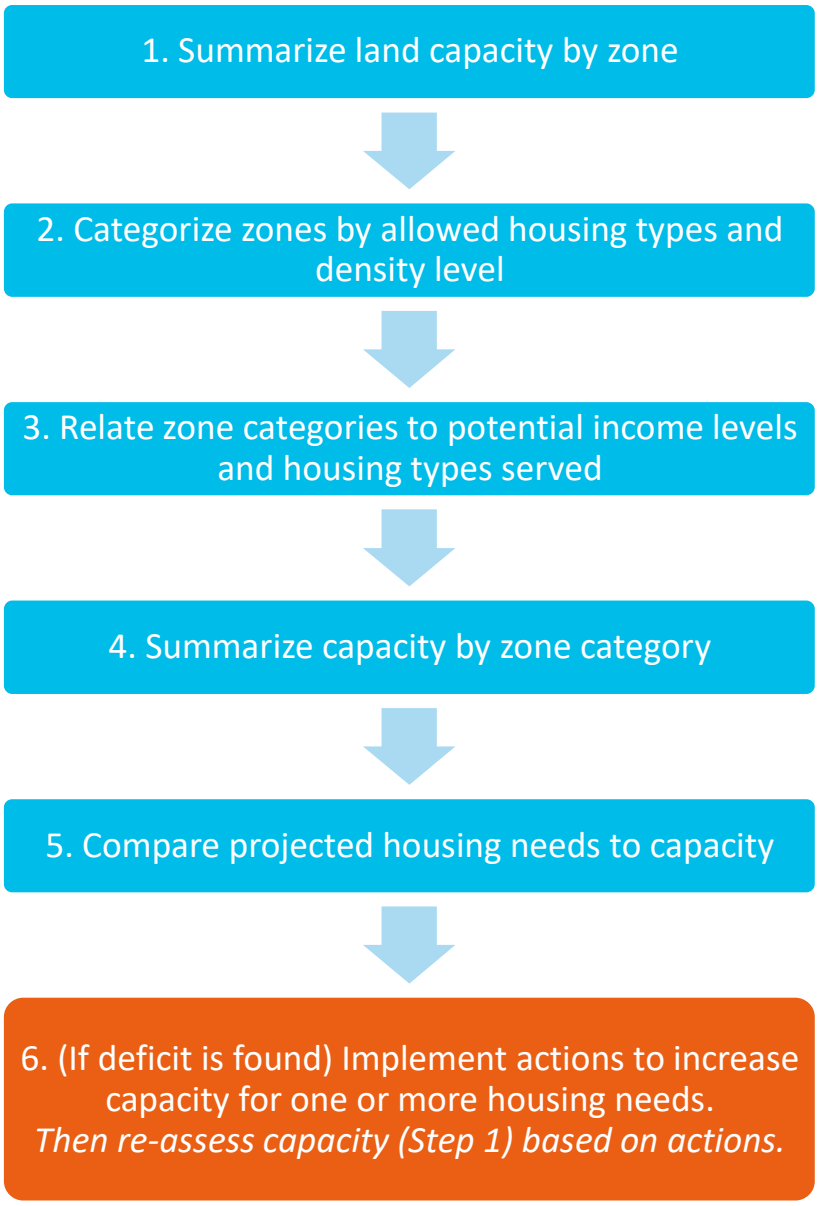
- Since PSH is permanent housing, PSH needs are a subset of the total 0-30% AMI housing needs. While some households in PSH may have incomes higher than 30% AMI, the majority of these households are likely to be in the 0-30% AMI bracket as this is where disability incomes would fall, and RCW 36.70A.030 requires PSH participants to have "complex and disabling" conditions and service needs. Therefore, the 0-30% AMI housing needs are split into two categories: PSH and Non-PSH.

- Both emergency housing and emergency shelter include temporary accommodations. In implementation, there may be overlap between what could be considered emergency housing versus emergency shelter. For this reason, emergency housing and emergency shelter are considered a single category and referred to throughout this guidance as "emergency housing."

## Evaluating capacity for permanent housing needs

Commerce recommends that counties and cities complete each of the steps shown in Exhibit 7 to analyze and assess their capacity by income level. Each step is described in more detail in the sections that follow. Buildable lands counties subject to RCW 36.70A.215 or those that have already completed a land capacity analysis may have already completed the analysis needed for Step 1. In that case, they can use the output from that analysis to complete the remaining steps.

## Exhibit 7. Steps for demonstrating sufficient capacity to meet all housing needs by income level




The goal of this process is to show quantitatively whether the jurisdiction has enough capacity to meet its allocated housing needs at each income level.[26] If, at the conclusion of Step 5, the analysis shows a deficit of capacity for one or more income levels, then the jurisdiction must identify actions that can increase capacity. This may include rezoning areas to allow for new housing types or higher densities or taking other effective steps. Then the jurisdiction must return to Steps 1-5 to recalculate capacity and compare to needs.

[26] Permanent supportive housing (PSH) units are grouped with 0-30% AMI housing units in this methodology.

**Analyzing land capacity in rural areas**
LCAs are designed to assess capacity for urban growth areas. However, changes to the GMA in 2021 allow for redevelopment and infill within local areas of more intense rural development (LAMIRDs) that have public facilities and services. Therefore, some counties may consider applying this LCA methodology to evaluate potential capacity for housing production in select LAMIRDs that can support new development.

## Step 1. Summarize land capacity for housing production by zone

Residential land capacity is a combination of the amount of land available for development, the housing types and densities allowed under applicable development regulations, and any encumbrances on the land that limit the ability to develop, such as environmental constraints, infrastructure requirements or local market forces. In this step, jurisdictions should summarize land capacity by zone as follows:

### 1.1 Identify residential land supply and assign development status

Identify parcels in zones where residential uses are permitted, including parcels in mixed-use zones. Classify each parcel in the residential land supply as either vacant, partially-used, under-developed, pipeline or developed. Classification is based on a combination of current development characteristics for each parcel and the applicable zoning regulations. Classification typically involves the following steps:

- Calculate the current density of permitted development on the parcel (dwelling units per acre or floor-area-ratio). If the property is currently undeveloped, it should be classified as vacant.

- Compare the current density of non-vacant land to the density allowed under applicable zoning. If the current achieved density is substantially below allowed density, the property may be classified as partially-used or under-developed. Jurisdictions are responsible for setting reasonable thresholds for this determination, but the following guidelines are commonly used:

  - Vacant – Parcels of land that contain no structures or have buildings with low value. The Commerce UGA Guidebook (2012) includes lands with improvement values of less than $500 in the vacant classification. Jurisdictions may set different improvement value thresholds based on local knowledge and market characteristics, but these should be consistent with any applicable county-level land capacity analysis or buildable lands report.
  - Partially-used – Parcels occupied by a use, but which include enough land to be further subdivided for additional development without rezoning. For example, a 1-acre lot zoned for four units per acre that contains one single-family home could be subdivided to allow development of up to three additional units.
  - Under-developed – Parcels that are likely to redevelop to a more intensive land use than that which currently occupies the property, either due to market forces or because applicable zoning allows a more intensive use than the current development. Examples of under-developed properties include:

**Technical resources**

UGA Guidebook **(Department of Commerce, 2012) -**Detailed guidance for land capacity analysis methodology can be found starting on **page 84.**

Buildable Lands Guidelines **(Department of Commerce, 2018)** - Guidance on methodology starts on **page 30.**

Housing Memo: Issues Affecting Housing Availability and Affordability **(Department of Commerce, 2019)** - Considerations for housing trends in your community.

- A single-family home on property in a multifamily zone.
- A multifamily residential property developed at a density below that allowed by the applicable zone. Jurisdictions may set this threshold according to local conditions. For example, King County's 2021 Urban Growth Capacity Report recommends a ratio of allowed density to achieved density of at least 1.5:1 as a reasonable minimum threshold, but less urban jurisdictions with less active development markets may consider higher thresholds.
- A property with relatively low improvement value compared to the value of the land (a ratio less than 1:1 is a commonly used threshold, as described in the 2012 Commerce UGA Guidebook).

- Pipeline – Parcels that are currently engaged in the permitting process (for example, permit applications under review or engaged in pre-application consultation) and are anticipated to be developed in the near future. These properties should be excluded from the land capacity analysis. Because they represent future development, jurisdictions may count units anticipated to develop on pipeline properties toward their projected housing needs (see Step 5).

  If the base year of the LCA is later than 2020, residential development since 2020 may also be considered in the same manner as pipeline. See Step 5 for detailed guidance.

- Developed – Parcels that have been developed for a primary use and do not meet the criteria for the categories above. These parcels are assumed to have no capacity for additional development under current zoning regulations.

## 1.2 Exclude lands unlikely to develop

Some properties (or portions of properties) will have characteristics that make them unlikely to develop in the near future or ever, and such lands should be excluded from the available land supply. Conditions that prevent development often include the following:

- Critical areas – Environmental constraints regulated under the jurisdiction's critical areas regulations, such as wetlands, fish and wildlife habitat conservation areas, geological hazardous areas, frequently flooded areas, etc. that preclude significant development.

- Public use – Lands owned by a government or public agency that are used and managed for public purposes, such as parks, schools or utility facilities. Most land owned by governments or public agencies is unlikely to be developed for housing in the near future and should therefore be excluded from the available land supply. Other local factors such as historic districts, conservation easements or ownership by a non-profit organization should also be considered when identifying public-use properties.

  However, any properties owned by governments and public agencies that are intended for housing production, such as land owned by a housing authority, should be included in the LCA. Similarly, public properties that have been declared surplus and are otherwise suitable for residential development may be included in the available land supply.

- Capital infrastructure – Easements, rights-of-way and other major facilities associated with public utilities or transportation infrastructure. Jurisdictions are not required to conduct detailed plat research to identify all easements across private property, but major utility corridors and known easements with the potential to affect development of the property should be identified and considered.

## 1.3 Identify gaps in utility infrastructure and services

Gaps in infrastructure for utilities and public services can inhibit development, keeping achieved densities below the level planned by the jurisdiction and allowed by development regulations. The GMA requires comprehensive plans to plan for the capital facilities needed to serve anticipated levels of growth during the planning period (RCW 36.70A.070(3)). Further, jurisdictions planning under the Review and Evaluation Program (RCW 36.70A.215), also referred to as "buildable lands" jurisdictions, are required to consider infrastructure gaps when evaluating whether sufficient land is available to meet growth targets, including the presence of transportation, water, sewer and stormwater infrastructure (RCW 36.70A.215(3)(b)(i)).

This guidance recommends that all cities and counties identify what portions of their planning area, if any, are affected by infrastructure gaps that have the potential to prevent planned densities from being achieved during the planning period and engage in coordination with any utility service providers operating within the jurisdiction. This includes review of comprehensive plan capital facilities or transportation elements, as well as applicable utility system plans, to determine if any service or infrastructure improvements to address these gaps are planned. If infrastructure gaps are identified, and no corrective capital improvements are planned, jurisdictions should take one of the following actions:

- For areas that are already developed at urban densities, determine the maximum residential density that is feasible without infrastructure improvements and apply this density assumption when calculating capacity for these areas when new infrastructure is unlikely within the planning period;[27] or
- For underserved and undeveloped areas where reaching planned densities requires infrastructure, calculate land capacity using planned densities for the applicable zone and commit to providing infrastructure adequate to support this level of growth within the planning period. This commitment should include updates to applicable capital facilities and system plans that identify necessary capital improvement projects and funding sources, to be delivered concurrently with adoption of the comprehensive plan update. If a jurisdiction is unable to provide this commitment, the area should generally not be included with the UGA.[28]

If a city or county elects to apply reduced residential density assumptions to areas affected by infrastructure gaps, they are still required to demonstrate adequate overall capacity to meet projected housing needs, and zoning changes may be necessary elsewhere in the jurisdiction to supply the needed capacity.

---

[27] If a jurisdiction opts for this scenario, they are still required to provide urban areas with adequate public facilities. See WAC 365-196-320(1)(d) and (f).
--Section (d): "At a minimum, adequate public facilities in urban areas should include sanitary sewer systems, and public water service from a Group A public water system under chapter 70A.120 or 70A.125 RCW because these services are usually necessary to support urban densities. The services provided must be adequate to allow development at urban densities and serve development at densities consistent with the land use element, and meet all regulatory obligations under state and federal law."
--Section (f): "The obligation to provide urban areas with adequate public facilities is not limited to new urban areas. Counties and cities must include in their capital facilities element a plan to provide adequate public facilities to all urban areas, including those existing areas that are developed, but do not currently have a full range of urban governmental services or services necessary to support urban densities.

[28] Critical areas would not need to be removed from the UGA due to lack of infrastructure.

## 1.4 Calculate gross residential capacity by zone

For each zone, calculate the amount of available residential development capacity according to the following steps:

**A. Developable acreage** – Calculate total acreage of developable land available by development status (vacant, partially-used and under-developed). As described previously, developable acreage should exclude areas encumbered by critical areas and easements that prohibit significant development based on the guidelines below.

- If the jurisdiction's development code permits housing development based on net density (total parcel area minus constrained areas), all encumbered areas should be excluded from developable acreage. (For example, a 10-acre parcel with 2 acres occupied by wetlands and associated buffers would have 8 acres of developable area.)
- If the jurisdiction's development code permits housing development based on gross density (total parcel area), only completely encumbered properties should be excluded. Partially-constrained properties should be included at their full acreage.
- If parcel-level data on environmental constraints is not available, jurisdictions may determine the total acreage of critical areas for each zone and deduct this from the total developable land supply for the zone.

**B. Apply deductions for infrastructure needs and land unavailable for development** – New development generally requires new infrastructure improvements (roads, utilities, etc.). These improvements occupy land, reducing the acreage available for housing development. The amount of the deduction for infrastructure can vary by location and development status. For example, redevelopable land and infill vacant lots in urban areas may already be partially or fully served by existing infrastructure and may require a smaller deduction than greenfield areas.

Deductions for infrastructure may be further reduced (or unnecessary) if a jurisdiction regulates housing development based on gross density, rather than net density.[29] Similarly, in areas where infrastructure gaps have been identified (Step 1.3),

**Incorporating HB 1110 (2023) into the LCA**

The LCA guidance was developed prior to passage of the middle housing bill, HB 1110 (2023). This bill requires certain jurisdictions to allow multiple units per lot, changing the typical density calculations from units per acre or floor area ratio to units per lot. Until further guidance is developed, jurisdictions may want to consider using the following approach - drawn from the Puget Sound Regional Council's (PSRC) impact analysis of HB 1110 - to help determine the capacity impacts of this bill.

When considering additional density because of middle housing regulation changes, consider:

1. Which lots would be potentially redevelopable (i.e., those without Homeowners Association (HOA) restrictions, those that are vacant or have only one dwelling unit, those with a developable area over 2,000 square feet, etc.).

2. Of the lots in Step 1, determine which subset of lots may economically make sense to redevelop. A starting point for this analysis could be where the land value is greater than the improvement value and the built square footage is less than 1,400 square feet.

3. Estimate the total development potential of lots selected through Step 2, i.e., the maximum number of dwelling units allowed to be developed on these lots net of existing units. Then determine what percentage of the total development potential (or net maximum dwelling units) could reasonably be expected to redevelop over the 20-year planning period. A conservative estimate could be 25%, but tailor this factor to what is most appropriate for your jurisdiction and local market conditions.

[29] Jurisdictions may regulate the allowed density of development in a variety of ways. Gross density is measured as the number of housing units divided by total land area, without any deductions. Net density is calculated after first deducting non-buildable areas from the total amount of land, including environmentally critical areas and associated buffers, land needed for roads, stormwater detention and utilities. The GMA does not mandate a particular way to measure density, so jurisdictions should use a method for the LCA that is consistent with their adopted development regulations and any existing Buildable Lands analysis (as applicable).

a smaller deduction for infrastructure needs would be appropriate if corrective capital improvements are not planned.

If a deduction is applied for infrastructure, a jurisdiction may determine this percentage based on recent development activity, being careful that infrastructure percentage deduction factors are based on land not constrained by critical areas.

Likewise, after application of deductions for necessary infrastructure, some portion of the remaining developable land supply may remain unavailable for development during the planning period due to site conditions, economic factors or unwillingness to develop or sell on the part of the property owner. Jurisdictions should refer to the discussion of market factors presented in the 2012 Commerce UGA Guidebook for guidance on establishing appropriate deduction values. Based on examples presented in the UGA Guidebook, the following market factor deductions are reasonable assumptions:

- Vacant properties: 15%
- Partially-used and under-developed properties: 25%

Alternatively, if a community has conducted specific market factor analysis, such as analysis performed under the requirements of the buildable lands program, the results of that evaluation may be used here, provided the jurisdiction documents the analysis and associated assumptions. Additional consideration for market challenges and their relationship to local regulatory or process barriers is in Chapter 4. Adequate provisions.

**C. Calculate total residential capacity for developable land by zone** – Calculate total capacity for residential development by multiplying the developable acreage of land by an assumed density level expressed in units per acre.[30] Jurisdictions should establish assumed densities for each residential zone. The 2012 Commerce UGA Guidebook and WAC Sections 365-196-210(6), 365-196-310(4)(b)(ii)(E) and 365-196-325(2) establish guidance on the factors that should be considered when establishing growth assumptions for a land capacity analysis:

- **Since the LCA is a forward-looking analysis, jurisdictions should focus on the level of development expected to occur during the planning period.** Assumed densities for use in the LCA should consider the maximum densities allowed under zoning, and historic trends and achieved residential densities, as well as factors, which may cause trends to change in the future. In some cases, achieved densities will be similar to maximum allowed densities. However, many factors beyond the control of cities and counties can influence the level of future development. Therefore, compare allowed densities to achieved densities to identify zones that have historically underperformed relative to planned levels of development.
- At a minimum, assumed densities should reflect the current achieved residential densities for each zone but should not exceed the maximum density allowed by right under the development code.

[30] At the time of publication, WAC 365-196-210(6) states that: "'Assumed densities' means the density at which future development is expected to occur as specified in the land capacity analysis or future land use element. Assumed densities are also referred to in RCW 36.70A.110 as densities sufficient to permit the urban growth that is projected to occur."

- Jurisdictions may consider the availability of density bonuses and incentive programs related to the provision of affordable housing units. Such bonuses and incentives may be used to justify assumed densities up to (but no higher than) the maximum allowed base density of the zone if documentation is provided on past trends of affordable housing production under these incentives.
- Jurisdictions planning under the Review and Evaluation Program (RCW 36.70A.215) should incorporate information from applicable buildable lands reports when establishing assumed densities for the LCA. See sidebar.
- If information on achieved density or historic development trends is not available (e.g., when a zone is newly adopted or recently amended), jurisdictions should review recent examples of permitted projects in similar zones or in peer jurisdictions as models of future development densities.

In mixed-use zones and areas regulated under form-based codes, assumed residential densities must consider the potential development of non-residential uses. To avoid counting more residential capacity than will develop over the planning period, jurisdictions must account for non-residential uses when calculating capacity in these zones. Mixed-use and form-based development regulations can vary by geography and urban context, so jurisdictions should choose an approach that is most consistent with their development code.

If a mixed-use zone establishes separate standards for maximum residential density and maximum non-residential Floor Area Ratio (FAR), the jurisdiction could determine an assumed residential-commercial split for the zone based on permitting trends or other local information. This ratio could then be used to adjust either the assumed density of the zone or the amount of developable land available:

- Adjusted density assumption: For example, if future development in the zone is expected to be 60% residential and 40% commercial, the jurisdiction could select a residential density assumption equal to 60% of what would be achieved if the zone were 100% residential and apply that adjusted density to the full developable acreage. If the zone allows up to 40 units per acre, applying this split on a 10-acre developable site would yield the following:

  40 units/acre permitted x 60% residential = 24 units/acre
  10 developable acres x 24 units/acre = 240 units

- Adjusted developable acreage: Similarly, the jurisdiction in the example above could instead choose to apply the residential-commercial split to the amount of developable land available and calculate capacity using the full planned density for the zone:

  10 developable acres x 60% residential = 6 residential acres
  6 residential acres x 40 units/acre = 240 units

**If you are in a "buildable lands" county,** subject to RCW 36.70A.215, then your jurisdiction has extra responsibilities. These counties (which include Clark, King, Kitsap, Pierce, Snohomish, Thurston and Whatcom) and the cities and towns within their boundaries, must gather data on the density and type of development that is occurring to understand whether development is occurring as planned.

Unlike the LCA, which looks forward at how your current capacity and new population targets will work as you update your plan, buildable lands looks back at how your current comprehensive plan is functioning and whether the jurisdiction met their assumed density goals.

If actual development patterns are different from those planned for in the comprehensive plan, the jurisdiction must adopt "reasonable measures" that will address those inconsistencies during the next update period.

Any observations on development patterns and achieved densities are useful for making assumptions about undeveloped land and can be used for completing an LCA.

Mixed-use zones focused on combined residential and commercial uses within the same building or development site may instead establish a maximum FAR standard for the entire property, regardless of use. Similar to the examples above, the jurisdiction should estimate the relative share of future residential development in the zone (e.g., 60%) and adjust the FAR assumption used in the capacity analysis to reflect only the residential share. Apply the total developable acreage for the zone to this adjusted FAR assumption to derive the anticipated square footage of residential development, and then convert to housing units based on an assumed average unit size.

> 3.0 Maximum FAR x 60% Residential = 1.8 Residential FAR
> 10 developable acres (435,600 sq ft) x 1.8 Residential FAR = 784,080 residential sq ft
> 784,080 residential sq ft / 800 sq ft per unit = 980 units

Jurisdictions using form-based codes must likewise establish assumptions about the mix of residential and commercial uses and the expected density of residential development in these zones. Similar to mixed-use zoning described above, these assumptions should be based on residential density or non-residential FAR requirements in the code itself (if they exist) that are expected to occur (e.g., assumed density) and/or on historic development trends in these zones or similar zones with similar market factors.

Exhibit 8 shows an example of the process for calculating gross residential capacity by zone described in steps 1.4.A – 1.4.C above.

## Exhibit 8. Example calculation of gross residential capacity by zone

| Zone | Gross developable land (acres) | | Infrastructure/ land availability deduction factor | Net developable land (acres) | | Assumed density (units/acre) | Gross residential capacity (units) |
|---|---|---|---|---|---|---|---|
| **Single Family Residential (R-4)** | Vacant | 760 | 15% | 646 | 2,924 | 2.5 units/acre | 7,310 |
| | Partially-used | 1,288 | 25% | 966 | | | |
| | Under-developed | 1,749 | 25% | 1,312 | | | |
| **Medium Density Residential (R-8)** | Vacant | 311 | 15% | 264 | 1,201 | 6 units/acre | 7,206 |
| | Partially-used | 715 | 25% | 536 | | | |
| | Under-developed | 535 | 25% | 401 | | | |
| **Multifamily Residential (R-12)** | Vacant | 144 | 15% | 122 | 611 | 10 units/ acre | 6,110 |
| | Partially-used | 325 | 25% | 244 | | | |
| | Under-developed | 327 | 25% | 245 | | | |
| **Multifamily Residential (R-30)** | Vacant | 78 | 15% | 66 | 267 | 25 units/ acre | 6,675 |
| | Partially-used | 96 | 25% | 72 | | | |
| | Under-developed | 172 | 25% | 129 | | | |

**Data availability**
This guidance recognizes that the collection of data necessary to prepare the LCA may pose a challenge for some jurisdictions. In such cases, jurisdictions should use the best and most accurate information available and may use substitute sources, if all data sources and assumptions are thoroughly documented.

For example, if complete parcel-level information is not available on existing housing unit counts, jurisdictions may estimate achieved densities by evaluating a sample of representative parcels or by reviewing recently issued development permits in each zone. Similarly, jurisdictions may review a sample of representative mixed-use projects when setting assumptions about expected residential densities.

## 1.5 Calculate net residential capacity by zone

For each zone, subtract existing housing units from total residential capacity determine net residential capacity.

## 1.6 Calculate additional capacity for ADUs on developed lots (Optional)

Changes to the housing element in 2021 call for jurisdictions to consider the role of accessory dwelling units (ADUs) in meeting housing needs. Changes in 2023 require jurisdictions to allow up to two ADUs per lot in urban growth areas, with the option for separate sale. Although capacity for ADUs has not typically been measured in a land capacity analysis, they are very likely to become important in meeting housing needs.

ADUs can be added to a developed parcel with an existing single-family home, and they may provide a lower cost housing option in areas where housing is typically more expensive, providing a way to help pay for a mortgage.

The optional methodology below provides general guidance for developing a reasonable estimate of capacity for new ADU production over the planning horizon. Jurisdictions should customize the assumptions described in the methodology below based on the best information available that reflects their local regulatory and market conditions.

- **Estimate total developed single-family lots where ADUs could be added.** Jurisdictions should document the zones where ADUs are allowed and estimate how many developed lots in these zones could add ADUs (either attached, detached, or conversion), based on local conditions. The feasibility of establishing an ADU on a given property depends on many site-specific factors, as well as the type of ADU to be added. Jurisdictions should generally consider the following factors, as applicable:

  - What are the prevailing lot sizes and built square footage compared to maximum allowed lot coverage? (i.e., is there space to construct an attached or detached ADU?)
  - Are there restrictions on the development of ADUs by local Homeowners Associations (HOAs)? And are they enforced?
  - Are there septic drainfields or other utility infrastructure that would limit the construction of accessory structures?
  - Any other site-level requirements established by the jurisdiction that would affect the ability to construct an ADU (property access, setbacks, etc.)?

  Jurisdictions should thoroughly document all assumptions and screening criteria used, including data sources.

- **Determine a reasonable participation factor to account for owner preferences and site constraints.** Many property owners who can legally establish new ADUs on developed lots may choose not to do so, given the

significant associated cost and effort. Recommended participation factors could be as low at 1% in relatively weak real estate markets or as high as 10% in strong markets where lot sizes and infrastructure are conducive to ADUs. [31]

The historic rate of ADU production or any recent gradual increase in ADU production in a jurisdiction may inform the starting point for a participation factor. Also consider the scope of changes to a city's ADU regulations that will be required based on 2023 legislative changes in HB 1337 and the impact those changes will have within the jurisdictions housing market.[32]

It may also be helpful to develop different participation factors for each zone based on the different characteristics of housing in each zone. For example, zones with a lot of new development may have homes that have maximized the available lot coverage and have limited ability to add ADUs, therefore a low participation factor may be more appropriate compared to a zone that is primarily a first ring suburb with lots that have more space to build an ADU.

Apply the participation factor to the number of lots where ADUs could be constructed to estimate the number of lots likely to add ADUs during the planning period. For example, if the jurisdiction estimates 4,000 lots could accommodate ADUs and sets a 10% participation factor based on local market factors and flexibility in ADU development regulations, potential ADU lots would be calculated as follows:

4,000 lots x 10% participation factor = 400 potential ADU lots

- **Account for the average number of ADUs permitted per lot.** Within urban growth areas, jurisdictions must allow up to two ADUs per lot over the next planning period based on recent changes to ADU regulations passed in 2023.[33] If this is the case in your jurisdiction, look at permitting applications or trends, demographic and housing data, and/or conduct resident surveys to determine what is the best assumption for the average number of ADUs that can be expected to be developed on lots that may have ADU production. Multiply this by the number of available lots to calculate ADU capacity:

  400 potential lots x 1.25 ADUs per lot = 500 total ADUs over 20 years

## 1.7 Summarize total residential capacity

Jurisdictions should compile a summary of development capacity information for each zone and for ADUs in all zones (if applicable). Exhibit 9 shows an example development capacity summary table.

---

[31] According to a study conducted by the Terner Center for Housing Innovation and the Urban Land Institute, in Portland, Seattle, and Vancouver, BC, ADUs accounted for only 3.0%, 0.8%, and 0.6%, respectively, of issued housing permits in 2009. In 2015, following key reforms in all three cities, this share had risen to 10.9%, 2.1%, and 6.3%, respectively. See Jumpstarting the Market for Accessory Dwelling Units report located here: https://ternercenter.berkeley.edu/wp-content/uploads/pdfs/Jumpstarting_the_Market_--_ULI.pdf.

[32] Seattle's ADU production rate increased significantly after ADU reforms in 2019. Total ADU permits, which had been largely steady for the past four years, increased by approximately 350% from 280 in 2019 to 988 in 2022. See Seattle's 2022 ADU Annual Report for more details: https://www.seattle.gov/Documents/Departments/OPCD/OngoingInitiatives/EncouragingBackyardCottages/OPCD-ADUAnnualReport2022.pdf. Cities such as Olympia, Burien, Tacoma and Kirkland have also seen increases in the permitting and production of ADUs after regulations were changed to make it easier to construct ADUs, but not to the extent that Seattle has.

[33] HB 1337 (2023), requires jurisdictions to allow two ADUs per lot within urban growth areas, by six months after the next periodic update due date. See 1337.SL.pdf (wa.gov) at https://lawfilesext.leg.wa.gov/biennium/2023-24/Pdf/Bills/Session%20Laws/House/1337.SL.pdf?q=20230602124224.

## Exhibit 9. Example summary table of development capacity by zone

**Development capacity by zone**

| Zone | Net developable land (acres) | Assumed density (units/acre) | Gross residential capacity (units) | Existing housing on developable land (units) | Net residential capacity (units) |
|---|---|---|---|---|---|
| **Single Family Residential (R-4)** | 2,924 | 2.5 units/acre | 7,310 | 310 | 7,000 |
| **Medium Density Residential (R-8)** | 1,201 | 6 units/acre | 7,206 | 206 | 7,000 |
| **Multifamily Residential (R-12)** | 611 | 10 units/acre | 6,110 | 110 | 6,000 |
| **Multifamily Residential (R-30)** | 267 | 25 units/acre | 6,675 | 75 | 6,600 |

**ADU Capacity (all zones)**

| Lots available for ADUs | Participation factor | Potential ADU lots | Average ADUs per lot | Total ADU capacity |
|---|---|---|---|---|
| **4,000** | 10% | 400 | 1.25 | 500 |

### Accounting for vacation homes and short-term rentals (Optional)

In some communities, a significant share of housing units are used as vacation homes or short-term rentals (STRs). These homes are effectively unavailable to house full-time residents. This constrains the local housing supply. Commerce's projected housing needs data accounts for the estimated number of existing vacation homes and short-term rentals in the baseline housing stock based on available Census data, and removes them from the current supply of units available to meet projected needs. However, Commerce's calculations of net new housing need only account for housing needed for the current and projected future full-time population. They do not account for any expected future demand for additional vacation homes or short-term rentals.

Jurisdictions that expect continued demand for new homes that will not be used for full-time residents have a few options for accounting for this demand in their housing elements.

- Treat this issue as a barrier to housing availability for full-time residents and refer to Chapter 4. Adequate provisions in this guidance to identify appropriate actions to overcome this barrier and implement these actions with the comprehensive plan.
- Analyze historic trends and/or conduct a market study to estimate the demand for these kinds of units over the planning period. Then subtract this number of units from capacity in the specific zones where the demand is expected. For example, if the demand appears to be exclusively in single-family areas with large lots, then subtract the estimated demand for housing from the capacity in only those relevant zones.

It may be appropriate to use some combination of both options, particularly if it is expected that actions are expected to take several years to implement and/or will not solve the problem entirely.

Note that if a jurisdiction accounts for demand for future vacation homes and STRs in their land capacity analysis, they cannot expand urban growth areas without documenting that the expansion is needed to accommodate capacity for allocated population and employment growth only (exclusive of vacation home/STR demand). See RCW 36.70A.115(1) and WAC 365-196-310(2)(e).

## Step 2. Classify zones by allowed housing types and density level

Housing costs and affordability can vary significantly by housing type, and housing types and densities are determined in part by zoning and other local development regulations. For example, subsidized affordable housing projects are most feasible to produce in low-rise or mid-rise multifamily zones that allow for multi-unit housing production, such as apartment buildings.[34]

The next step is to identify which housing types are allowed in each zone to facilitate relating each zone category to potential affordability levels.

The simplest approach is to classify zones into three or four categories, as shown in Exhibit 10. The first three categories may be most appropriate for smaller cities or suburban areas. Larger metropolitan cities may need one or more of the remaining categories, or to make other adjustments to categories to reflect local market conditions.

### Exhibit 10. Example categories for classifying zones by housing types allowed

| Zone category | Typical housing types allowed* |
|---|---|
| **Low Density** | Detached single-family homes |
| **Moderate Density** | Townhomes, duplex, triplex, quadplex |
| **Low-Rise Multifamily** | Walk-up apartments or condominiums (up to 3 floors) |
| **Mid-Rise Multifamily** | Apartments or condominiums in buildings with ~4-8 floors (~40-85 feet in height) |
| **High-Rise/Tower**** | Apartments or condominiums in buildings with ~9 or more floors (>85 feet in height) and requiring steel frame construction |

* Manufactured homes are not listed as a housing type because by law they should be allowed in all zones.
** High-Rise/Tower zones are likely to be relevant only in major metropolitan cities.

After you identify appropriate zone categories for your jurisdiction, the next step is to associate each residential land use zone in the jurisdiction with a specific zone category. Exhibit 11 provides an example of how four different land use zones within a city could be classified using the first three zone categories from Exhibit 10.

When summarizing which housing types are allowed in each land use zone (column 2 in Exhibit 11), Commerce recommends focusing on housing types that are permitted by right, and not those that are only allowed by conditional use.[35] Note that there may be some level of judgement necessary to assign zone categories to appropriate land use zones. For example, the Medium Density (R-8) zone in this example allows for both single family and duplex construction. However, the zone does not allow for most of the housing types in the Moderate Density zone category. When assigning zone categories, also consider the predominant housing type developed in the zone. If historic trends show that homebuilders are almost exclusively building

[34] High-rise zones that allow for building heights that require steel frame construction are not typically supportive of affordable housing production due to the higher cost per square foot.
[35] Only allowing a certain housing type by conditional use is a barrier that reduces the likelihood that housing type is included in new residential development.

detached single-family units in this zone, then it would be most appropriate to classify it as Low Density for evaluating capacity to meet housing needs.

### Exhibit 11. Example of classifying land use zones using example zone categories

| Land use zone | Housing types allowed | Max density level allowed | Assigned zone category |
|---|---|---|---|
| **Single-Family Residential (R-4)** | Detached single-family homes | 4 units/acre | Low Density |
| **Medium Density Residential (R-8)** | Detached single-family homes, duplexes | 8 units/acre | Low Density |
| **Multifamily Residential (R-12)** | Detached single-family homes, townhomes, duplexes, triplexes, quadplexes, 6-plexes | 12 units/acre | Moderate Density |
| **Multifamily Residential (R-30)** | Apartments, townhomes | 30 units/acre | Low-Rise Multifamily |

In the Exhibit 11 example, the R-12 zone allows for several additional moderate density housing types than the R-8 zone and a maximum density level that is more typically associated with moderate density housing. This zone has characteristics that fall more clearly in the Moderate Density zone category; therefore, it should be classified that way.

Of course, it is possible historic trends could show that much of the development has been detached single-family production. If that were the case, it would still be appropriate to classify this zone as Moderate Density for summarizing capacity for future housing production because the zone allows for several moderate density housing types. However, it would be important for the jurisdiction to conduct an analysis of barriers to achieving the production of moderate density housing types and work to remove those barriers. Guidance on how to analyze these barriers and identify actions to address them are available in Chapter 4. Adequate provisions.

## Step 3. Relate zone categories to potential income levels served

In order to ensure land capacity for all income segments, we need to make assumptions about the types of housing each household is likely to occupy. The goal of this step is to answer, based on local market conditions, the following questions:

- Which income levels are likely to be served by new market-rate housing production in each zone category?[36] For example, a zone category that allows single family housing will likely serve new market rate housing serving income levels of >120% AMI and possibly 80-120% AMI, while new multifamily housing may serve households earning 80-120% AMI and possible 50-80% AMI.
- In which zone categories is it feasible for affordable housing developers to produce new income-qualified affordable housing projects, assuming typical sources of funding and financing are available? [37]

---

[36] The cost of market-rate housing is dependent upon the balance of supply and demand. Housing shortages lead to increases in market-rate housing costs. If a jurisdiction provides additional capacity and reduces barriers to more market-rate housing development, this would be expected to reduce housing costs compared to taking no action. However, these market dynamics are complex and outside of the scope of a land capacity analysis.

[37] As discussed in Updating Housing Targets for your Community (Housing Element Book 1), some jurisdictions, working alone or in collaboration with neighboring jurisdictions, may consider the provision of vouchers to low-income households to help meet their housing needs. This kind of solution is not an alternative to showing capacity for new housing to meet projected housing needs at each income level. Vouchers are simply one way to subsidize housing, not a way to show capacity for housing at lower incomes.

- In which zone categories is it feasible to produce new permanent supportive housing (PSH), assuming typical sources of funding and financing are available?[38]

Answering these questions requires an analysis of local housing market conditions and housing affordability levels, as well as outreach to local affordable housing developers. Exhibit 12 provides an example of how the findings of this analysis can be summarized, based on typical housing market conditions in many parts of Washington state as of 2022. The final column summarizes a direct relationship between zone category and income level served.

**These assumptions may be used as a starting point to estimate the affordability levels of new development if a more detailed market analysis is not possible in your jurisdiction. Commerce recommends jurisdictions customize the table based on the best available information for your jurisdiction as discussed in sections 3.1 and 3.2 below.**[39] Exhibit 13 shows a separate set of example assumptions for communities with relatively higher housing costs compared to the rest of the state (e.g., Seattle, East King County).[40]

**Inclusionary zoning and capacity**

If a jurisdiction has an inclusionary zoning (IZ) program, can they include some of the capacity in that zone as <80% AMI?

--**If a jurisdiction has a mandatory IZ program,** it may assume that IZ requirement proportion as capacity in the <80% AMI bracket, so long as the IZ program requires housing at that affordability level. In other words, if a jurisdiction requires 10% of development in the H-1 zone be reserved for households making <80% AMI, 10% of the capacity in the H-1 zone can be categorized as <80% AMI housing. In this case, that proportion of capacity could be shown in a separate IZ Zone Category or added to an existing Zone Category that has an assumed affordability level of low income (<80% AMI).

--**If a jurisdiction has a voluntary IZ program**, it can include that portion of capacity that is likely to use the IZ program as low-income capacity (<80% AMI). In this case, jurisdictions should examine what their current voluntary IZ program (or a neighboring jurisdiction) has produced in terms of <80% AMI housing and use those same participation rates going forward.

In other words, if records show that only 5% of development in a zone has used the voluntary IZ program, only about 5% of the future capacity can assume to use IZ. If you layer on the requirement that 10% of that development is affordable to <80% AMI, then 0.5% of the development capacity in that zone can be assumed to quality for the 0-80% AMI housing (10% of 5%).

A jurisdiction may also use a slightly increased amount of participation in a voluntary IZ program if it can document that market and regulations have changed enough to support that increase.

---

[38] Based on section 3 of HB 1220 (2021), RCW 35A.21.430 now states, "A code city shall not prohibit transitional housing or permanent supportive housing in any zones in which residential dwelling units or hotels are allowed." Therefore, the land capacity analysis can treat PSH housing need as equivalent to other 0-30% AMI housing need in cities that do not prohibit PSH in zones that allow residential development. In other words, a zone that is suitable for providing capacity for 0-30% AMI housing should also be considered suitable for PSH. Emergency housing is treated differently in this guidance, as described under Evaluating Capacity for Emergency Housing below.

[39] Note that the final column in Exhibit 12 and Exhibit 13, "Assumed affordability level for capacity analysis," is typically based on the "Lowest potential income level served with subsidies." However, jurisdictions have discretion to select assumptions that best align with local conditions. For example, communities that expect much of the capacity in a zone would be absorbed by future market rate housing development that is more expensive than the affordability level possible with subsidies may wish to account for this fact during Step 5. One way to do this would be reviewing market-rate development trends in that zone and calculating how much of the capacity would be expected to be absorbed by new market-rate housing if those trends continue throughout the planning period. This expected housing could be added to the capacity for a higher income band and subtracted from the capacity available for lower income levels, such that the total capacity for new housing in the jurisdiction remains unchanged.

[40] In expensive jurisdictions with high land costs, it may be necessary to define a density level threshold for determining which zones can support feasible affordable housing projects. For example, local affordable housing developers may indicate that they need zoning that allows at least 30 units per acre to make their typical projects pencil out. In this case, it may be appropriate to include density level criteria when grouping zones by category in Step 2.

## Exhibit 12. Example of relating zone categories to housing types and income levels served in moderate-cost communities

| Zone category | Typical housing types allowed | Lowest potential income level served | | Assumed affordability level for capacity analysis |
|---|---|---|---|---|
| | | Market rate | With subsidies and/or incentives | |
| **Low Density** | Detached single family homes | Higher income (>120% AMI) | Not typically feasible at scale* | **Higher income (>120% AMI)** |
| **Moderate Density** | Townhomes, duplex, triplex, quadplex | Moderate income (>80-120% AMI) | Not typically feasible at scale* | **Moderate income (>80-120% AMI)** |
| **Low-Rise Multifamily** | Walk-up apartments, condominiums (2-3-floors) | Low income (>50-80% AMI) | Extremely low and Very low income (0-50% AMI) | **Low income (0-80% AMI) and PSH** |
| **Mid-Rise Multifamily** | Apartments, condominiums | Low income (>50-80% AMI) | Extremely low and Very low income (0-50% AMI) | **Low income (0-80% AMI) and PSH** |
| **ADUs (all zones)** | Accessory Dwelling Units on developed residential lots | Low income (>50-80% AMI) | N/A | **Low income (>50-80% AMI) – Group with Low-Rise and/or Mid-Rise Multifamily** |

* See discussion in 3.2 below.

## Exhibit 13. Example of relating zone categories to housing types and income levels served in higher-cost communities

| Zone category | Typical housing types allowed | Lowest potential income level served | | Assumed affordability level for capacity analysis |
|---|---|---|---|---|
| | | Market rate | With subsidies and/or incentives | |
| **Low Density** | Detached single family homes | Higher income (>120% AMI) | Not feasible at scale* | **Higher income (>120% AMI)** |
| **Moderate Density** | Townhomes, duplex, triplex, quadplex | Higher income (>120% AMI) | Not typically feasible at scale* | **Higher income (>120% AMI)** |
| **Low-Rise Multifamily** | Walk-up apartments, condominiums (2-3-floors) | Moderate income (>80-120% AMI) | Extremely low, Very low, and Low-income (0-80% AMI) | **Low income (0-80% AMI) and PSH** |
| **Mid-Rise Multifamily** | Apartments, condominiums | Moderate income (>80-120% AMI) | Extremely low, Very low, and Low-income (0-80% AMI) | **Low income (0-80% AMI) and PSH** |
| **High-Rise/Tower** | Apartments, condominiums | Higher income (>120% AMI) | Moderate income (>80-120% AMI) | **Moderate income (>80-120% AMI)** |
| **ADUs (all zones)** | ADUs on developed residential lots | Moderate income (>80-120% AMI) | N/A | **Moderate income (>80-120% AMI)** |

* See discussion in 3.2 below.

Note that to count a zone's capacity towards the 0-30% PSH housing need in later steps requires the jurisdiction to allow PSH to be allowed in that zone.

## 3.1 Calculate the affordability of housing by type/zone category (Optional)

To develop customized assumptions about the income levels served by different types of new housing, jurisdictions can start by reviewing available data about the median rents and list prices for housing in their communities. Exhibit 14 includes recommended data sources that are available in many communities across Washington. However, jurisdictions can also reference the rents or sales prices of newly developed homes to get a more accurate assessment of what the market is producing in their area.

### Exhibit 14. Recommended data sources for local market-rate housing costs

| Housing type / Zone category | Data sources (select one per category) | Notes |
|---|---|---|
| **Detached Single Family** | Washington Center for Real Estate Research, Market Data Toolkit – Housing Prices by Area | Identify the median sales price for single-family homes in your city/place. |
| | Redfin, Monthly Housing Market Data | |
| **Townhome / Middle Housing** | Washington Center for Real Estate Research, Market Data Toolkit – Housing Prices by Area | Identify the median sales price for townhomes in your city/place. |
| | Redfin, Monthly Housing Market Data | |
| **Apartments and Accessory Dwelling Units (ADUs)**[41] | Washington Center for Real Estate Research, Market Data Toolkit – Rental Housing Markets<br>Zillow Observed Rent Index (ZORI) | Identify the median or average rent for your city/place. |

Next, convert these median housing costs to affordability levels based on the county area median income. For rental housing, the Washington State Housing Finance Commission (WSHFC) and the U.S. Department of Housing and Urban Development (HUD) publish regional rent thresholds that determine the maximum rent that is affordable to a household of a given size with income at a given percentage of AMI.[42]

For ownership housing, there are many calculators online for determining the income needed to afford a new home.[43] For example, Fannie Mae has a Mortgage Calculator where you enter the home purchase price, down payment, loan term and interest rate.[44] It then calculates the total monthly payment. The formula to convert a monthly payment to household income needed is:

Annual Household Income Needed = (Monthly payment / 0.3) * 12

Then you can calculate the income level as a percentage of AMI as follows:

Income level as percent of AMI = Annual household income needed / Area Median Income (AMI)

---

[41] Assume that ADU rents are on par with apartment rents unless a better local source of information is available.
[42] To view income and rent limits for your county, go to https://www.wshfc.org/managers/map.aspx and click "Full List of 2023 Limits by County." In these tables, "Median Income" represents AMI for the county. Income level relative to AMI is shown in the "Set-aside Percentage" column. To determine income limits by household size for 120% of AMI, simply multiply the income limit for 80% AMI by 1.5.
[43] Examples include Fanny Mae Mortgage Calculator (https://fm.fanniemae.com/homeownership/resources/financial-calculators/mortgage-calculator), Zillow Mortgage Calculator (https://www.zillow.com/mortgage-calculator) or Redfin's How much house can I afford? (https://www.redfin.com/how-much-house-can-i-afford).
[44] These calculators typically provide current interest rates, down payment and local tax assumptions that can be adjusted if you have better local data available.

You can use these formulas to calculate income levels needed to afford a single-family home or townhome using data from one of the sources listed in Exhibit 14. This approach assumes a 4-person household. However, the average household size in most jurisdictions is closer to three persons. Therefore, it may be appropriate to first adjust AMI to reflect a 3-person household. To do this, multiply AMI by 0.9.[45]

If your jurisdiction is too small to be included among those covered by the data sources in Exhibit 14, there are a few options to consider:

- Use the default assumptions in Exhibit 12 or Exhibit 13.
- Assume housing costs are equivalent to those of the surrounding county and use one of the data sources above to pull data about median housing costs countywide.

In Kitsap, King, Pierce and Snohomish Counties, you may choose to use a pro-forma tool developed by Cascadia Partners in coordination with Commerce to determine how affordable housing might be with custom regulatory inputs[46]. In other words, a jurisdiction can enter information about the density, height, setback, parking and other restrictions of a zone, in combination with land values, and determine what income level housing in that zone could serve. More details on this tool are available on Commerce's middle housing webpage under "Middle Housing Resources."[47]

**Middle housing legislation and additional capacity for affordable units**

With the next periodic update, jurisdictions required to implement middle housing with HB 1110 (2023) must allow increased development potential if some of the units are affordable. Although generally middle housing will not support households earning under 80% of AMI, in these specific circumstances that assumption would not remain true.

**So how much capacity under 80% AMI can a jurisdiction count with HB 1110 middle housing legislative updates?**

If there is a precedent in a jurisdiction for affordable housing density bonuses to yield affordable housing, or a comparable jurisdiction with a similar housing market yields such housing, a jurisdiction may use this information to assume a very small percentage of new units might develop in the <80% AMI income bracket.

For general recommendations on projecting capacity under HB 1110 (2023), see the sidebar with Step 1.4 Calculate gross residential capacity by zone (above).

## 3.2 Identify zone categories that can support feasible subsidized affordable and supportive housing (Optional)

There are two primary sources of information to help jurisdictions identify zoning characteristics that make subsidized affordable housing projects most feasible, including permanent supportive housing (PSH).[48] First, review completed affordable housing projects built in your jurisdiction or other jurisdictions with similar market characteristics and identify the types of housing and achieved densities (units/acre) that have proven feasible in the past.[49] Second, conduct outreach to local or regional affordable housing developers and ask what zoning

---

[45] This is consistent with HUD's methodology for adjusting HUD Median Family Income for household size.
[46] Pro-forma tool for PSRC region: https://deptofcommerce.box.com/s/csphjl2vbr47yovggxtszdd5s7w03g9o.
[47] https://www.commerce.wa.gov/serving-communities/growth-management/growth-management-topics/planning-for-middle-housing/.
[48] The 2021 housing element updates identify permanent supportive housing (PSH) and emergency housing as housing types localities must plan for and accommodate. Permanent supportive housing is subsidized, leased housing for people who are experiencing homelessness or are at risk of homelessness and living with a disabling condition. PSH a long-term housing solution and included in the housing need projections as a subset of 0-30% AMI housing units. Emergency housing is temporary accommodations for households who are experiencing homelessness or are at imminent risk of becoming homeless. These facilities are described in a later section of this guidance, and the ability of localities to accommodate projected needs for emergency housing is evaluated independently from permanent housing supply.
[49] Note that development feasibility for affordable housing projects depends upon more than just density level. Other development regulations such as parking requirements can also have a major impact. The impacts of these regulations are considered in the following chapter on identifying barriers to housing production.

characteristics they look for when identifying locations for feasible affordable housing projects, given the kinds of funding and financing resources that are typically available.

Keep in mind, in some communities, nonprofit affordable housing developers such as Habitat for Humanity build affordable housing projects at moderate or low-density levels. However, these projects are typically very small in scale, particularly compared to the overall volume of housing need. Higher density zoning that allows for multi-unit housing types like apartments is typically necessary to support projects that make the most efficient use of subsidies by reducing the cost of new housing per unit.

The findings of this analysis may prompt reconsideration of the categories or thresholds in Step 2. For example, if local affordable housing providers indicate that they really need at least 30 units per acre in allowed density to make their projects feasible, it may make sense to include density level thresholds for grouping land use zones by zone category. It may also make sense to add an additional zone category in Step 2.

## Step 4. Summarize capacity by zone category

The next step is to summarize land capacity for housing unit production by zone category. Exhibit 15 provides a simple example that builds on the land use zones and zone categories shown in Exhibit 11.

### Exhibit 15. Example of summarizing capacity by zone category

| Zone | Unit capacity | Assigned zone category | Capacity in zone category |
|---|---|---|---|
| **Single Family Residential (R-4)** | 7,000 | Low Density | 14,000 |
| **Medium Density Residential (R-8)** | 7,000 | | |
| **Multifamily Residential (R-12)** | 6,000 | Moderate Density | 6,000 |
| **Multifamily Residential (R-30)** | 6,600 | Low-Rise Multifamily | 6,600 |
| **ADUs** | 500 | ADUs | 500 |

## Step 5. Compare projected housing needs to capacity

In this step, compare the jurisdiction's projected housing needs by income level to capacity to determine if there is sufficient capacity to accommodate needs at all income levels. Exhibit 16 extends the same example from above to show this comparison.

The "Projected housing need" column shows the jurisdiction's allocation of need by income group, as well as for PSH. These needs are aggregated into the zone categories that match those in the leftmost column of Exhibit 12. Next, it shows total housing needs for all income levels in each zone category in the "Aggregated housing needs" column and the capacity for those zone categories from Exhibit 15. The rightmost column simply compares capacity to housing need to calculate the surplus or deficit of capacity by zone category.

## Exhibit 16. Example comparison of projected housing needs to capacity

| Income level (% AMI) | Projected housing need | Zone categories serving these needs | Aggregated housing needs | Total capacity (From Exhibit 15) | Capacity surplus or deficit |
|---|---|---|---|---|---|
| **0-30% PSH** | 2,000 | Low-Rise Multifamily + ADUs | 13,000 | 7,100 | **-5,900** |
| **0-30% Other** | 4,000 | | | | |
| **>30-50%** | 3,000 | | | | |
| **>50-80%** | 4,000 | | | | |
| **>80-100%** | 2,000 | Moderate Density | 5,000 | 6,000 | 1,000 |
| **>100-120%** | 3,000 | | | | |
| **>120%** | 6,000 | Low Density | 6,000 | 14,000 | 8,000 |
| **Total** | 24,000 | | 24,000 | 27,100 | 3,100 |

When total projected housing needs (24,000) are compared to total capacity for housing growth (27,100), this analysis shows a surplus of capacity overall. However, when capacity for each zone category is compared to housing need at the associated income levels, this analysis shows a significant deficit of capacity for housing with potential to serve households at 80% AMI or below, and a significant surplus of units in the Low-Density category. This indicates there is not enough appropriately zoned capacity to meet all the housing needs in this jurisdiction. The jurisdiction will need to do additional work to show how it can provide capacity to meet all housing needs and document the necessary actions in its housing element. Step 6 below provides a detailed discussion of the process for applying corrective actions to address a lack of capacity.

**Contributing funds to regional affordable housing**

Creation of affordable housing involves many funding sources and organizations. Therefore, some jurisdictions in Washington have decided to pool resources and local funding streams to fund affordable housing in a region, even though the affordable housing may not be developed in every jurisdiction that contributes resources. In this and similar cases, jurisdictions may decide collectively how the contribution to affordable housing can be documented consistently by all jurisdictions who have pooled resources.

This contribution does not change each jurisdiction's responsibility to plan for and accommodate the housing needs allotted to the jurisdiction with respect to land capacity. In other words, each jurisdiction must still have sufficient land capacity for their share of countywide housing needs, irrespective of contributions. It may, however, provide a way to shift needs to the recipient jurisdiction at the countywide level in the allocation process.

Each jurisdiction may acknowledge their contribution in their housing element to show part of their efforts to "make adequate provisions for existing and projected housing needs." Nevertheless, this documentation of contribution does not eliminate the need for a jurisdiction to complete the identification of barriers and actions to address affordable housing needs.

**Addressing residential growth in the development pipeline and development since 2020**
As described in Step 1.1, properties in the permit pipeline should be assumed to develop consistent with their permit applications and should be excluded from the land capacity analysis. While these properties do not provide capacity for future residential development yet, the anticipated development may be counted toward meeting a jurisdiction's projected housing needs.

Similarly, residential development that has occurred since 2020 (the base year for the projected housing needs) may be classified as pipeline development and counted toward meeting projected housing needs. For example, if a city or county prepares their LCA using 2023 parcel data, properties that were developed in 2021-2023 would be classified as pipeline, and these housing units would be deducted from the jurisdiction's projected housing needs.

When comparing projected housing needs to capacity in Step 5, jurisdictions should account for pipeline development as follows:

- **Assign pipeline units to potential income levels served:** Using the guidelines in Step 3, assign the housing units for each pipeline project to the income level they are likely to serve, as shown in Exhibit 12, Exhibit 13, or the cities custom developed crosswalk table. This assignment should be based on the type of housing units (rather than zoning) and whether the units are market-rate or subject to subsidies/incentives.
- **Calculate remaining projected housing need by income category:** Calculate the total number of pipeline housing units in each of the income categories shown in Exhibit 16 and deduct these units from the corresponding projected housing need by income category. This represents the housing need remaining to be met during the planning period.
- **Compare residential capacity to remaining housing need:** Compare the available residential capacity in each income category to the remaining housing need, as described in Step 5.

## Step 6. Revise zoning if needed to address unmet housing needs

If the comparison in Step 5 above shows a lack of capacity in one or more income categories, jurisdictions must identify and implement actions to address the projected deficit. This could be accomplished by rezoning selected developable lands to higher densities (e.g., from Single Family Residential (R-4) to Multifamily Residential (R-12)) or by amending existing zones to allow greater density (e.g., change the maximum density for the entire Moderate Density Residential zone from 8 units per acre to 12 units per acre).

Under GMA, it is required that any zoning changes necessary to show sufficient capacity be implemented prior to or concurrent with the adoption of the comprehensive plan or periodic update.[50] The action could be in connection with major planning efforts already scheduled or in progress (subarea plans, planned actions, comprehensive plan periodic updates, etc.). Jurisdictions should also be aware that amendments to zoning or associated development regulations may also require additional time for environmental review under the State Environmental Policy Act (SEPA), including analysis of infrastructure conditions.

Jurisdictions should document the extent of any such zoning actions, the anticipated net increase in capacity as a result, and the assumptions used to calculate the additional capacity, including analysis of infrastructure conditions.

[50] RCW 36.70A.115 states that "Cities and counties must "ensure that, taken collectively, adoption of and amendments to their comprehensive plans **and development regulations** provide sufficient capacity of land suitable for development within their jurisdictions to accommodate their allocated housing and employment growth…"

Exhibit 17 illustrates example rezoning adjustments to residential capacity to address an identified deficit. In this example, a jurisdiction chose to increase zoning capacity across zones, focused on increasing capacity around transit and amenity areas. By increasing zoning capacity in these areas, the jurisdiction is adding capacity in areas with increased transit options, supporting services and infrastructure. Overall, this approach results in a net increase in capacity in the Multifamily Residential (R-30) zone that offsets the identified deficit in the under 80% AMI housing need category.

Specifically, these changes include:

- Shifting 200 acres from the Single Family Residential (R-4) zone to the Medium Density Residential (R-8) zone,
- Shifting 200 acres from the Medium Density Residential (R-8) zone to the Multifamily Residential (R-12) zone, and
- Shifting 240 acres from the Multifamily Residential (R-12) zone to the Multifamily Residential (R-30) zone.

The change reduced capacity in the moderate-income category (>80-120% AMI) and the above 120% AMI category, but not enough to eliminate the existing surplus at these income levels.

**What if capacity exceeds housing needs?**
It is likely with zoning changes to allow increased capacity for lower-income housing needs, jurisdictions may have more capacity than their housing needs allocation. Although comprehensive plans are to plan for a twenty-year period, land use decisions extend beyond twenty years. It is important that we make the best use of land that is designated for urban uses, recognizing that urban growth areas can only be increased if they lack capacity for twenty years of growth. Therefore, as long as jurisdictions have sufficient capacity to meet their housing needs at all income levels, there is no requirement that jurisdictions need to downzone other areas if capacity exceeds housing needs.

Jurisdictions should consider the above information collectively with any countywide and/or multicounty planning policies that direct growth patterns. For jurisdictions in the Central Puget Sound area, please see PSRC Plan Review and Comprehensive Plan's Frequently Asked Questions, specifically the questions on Growth Targets, Capacity and Housing.

## Exhibit 17. Example of adjusted residential development capacity by zone

| Zone | Zoning changes (developable acres)* | Net zoning changes (acres) | Assumed density (units/acre) | Residential capacity adjustment (units) | Zone category |
|---|---|---|---|---|---|
| **Single Family Residential (R-4)** | -200 ac (to R-8) | -200 | 2.5 units/acre | -500 | Low Density |
| **Medium Density Residential (R-8)** | +200 ac (from R-4)<br>-200 ac (to R-12) | 0 | 6 units/acre | 0 | Low Density |
| **Multifamily Residential (R-12)** | +200 ac (from R-8)<br>-240 ac (to R-30) | -40 | 10 units/acre | -400 | Moderate Density |
| **Multifamily Residential (R-30)** | +240 ac (from R-12) | +240 | 25 units/acre | +6,000 | Low-Rise Multifamily |

| Income level (% AMI) | Zone categories serving these needs | Aggregated housing needs | Capacity prior to zoning adjustment (From Exhibit 15) | Rezoning capacity adjustments | Adjusted capacity surplus or deficit |
|---|---|---|---|---|---|
| **0-30% PSH** | Low-Rise Multifamily + ADUs | 13,000 | 7,100 | +6,000 | 100 |
| **0-30% Other** | | | | | |
| **>30-50%** | | | | | |
| **>50-80%** | | | | | |
| **>80-100%** | Moderate Density | 5,000 | 6,000 | -400 | 600 |
| **>100-120%** | | | | | |
| **>120%** | Low Density | 6,000 | 14,000 | -500 | 7,500 |
| **Total** | | **24,000** | **27,100** | **+5,100** | **8,200** |

* Note: This column refers to the number of acres that would need to be rezoned after accounting for any relevant deductions for critical areas, infrastructure, or market factor. Therefore, the full gross acres rezones would likely need to be higher. This table is simplified and shows the net acres (after deduction).

When developing a re-zoning proposal, jurisdictions must consider the potential for displacement as well as appropriate mitigation strategies. See Commerce's Guidance for Addressing Racially Disparate Impacts for guidance on policies to reduce or mitigate displacement risk.

## What if there is not enough capacity?

If your land capacity analysis shows there is insufficient capacity to meet new housing demand, or does not allow for the types of housing in greatest need, you should first consider increasing allowed residential densities and housing types within existing zones to increase capacity. When new capacity is added, it is beneficial for jurisdictions to evaluate if the new capacity is in areas with the greatest opportunity. To do this, map land capacity along with "opportunity" factors such as public transportation, job centers, schools and amenity clusters. Note the areas in the community where zoned capacity is low, while opportunities are present. These may be focus areas for zoning and land use changes.

These zoning changes should consider the housing types and densities that will meet the unmet capacity needs identified in Step 5. To be consistent with GMA goals, these increases in density and housing types should first be focused around areas with jobs, transit and infrastructure to allow more people close access to these community services.

Other options to explore additional capacity for housing needs include the following:

- Examine other zones that are under-developed, such as areas with excess commercially-zoned land that have the potential for mixed-use or residential development. Increasing densities in existing zones or encouraging redevelopment of excess commercial land can leverage your existing infrastructure investments.
- Consider increasing capacity in areas that are zoned low density and that have infrastructure.
- Consider planning new infrastructure for areas with under-developed or undeveloped parcels. In the case of planning new infrastructure to serve capacity, address needed public investments in infrastructure in the capital facilities element.
- Review urban growth areas to determine if adjusting UGA boundaries may allow the inclusion of areas more suitable for urban development through an UGA boundary revision under RCW 36.70A.110(8).

- Only once all other reasonable measures have been considered, jurisdictions may consider expanding the UGA boundary in areas suitable for development in coordination with neighboring jurisdictions and the county. Expanding UGA boundaries should include consideration for the cost of providing infrastructure in new areas. For more information, refer to Commerce's Urban Growth Area Guidebook.
- If an examination of affordability shows there are not enough ownership units at the low end of the spectrum, then increasing density through land use and zoning changes to allow smaller and more attached units may be an important strategy. When adding attached units as an allowed use, it may be useful to reconsider the use of unit-per-acre based densities (e.g., seven units per acre). Instead consider minimum lot size (e.g., 6,000 square feet) or "unit density" (e.g., minimum number of dwelling units on a lot, not on a per acre basis[51]) so that a given parcel is able to add units through attached housing types and not be limited by density restrictions. Consider infrastructure with these changes.

## Land available to meet other housing needs

In addition to reviewing land capacity for all income levels, jurisdictions should also review if they have land zoned to allow for the development of other housing types within the jurisdiction. The housing element requires fully planning local governments to identify "sufficient land for housing, including, but not limited to, … manufactured housing, multifamily housing, group homes, foster care facilities, emergency housing, emergency shelters, [and] permanent supportive housing" (RCW 36.70A.070(2)).

In response to HB 1220 (2021), cities will need to allow emergency housing and shelters as discussed in the following section and allow permanent supportive housing (PSH) and transitional housing in all zones that allow residential development and hotels. [52]

Additionally, this is the opportunity for communities to examine the gap between the community's housing needs and housing inventory in a jurisdiction's housing needs analysis to see if there are sufficient facilities for community needs such as group homes, memory care or assisted living facilities, or unique other housing needs such as behavioral health care facilities. The land capacity analysis provides the opportunity to determine whether there is enough land zoned to allow construction of these other types of needed housing.

During this analysis, jurisdictions should also consider if available land for these housing types is located in areas with sufficient infrastructure and amenities, such as transit and other services.

# Evaluating capacity for emergency housing needs

This section provides guidance on demonstrating capacity for emergency housing needs. This guidance treats these needs somewhat differently in part because they are treated differently in Commerce's housing needs projection methodology (see that titled section in Commerce's Establishing Housing Targets for your Community, 2023). Specifically, the methodology for projecting emergency housing assumes that all jurisdictions make only limited progress in addressing housing needs for all income levels.

Due to that assumption, each county's projection of future emergency housing needs is higher than it would be if that county were successful at building enough housing affordable at each income level. This is because the lack of availability of affordable housing is a primary driver of homelessness and housing instability. Therefore, if each jurisdiction planned for enough capacity to meet their entire allocation of housing needs at each income level (including permanent supportive housing) and planned for enough additional capacity to

[51] As introduced with HB 1110 (2023) or with HB 1337 (2023).
[52] See RCW 35.21.683 and RCW 35A.21.430 for these requirements.

accommodate its full allocation of emergency housing needs, then it would be providing more than sufficient capacity to accommodate all projected housing needs.

To address this issue, this guidance for demonstrating land capacity for emergency housing needs is designed to avoid double-counting housing needs that would be accommodated if the jurisdiction were successful at providing for housing needs at all income levels.

## Statutory requirements for emergency housing

While HB 1220 (2021) included requirements for all fully planning jurisdictions (counties and cities) to plan for current and projected emergency housing needs, it also added new requirements only for cities that limit development regulations related to the siting of emergency housing and emergency shelter. These requirements are codified as RCW 35A.21.430 and RCW 35.21.683. Specifically, a city may not prohibit indoor emergency housing (which includes traditional shelter arrangements) in any zones in which hotels are allowed, except in such cities that have adopted an ordinance authorizing emergency housing in a majority of zones within a one-mile proximity to transit.[53, 54]

While it is mandatory that cities make changes to zoning regulations to comply with this requirement, they may adopt reasonable occupancy, spacing and intensity of use requirements by ordinance on indoor emergency housing and indoor emergency shelters to protect public health and safety. However, these regulations must not be so restrictive that they prevent the development of a sufficient number of emergency housing beds to meet the community's identified need.

Additionally, the housing element updates in 2021 updated the land capacity requirements in RCW 36.70A.070(2)(c) to require that each jurisdiction identify sufficient capacity of land for a variety of housing types, including emergency housing and emergency shelters. Therefore, if a city receives an allocation of emergency housing need but does not allow indoor emergency housing or indoor emergency shelters in their jurisdiction, they will need to revise their development regulations to allow for such uses.

If a city chooses not to allow hotels and has no transit, per the two requirements of sections RCW 35A.21.430 and RCW 35.21.683, the city must still show sufficient capacity for the allocated emergency housing need to be consistent with the updated housing element requirements on land capacity (RCW 36.70A.070(2)(c)).[55]

Commerce recommends the same standards noted above be used by counties that must plan for emergency housing needs.

---

[53] In this section, "emergency housing" is inclusive of both indoor emergency shelters and indoor emergency housing as referenced in HB 1220 (2021).
[54] HB 1220 (2021) – see Sections 3 and 4, now codified as RCW 35A.21.430 and RCW 35.21.683.
[55] Some jurisdictions may choose to coordinate with neighboring jurisdictions to collectively address emergency housing needs. While such actions are encouraged, these actions do not release individual jurisdictions from the requirement to show capacity to address their own allocation.

**Engagement with service providers**
Prior to this capacity analysis, jurisdictions are encouraged to understand the specific emergency housing demands, constraints and opportunities within their communities by engaging with their local providers of shelter services and street outreach. These groups can inform the local details of emergency housing and shelter development feasibility and the assumptions in this capacity analysis. Feedback from these stakeholders and current providers can help the jurisdiction understand whether emergency shelters or emergency housing may be more likely to be developed and at what densities. A jurisdiction may also choose to set their local emergency housing need higher than the need allotted to them based on this local feedback.

## Guidance for occupancy, spacing and intensity regulations

Jurisdictions may adopt reasonable occupancy, spacing and intensity of use requirements by ordinance on indoor emergency housing and indoor emergency shelters to protect public health and safety. When considering these regulations, the jurisdictions should carefully consider RCW 35A.63.240 (code cities) and RCW 36.70.990 (counties). These statutes state no city or county "may enact or maintain an ordinance, development regulation, zoning regulation or official control, policy, or administrative practice which treats a residential structure occupied by persons with handicaps differently than a similar residential structure occupied by a family or other unrelated individuals." As used in these sections, "handicaps" are as defined in the federal fair housing amendments act of 1988.[56]

Consider the following additional guidance when placing occupancy, spacing and/or intensity of use requirements on emergency housing or emergency shelters.

**Occupancy**
Commerce recommends occupancy for emergency shelters and emergency housing be established as required by the jurisdiction's adopted building, fire and safety codes. Jurisdictions should carefully consider RCW 35.21.682, RCW 35A.21.314 and RCW 36.01.227. These statutes state cities and counties may not regulate or limit the number of unrelated persons that may occupy a dwelling unit except as provided for in state law, for short-term rentals or by occupant load per square foot.

**Spacing**
Spacing with respect to emergency housing refers to the distance between facilities. Emergency housing and shelters meet a broad spectrum of service needs and may have an unpredictable demand for services. Therefore, requiring spacing between uses of a similar type or between emergency housing and shelters and support services may increase the likelihood of loitering, littering and camping around service delivery sites. This is particularly true in communities where there is a significantly higher demand for services than can be met. Allowing for campus type settings, where a variety of services can be provided at the same site, will likely remove some of the external impacts felt by neighbors.

If any spacing requirement is adopted, Commerce recommends connecting any spacing requirements directly to public health and safety, but they should not exceed the spacing required by RCW 9.94A.030(6), which

[56] The 1988 amendments add protections for families with children and persons with physical or mental disabilities. It defines handicap as: (1) a substantially limiting physical or mental impairment; (2) a record of having such an impairment; or (3) being regarded as having such an impairment. The law stipulates that the following shall not be considered a handicap: (1) current illegal use of or addiction to a controlled substance; and (2) transvestism. https://www.congress.gov/bill/100th-congress/house-bill/1158

create community protection zones of 880 feet from incompatible uses that have a clear connection to public safety.

**Intensity**
Intensity with respect to emergency housing may refer to the density of people, transportation and/or services needed by the participants who live in a single location or facility. Commerce does not recommend any blanket intensity regulations for these use types. Some neighborhoods may feel they are being asked to accommodate more than their fair share of these housing types because of a unique combination of historical development trends, market conditions, property values, zoning and land use regulations. Standards adopted to encourage a scattered approach to the siting of these services to ensure they are not located in only one area of the jurisdiction may become necessary. Other appropriate intensity regulations may include encouraging emergency shelter and housing close to transit, employment, social and health services, and other resources that help in stabilization.

Intensity regulations may become useful as a jurisdiction nears or exceeds achievement of the allocated emergency housing and shelter needs, supporting a focus of future development on permanent supportive housing units rather than emergency shelters and housing.[57]

## Determining whether an LCA for emergency housing is necessary

Fully planning jurisdictions must do a quantitative LCA for emergency housing needs to show sufficient capacity for their allotted share of countywide emergency housing needs (RCW 36.70A.070(2)(c)). An LCA for emergency housing should be completed at the same time as the LCA for all housing needs described in Steps 1-6 above.

## Recommended LCA approach for emergency housing

The following process is the recommended approach to document sufficient land capacity for a jurisdiction's local share of countywide emergency housing needs.[58] This analysis should be included with the LCA performed for permanent housing needs in a jurisdiction's housing element supporting documentation. Alternative capacity analysis methods are possible with sufficient documentation.

When completing an emergency housing LCA, land included in the general residential land capacity analysis may also be counted as land for the emergency housing LCA.[59]

### Recommended emergency housing capacity analysis steps

1) Selection 1 – Identify all parcels in zones that allow indoor emergency housing and indoor emergency shelters.

[57] Alternatively, Commerce recommends converting surplus emergency housing into permanent low-income housing when possible.
[58] The methodology for conducting an LCA for emergency housing is different from permanent housing for a number of reasons. First, in many communities, emergency housing needs are not addressed through new development. Instead, they are addressed through the acquisition and conversion of existing facilities, such as older motels or hotels or rehabilitation of underused or vacant buildings. In other cases, these emergency housing needs are met through the development of temporary shelter units in tiny home villages, which are built as a conditional use that does not conform to regular residential density standards.
[59] This is allowed to avoid double-counting housing needs that would be accommodated if the jurisdiction were successful at providing for all permanent housing needs.

2) Selection 2 - From the parcels identified in Selection 1, narrow the search to vacant parcels, hotels and motels, significantly under-developed or under-utilized parcels, developed parcels with no active business licenses, and those sites that have been declared a nuisance.[60]

   - Remove any properties from the selection that are sufficiently encumbered by environmentally critical areas to preclude additional development.
   - In some urban areas, under-used hotels and motels can be repurposed for emergency housing. If such sites exist in the community, the jurisdiction may, after consultation with the property owner, include these sites in the selection due to their potential for future conversion to emergency shelters or emergency housing.
   - A small portion of under-developed or under-utilized commercial spaces can be counted as capacity for redevelopment to emergency shelter or emergency housing. If a jurisdiction chooses to do this, the commercial area should be excluded from the employment capacity analysis performed for the comprehensive plan update. If pursued, describe how the portion of commercial space conversion was determined considering such factors as the scale of emergency housing projects in your area and the likelihood a portion of the jurisdiction's emergency housing needs would develop in this way over the planning period.

3) Selection 3 – Amend Selection 2 based on the following:

   - Add any parcels that have pending development permits for emergency shelter or emergency housing. Consider these parcels in the development pipeline and, once completed, count them towards a jurisdiction's local emergency housing need.
   - Remove any parcels that have pending development permits for land uses other than emergency housing or shelters.

4) Selection 4 - Apply any adopted spacing or intensity requirements to the parcels from Selection 3 to identify the maximum number of potential sites where emergency housing would be allowed. This step should account for spacing around any existing emergency housing or shelters, as well as any hotel or motel sites identified for conversion to emergency housing. Depending on the required spacing and the number of sites identified in Selections 1-3, multiple configurations may be possible.
5) Complete one of the two following processes to determine how many emergency shelter beds or emergency housing units could be accommodated. Your approach should consider community and/or service provider demonstrated preference for emergency shelter or emergency housing facilities. Jurisdiction calculations may reflect this preference and the associated occupancy, intensity and/or capacity considerations.

   - Option A (occupancy/intensity method): Using the sites identified in Selection 4, perform a simple site-level analysis of how many emergency shelter beds or emergency housing units could be accommodated based on any adopted occupancy and intensity requirements.

     - Identify developable area of the sites. Similar to the LCA for permanent housing, exclude non-buildable areas of the site (critical areas and their buffers, required landscaping and parking areas, setbacks, etc.) from developable area.
     - Identify a building envelope based on local regulations that maximizes available building capacity on the site.

[60] Jurisdictions use public nuisance declarations on sites to encourage redevelopment or rehabilitation of sites that endanger public health and safety. See RCW 9.66.010: Public nuisance.

    - Assume a portion of the envelope would be used for communal support spaces and remove that from the building envelope.
    - Assume construction will not exceed local trends in building height or make reasonable assumptions based upon the height limit in the zoning code.
  - Use the jurisdictions maximum occupancy rate as allowed by adopted codes to determine the maximum number of emergency beds or units possible in each building envelope.[61]
- Option B (assumed density method): Use assumptions about what type of emergency housing and/or emergency shelters are likely to be developed in the jurisdiction and perform a capacity analysis of the sites identified in Selection 4 based on probable development typologies that may be used.
  - First, jurisdictions should develop density assumptions (units or beds per acre) that do not exceed adopted occupancy or intensity standards based on:
    - Allowed densities for hotels and motels in their local jurisdiction,
    - Densities achieved by existing emergency housing or shelters in the local region, and/or
    - A density or mix of emergency housing densities based on likely emergency housing or emergency shelter typologies in the jurisdiction, drawn from examples shown in Exhibit 18 or interviews with local developers of emergency housing.
  - Based on a combination of emergency housing typologies and densities (see Exhibit 18 for some examples), or a single density assumption of the most likely emergency housing or emergency shelter typology for the community (e.g., converted hotel or motel, congregate shelter, etc.), determine the number of emergency beds or units possible on each site from Selection 4.

6) Add up the capacity from all available sites identified in Step 5. See Exhibit 19 for an example summary.
7) At the end of this calculation, document the capacity for emergency shelter and emergency housing in the jurisdiction compared to the allocated emergency housing need. If the capacity for emergency shelter and emergency housing does not meet or exceed that portion of the jurisdiction's allocated emergency housing need, regulations will need to be amended to allow sufficient capacity and steps 1-7 will need to be repeated with the new regulations to show capacity.

Note that sites assumed to be developed for emergency shelter and housing uses in the emergency housing land capacity analysis should be removed from sites available for commercial uses and employment growth in other capacity or planning work for the comprehensive plan. This change may also affect revenue projections, specifically from travel or other hospitality taxes if hotels are converted to shelters or other types of housing.

## Exhibit 18. Example densities of emergency shelters and emergency housing

| Project name | Location & context | Zoning | Housing type | Units/beds | Site size (acres) | Density | Facility characteristics |
|---|---|---|---|---|---|---|---|
| **Emergency congregate[62] shelter** | | | | | | | |
| **Tri-City Union Gospel Mission** | Pasco, urban | Light Industrial District | Emergency congregate shelter | 162 beds | 6.3 acres | 25 beds/acre | New 1 story building, lots of parking, open space |

[61] Consult your local building official to confirm adopted occupancy by square foot standards.
[62] Congregate housing means more than one household per room.

| Project name | Location & context | Zoning | Housing type | Units/beds | Site size (acres) | Density | Facility characteristics |
|---|---|---|---|---|---|---|---|
| **Serenity House of Clallam County** | Port Angeles, suburban | Residential Moderate Density (RMD) | Emergency congregate shelter | 70 beds | 1.89 acres | 37 beds/acre | Clustered 2 story buildings, parking, open space |
| **Benedict House** | Bremerton. suburban | Residential-10 | Emergency congregate shelter | 24 beds, + 3 respite beds | 0.21 acres | 128 beds/acre | 2-story single family home conversion |
| **House of Charity** | Spokane, urban | Downtown General | Emergency congregate shelter | 108 beds | 0.71 acres | 152 beds/acre | 2 stories, very small outdoor space, parking space for staff |
| **Hope House** | Spokane, urban | Downtown South | Emergency shelter on 1st floor, 3 floors PSH above | 100 beds | 0.45 acres | 200 beds/acre | 4 story multi-family style development, no parking or outdoor spaces |
| **Emergency housing** | | | | | | | |
| **North King County Enhanced Shelter** | Shoreline, suburban | Mixed Business | Nursing home conversion | 60 beds, | 2.66 acres (used area: 2.39 acres) | 23 beds/acre (used area: 25 beds/ acre) | 1-story former nursing home, open space and parking |
| **The Gateway in Honor of Tenaya Wright** | Seattle, urban | Commercial 1-55 | Hotel conversion | 115 units; 135 beds | 2.25 acres | 51 units/acre or 60 beds/acre | 3-story former hotel with parking |
| **Quince Street Village** | Olympia, urban | Downtown Business | Microhomes (8ft x 8ft) | 100 units | 1.41 acres | 71 units/acre | Common showers, restrooms, laundry, providers offices |
| **Permanent supportive housing at densities for consideration** | | | | | | | |
| **Orting Veterans Village** | Orting, small town | Public Facilities | Tiny home village | 35 units, each with bathroom (single room occupancy or SRO) | 3.2 acres (portion with project) | 11 units/acre plus community facilities | 29 homes are 176 SF, 6 are 256 SF; community building, open space, parking |
| **Quixote Village** | Olympia, urban | Light Industrial | Tiny home village | 30 units, each with ½ bath | 2.17 acres | 14 units/acre plus community facilities | All homes are 144 SF; 2,500 SF community building; open space, garden and parking |

## Example emergency housing capacity analysis

Exhibit 19 and Exhibit 20 illustrate an example of how a community may work to complete the LCA for emergency housing. In this example, the community has an allocated emergency housing need of 300 units.

After completing steps 1-4, the jurisdiction finds that an existing hotel might convert to emergency housing in the future and three sites totaling approximately 3 acres are zoned to allow emergency housing and shelters and meet the city's 1,000 foot spacing requirements. Using the assumed density approach (Option B), with a mix of densities for emergency housing likely to be built in the jurisdiction based on example densities in this report and neighboring jurisdictions, Exhibit 19 illustrates how this community finds it has a capacity deficit.

### Exhibit 19. Example summary of emergency housing capacity

| Site grouping | Acres | Density | Capacity (beds or units) | Total capacity | Total need | Capacity surplus or deficit |
|---|---|---|---|---|---|---|
| **Existing hotel conversion** | | | 60 | 240 | 300 | -60 |
| **Tiny shelter villages** | 3 | 60 units/acre | 180 | | | |

Based on this deficit, the city reviews its spacing requirements, which had limited the number of available sites to three based on a 1,000-foot spacing requirement. The city evaluates a spacing requirement of 500 feet instead and recalculates the LCA for emergency housing as shown in Exhibit 20.

### Exhibit 20. Example summary of revised emergency housing capacity

| Site grouping | Acres | Density | Capacity (beds or units) | Total capacity | Total need | Adjusted capacity surplus or deficit |
|---|---|---|---|---|---|---|
| **Existing hotel conversion** | | | 60 | 312 | 300 | 12 |
| **Tiny shelter villages** | 4.2 | 60 units/acre | 252 | | | |

The changes to spacing allow the jurisdiction to have sufficient emergency housing capacity to meet the allocated need. The jurisdiction reduces the spacing requirements for emergency housing and emergency shelters in the community from 1,000 feet to 500 feet with the development regulation updates that accompany the comprehensive plan periodic update.

# Chapter 4. Adequate provisions

RCW 36.70A.070(2)(d) requires jurisdictions planning under the GMA to include in their comprehensive plan a housing element that "[m]akes adequate provisions for existing and projected needs of all economic segments of the community, including:

(i) Incorporating consideration for low, very low, extremely low, and moderate-income households;

(ii) Documenting programs and actions needed to achieve housing availability including gaps in local funding, barriers such as development regulations, and other limitations;

(iii) Consideration of housing locations in relation to employment location; and

(iv) Consideration of the role of accessory dwelling units in meeting housing needs."

The following guidance helps jurisdictions address these requirements. Several checklists in Appendix B: Adequate provisions checklist support documentation of a jurisdiction's analysis.

## Consideration for low, very low, extremely low and moderate-income households

There are two ways in which jurisdictions should present and incorporate "consideration for low, very low, extremely low and moderate-income households." Each of these overlaps with other requirements, so as jurisdictions document compliance with the other sections of RCW 36.70A.070, they are also addressing RCW 36.70A.070(2)(d)(i).

1) **Identify in their housing element the number of housing units necessary to manage both current and projected housing needs, broken down by income bracket.** These housing needs will be identified through the countywide allocation process discussed in Establishing Housing Targets for your Community (Housing Element Book 1) using Commerce's published countywide housing needs found in the Housing for All Planning Tool (HAPT).[63] Exhibit 21 shows an example of allocated housing needs. This presentation should include each income level as well as PSH and emergency housing needs.[64]
2) **Document sufficient land capacity to accommodate appropriate housing types for meeting the housing needs** identified in #1 above, as discussed in Chapter 3 Land capacity analysis. The capacity findings should be included in the housing element and indicate that with any necessary amendments to their development regulations, a jurisdiction has sufficient capacity for their allocated housing needs.[65] More detailed documentation of the land capacity analysis can be presented in an appendix to the comprehensive plan.

[63] Housing for All Planning Tool (HAPT): https://deptofcommerce.box.com/s/48o8fzedzxnh63xth6aofi2jc2npcjoa
[64] Emergency housing needs includes both emergency housing and emergency shelter housing needs required under statute.
[65] RCW 36.70A.115 reads "Counties and cities that are required or choose to plan under RCW 36.70A.040 shall ensure that, taken collectively, adoption of and amendments to their comprehensive plans and/or development regulations provide sufficient capacity of land suitable for development within their jurisdiction to accommodate their allocated housing and employment growth, …"

## Exhibit 21. Example presentation of projected housing needs by income level

| Income level | Percent area median income | Net new units needed, 2020-2045 |
|---|---|---|
| **Extremely Low** | 0-30% Permanent Supportive Housing (PSH) | 2,000 |
| | 0-30% Other (non-PSH) | 4,000 |
| **Very Low** | >30-50% | 3,000 |
| **Low** | >50-80% | 4,000 |
| **Moderate** | >80-100% | 2,000 |
| | >100-120% | 3,000 |
| **Above Moderate** | >120% | 6,000 |
| **Total** | | 24,000 |

| Temporary housing needs* | Net new beds needed, 2020-2045 |
|---|---|
| **Emergency Housing/Shelter** | 1,000 |

* Note that emergency housing/shelter projections and allocation assume current trends with regards to meeting all housing needs at each income level. If the jurisdiction succeeds in providing enough housing to meet all permanent housing needs at all income levels, then it is not expected to need as many emergency housing beds.

# Documenting programs and actions needed to achieve housing availability

Jurisdictions are not required to construct housing or ensure housing is produced. However, they are required to identify barriers to housing production and make adequate provisions to accommodate all housing needs. This means they must use the tools at their disposal to create the conditions that make it feasible for developers to build the kinds of housing needed at all income levels.

RCW 36.70A.070(2)(d)(ii) states that jurisdictions must assess "barriers such as development regulations, and other limitations" as part of "documenting programs and actions needed to achieve housing availability." This section describes how jurisdictions are to identify barriers to production and appropriate actions to remove those barriers.

Just as the land capacity assessment breaks down total housing unit capacity by zone category based on housing types or density levels allowed, your barriers assessment should consider factors that may negatively affect production for each type of housing allowed in your community.

For example, a city may be seeing a lot of detached single-family housing production on vacant land, and therefore determine that there are no significant barriers to single-family home construction. However, the same city may be seeing very little production of moderate density housing types such as townhomes or triplexes in zones where those types are allowed. If the city's housing element is relying on capacity for those housing types to meet the needs of moderate-income households, then its housing element should also assess barriers specific to those housing types as well as actions to help overcome those barriers.

Exhibit 22 provides a summary of Commerce's recommended steps for documenting programs and actions to achieve housing availability. Conduct these three steps each housing type and affordability level. However, it is possible that the types of barriers identified and the actions to overcome them will be relevant to more than one housing type or affordability level.

Appendix B: Adequate provisions checklist provides checklists to use in documenting barriers and programs and actions to achieve housing availability, as well as examples of how to complete each of these steps and document the work. Documentation of the barriers to housing availability and the programs or actions needed to overcome these barriers must be in a public document and typically should be included as an appendix to the comprehensive plan housing element.

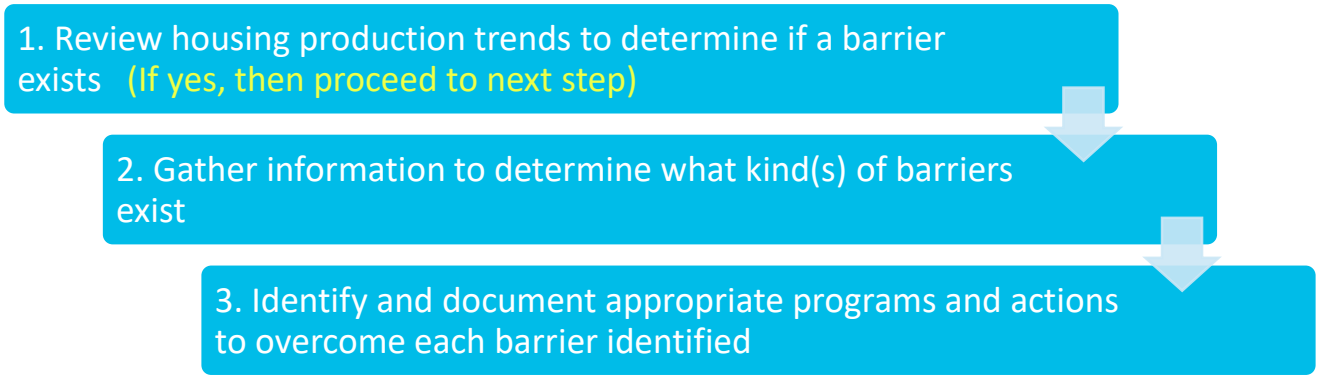
**The role of local jurisdictions in housing production**

While local governments do not typically build housing, they do influence the regulatory environment in which housing is built. Local governments set requirements for building uses, parking and site design, aesthetics, scale, density and other characteristics that constrain what developers can build, regardless of market demand. Local governments also impose fees for development and control key parts of the permitting process.

In these and other ways, local government decisions affect the cost of development and the predictability of the process, and ultimately influence which housing projects are feasible.

Jurisdictions can encourage certain housing development types by amending these regulations, offering density bonuses, cost reductions or other incentives that impact the developers' bottom line.

### Exhibit 22. Recommended steps for documenting programs and actions to achieve housing availability




## Step 1: Review housing production trends to determine if a barrier exists

The first step to completing a housing barriers assessment is to review production trends and compare them to the average annual housing production needed. Conduct this review for each type of housing identified in your land capacity analysis as necessary to meet your jurisdiction's allocated housing needs.

Exhibit 23 provides an example comparison of production trends to housing needs. It follows from the same example used through the land capacity guidance to show how a jurisdiction can build on their land capacity analysis work when evaluating if barriers exist.

- In this example, projected housing needs are first aggregated in three groups based on the zone category and housing type(s) assumed to be most appropriate for meeting the need, based on the LCA.
- Next, it divides the total need by 25 years (2020-2045)[66] to calculate annual unit production needed.
- Then it includes data about actual historic average annual unit production. This information could come from an analysis of completed building permits for each type of housing over the past five to ten years.
- The final column summarizes if a barrier is found through this analysis. If annual unit production needed is higher than historic average annual unit production, then the column shows a "Yes" to indicate there is a barrier present. If annual unit production needed is lower than historic average annual unit production, then the column shows a "No" indicating there is no significant barrier to building enough of that type of housing to meet housing needs.

This example shows there are barriers to production for Low-Rise, Mid-Rise and Moderate Density housing types, and there are no barriers for Low Density housing types. Therefore, this jurisdiction should move on to the next step to identify relevant barriers for Low-Rise, Mid-Rise and Moderate Density housing.

## Exhibit 23. Example comparison of production trends to housing needs to determine if barriers exist

| Income level (% AMI) | Projected housing need (2020-2045) | Housing type(s) that best serve these needs | Aggregated housing need (2020-2045) | Annual unit production needed | Historical average annual unit production | Is there a barrier to sufficient production? |
|---|---|---|---|---|---|---|
| **0-30% PSH** | 2,000 | Low-Rise and Mid-Rise (walk-ups up to 3 stories, apartments and condominiums) | 13,000 | 520 | 120 | Yes |
| **0-30% Other** | 4,000 | | | | | |
| **>30-50%** | 3,000 | | | | | |
| **>50-80%** | 4,000 | | | | | |
| **>80-100%** | 2,000 | Moderate Density (townhomes, duplex, triplex, 4-plex) + ADUs | 5,000 | 200 | 80 | Yes |
| **>100-120%** | 3,000 | | | | | |
| **>120%** | 6,000 | Low Density (single family) | 6,000 | 240 | 720 | No |

A jurisdiction should also conduct additional analysis to identify whether housing production is meeting the affordability levels of the allocated housing needs, as well as PSH. This analysis is needed because it is possible that a jurisdiction has seen sufficient production of a housing type such as apartments to meet

[66] Although comprehensive plans plan for a twenty-year period, the best available data for projecting housing needs was the decennial Census. Therefore, the base year for the projected housing needs is 2020.

projected housing needs, but the production may be entirely or predominantly market-rate units that do not meet lower income housing needs.[67] This indicates there are still barriers to meeting needs at affordability levels below which the market is typically providing, such as 0-30% AMI and 30-50% AMI.

Exhibit 24 provides an example of this analysis. It compares annual unit production needed for four affordability levels of housing not likely to be served by the market to historical average annual unit production. In this case, base the production trend only on the historical production of relevant housing types, such as PSH units or subsidized affordable units for households with incomes at or below 50% of AMI.

Data collection on historical production may come from multiple sources, such as local affordable housing and emergency housing/permanent supportive housing facility developers or records from incentive programs. In addition to local data availability, the Washington Center for Real Estate Research (WCRER) publishes an inventory of the supply of subsidized rental housing in cities with populations greater than 10,000 as well as all counties in Washington.[68] Each county's Five Year Homeless Housing Plan also has information on PSH and emergency housing facilities.[69] PSRC also has a database of subsidized rental housing in the four-county region (Income Restricted Housing Inventory).[70]

## Exhibit 24. Example comparison of sub-market rate housing needs to production trends to determine if barriers exist

| Income level (% AMI) and supportive housing needs | Projected housing need (2020-2045) | Annual unit production needed | Historical average annual unit production | Is there a barrier to sufficient production? |
|---|---|---|---|---|
| **Emergency housing/shelter*** | 1,000 | 40 | 25 | Yes |
| **0-30% PSH** | 2,000 | 80 | 0 | Yes |
| **0-30% Other** | 4,000 | 160 | 40 | Yes |
| **>30-50%** | 3,000 | 120 | 80 | Yes |

*Projected emergency housing and shelter needs may be accommodated through conversion of existing buildings such as hotels and not solely new production.

For any housing type or affordability level where a barrier to sufficient production is identified, the jurisdiction should proceed to the following step and gather information to determine what kind(s) of barriers exist.

If you are already certain there are barriers that need to be addressed for a given housing type or income level, this step can be skipped. However, jurisdictions should document this review to support any claim that no barrier exists for a given housing type, and therefore no action is needed to ensure housing availability.

[67] Although filtering may help free up units at lower price points, the number of lower-income units created as higher-income or market rate inventory comes online is generally small.
[68] The focus of the WCRER inventory is on the supply of subsidized rental housing; hence, the inventory seeks to list units in projects that receive subsidies as distinct from units rented by households who receive demand-side subsidies (such as housing vouchers). See https://wcrer.be.uw.edu/housing-market-data-toolkit/subsidized-rental-housing-profile/.
[69] https://www.commerce.wa.gov/serving-communities/homelessness/local-government-5-year-plans/.
[70] https://www.psrc.org/our-work/income-restricted-housing-puget-sound-region.

## Step 2: Gather information to determine what kind(s) of barriers exist

There are several types of barriers that can limit or effectively prohibit the production of housing needed to serve all economic segments. Barriers to housing production will vary by community based on local context. Typically, these barriers increase the cost of development, which makes some projects infeasible. Jurisdictions have various options on how to reduce barriers and therefore development costs, as described in Step 3.

Identify barriers through a combination of data collection, staff experience, code review, evaluation of existing permitting process and resources, comparisons with neighboring jurisdictions and developer interviews. Developer feedback should include for-profit, non-profit, affordable housing, emergency housing, permanent supportive housing and small developers (such as residential property owners) to ensure a thorough understanding of the potential barriers to housing development. Guiding questions and checklists for this review are provided in this section and Appendix B: Adequate provisions checklists for jurisdictions to reflect on and discuss with their communities.

Below is a description of several of the most common kinds of barriers to consider in the review. They are organized in four categories:

- development regulations,
- process obstacles,
- limited land availability and environmental constraints, and
- funding gaps.

### Development regulations

Some development regulations limit or effectively prohibit the production of housing types needed to serve all economic segments. Examples of these limitations include:

**Unclear development regulations**

Regulations should be clear and consistent. Use terms consistently across all code sections and add new definitions as codes are amended. Regulations should also clarify the code interpretation process and which code sections should take precedence in the event of a conflict, because this can help to prevent disagreements during the permitting phase.

**Restrictive development standards**

Restrictive development regulations often make it more difficult, if not impossible, to construct certain types of moderate density and higher density housing types. These regulations can be a result of community opposition: see “Barriers and community buy-in” in the blue box under “Process obstacles” below for more details.

These regulatory barriers can exist in many forms, many of which may need to be addressed as the result of new legislation limiting restrictions such as design review, owner occupancy and parking:

**Other factors outside of local jurisdiction control**

In addition to the barriers described in this section, there are other factors that influence housing production and affordability that are outside of the control of local jurisdictions.

These factors might include state-level regulations, inadequate regional transit investments, lack of builder capacity and workforce to meet housing demands, disruptions to building material supply chains, rising labor and materials costs, population growth, employment trends, economic downturns, interest rates, and/or lack of service providers (such as healthcare, mental health treatment, or case management) to support affordable housing and PSH projects. Housing production is also dictated by development market preferences, as some housing types and price points are more profitable than others.

However, regardless of these other factors, under RCW 36.70A.070(2)(d)(ii), jurisdictions must document programs and actions needed to achieve housing availability. As described in Exhibit 26: Barriers and strategies matrix, there are many actions that jurisdictions can take to influence housing production.

- High minimum lot sizes[71]
- Low maximum densities or low maximum floor area ratio
- Low maximum building heights
- Large setback requirements
- High off-street parking requirements[72]
- Lack of alignment between building codes and development codes[73]
- Restrictive ADU standards, including:
    - larger setback requirements for ADUs than the primary dwelling
    - Owner-occupancy requirements
    - Prohibiting existing structures from being converted into ADUs
    - Additional requirements for middle housing and multifamily housing that are not imposed on single-family housing, such as landscaping, parking and outdoor space regulations
- Spacing requirements, restrictions on support spaces (such as offices), arbitrary limits on number of occupants (in conflict with RCW 35A.21.314) and other restrictions on emergency shelters, emergency housing, transitional housing and permanent supportive housing that effectively prohibit or limit capacity of these housing types so they cannot meet the projected needs.
- Other barriers, depending on community context and regulation rigidity, such as ground-floor retail requirements, complex design standards, maximum impervious surface cover, tree retention regulations and historic preservation requirements.

**Barriers and community buy-in**

Community opposition to allowing certain housing types can be an obstacle to implementing actions and programs necessary to achieve housing availability for all income levels. Jurisdictions should consider how best to involve community members in the process. For example, community engagement during regulation and policy development allows jurisdictions to address resident concerns prior to permitting. This helps build early community buy-in and provides more predictability for housing development during the permitting process once new development regulations are adopted and implemented.

When engaging community members, it is important to seek input from a broad spectrum of residents, not just those with the loudest voices. See Chapter 2 of Commerce's Housing Action Plan guidance and this guidance from PSRC's Housing Innovations Program for best practices.

Community opposition can be a more significant impediment to housing production in communities with discretionary development approval processes, such as housing only allowed by conditional use, design review requirements, or the need to provide approved community benefits. Streamlining approval of housing development that meets clear objective local design standards and regulatory requirements can reduce delays for individual project proposals and increase predictability for developers.

## Process obstacles

The permitting process can be a major barrier for housing production for both larger and smaller developers. Limitations relating to permitting may be due to complex, unclear or onerous processes; high fees; lengthy review and processing times; or staffing challenges.

---

[71] Minimum lot sizes in urban areas inflate the cost of housing by reducing supply and increasing land costs per unit. In some jurisdictions, minimum lot sizes are actually larger than historic platting patterns.

[72] The cost of parking minimums is high: parking in a new development can cost up to $40,000 or more per stall depending on site characteristics. Additionally, the more parking that is required on site, the less housing that is possible. To remove barriers to housing provided by parking requirements, best practices are to set parking requirements very low and allow the market to determine how much, if any, parking is needed.

[73] Examples of development regulations that may not align with building codes include limitations on the number of stories of wood frame construction, sprinkler requirements, requirements for double-loaded corridors versus point-access blocks, elevator requirements for mid-sized buildings, or articulation requirements that reduce floorplan efficiencies and increase construction and operating costs.

**Conditional use and other discretionary permit processes**
Though a conditional use is not outright prohibited, the discretionary conditional use permit process adds unpredictability as well as costs and time to a proposed housing project. A range of other quasi-judicial permit public hearing processes, including planned unit development, planned residential development and special use permits, have similar effects. These processes result in strong disincentives for developers to propose a project in the first place and can make an otherwise feasible project financially infeasible.

In addition, conditional use permits have sometimes been required for transitional housing and permanent supportive housing specifically because of the use type. Communities can consider using development and design standards to control for impacts, which should be administered by staff instead of requiring a hearing. However, a city, county or other local governmental entity or agency may not adopt, impose or enforce requirements on an affordable housing development that are different than the requirements imposed on housing developments generally.[74] Different types of conditional use permits have different implications on the development process: the conditional use permit public hearing process requires more steps than administrative conditional use permits.

**Design review**
Design review, when required, can delay bringing new housing on to the market if it is complex or overly prescriptive. In more extreme instances, an overly onerous design review process may lead an applicant to withdraw a permit application or pursue development somewhere else. Providing clear guidance to developers on how to meet design review requirements can help to make this process easier and clearer.

With any design review, jurisdictions should be aware that as of 2023, fully planning counties or cities must update their regulations within six months after the next periodic update so that they apply only clear and objective design regulations to the exterior of new residential development (HB 1293, 2023).[75]

**Lack of clear and accessible information about process and fees**
Transparency and clear information about fees and steps in the permitting process can help facilitate the creation of new housing and shorten the permitting process. Guidance materials that outline in plain language all submittal requirements needed for a complete application as well as costs and steps in the process, an efficient online permit processing system, and timeline estimates can help to make the process more predictable for developers and mitigate risks for constructing housing.

**Permit fees, impact fees and utility connection fees**
The costs associated with permitting new housing can impact whether a potential housing project is feasible. This hurdle applies to for-profit developers as well as non-profit affordable housing developers. Jurisdictions may choose to reevaluate such fees or provide exceptions for needed housing types that are not as easy to develop, such as income-restricted affordable housing. Fees can also be scaled according to the impact or size of a dwelling, which can help minimize costs.[76]

---

[74] RCW 36.130.020.
[75] A clear and objective regulation "must include one or more ascertainable guideline, standard, or criterion by which an applicant can determine whether a given building design is permissible under that development regulation; and may not result in a reduction in density, height, bulk, or scale below the generally applicable development regulations for a development proposal in the applicable zone." See the Final Bill Report on ESHB 1293 here: https://lawfilesext.leg.wa.gov/biennium/2023-24/Pdf/Bill%20Reports/House/1293-S.E%20HBR%20FBR%2023.pdf?q=20230720162657.
[76] For an example of this, see King County's latest impact fee policies for wastewater charges where the capacity charge rate structure will use average persons per household as the new basis of the capacity charge effective Jan. 1, 2021. See https://kingcounty.gov/services/environment/wastewater/capacity-charge/review-studies.aspx.

Moving forward, six months after the next periodic comprehensive plan updates (2024-2027), local governments must publish a schedule of impact fees which reflects the proportionate impact of new housing units (SB 5258, laws of 2023, amends RCW 82.02.060). Therefore, impact fees shall reflect the proportionate impact of smaller units such as multifamily and condominium units, based on the square footage, number of bedrooms or trips generated.[77]

System development charges, while not required, can also be scaled to the size of the unit to encourage smaller, multi-unit housing development that is typically more affordable.

**Processing times and staffing challenges**
Long processing times, often impacted by staffing limitations, can be an obstacle to housing development, especially if timelines are unpredictable. Jurisdictions may identify this as a barrier to development and begin to make associated changes to improve processing times, thereby encouraging more housing development by increasing permitting timeline predictability and reducing carrying costs for developers.

SB 5290 amends RCW 36.70B to improve clarity on the timelines around complete permit applications. For applications received after January 1, 2025, RCW 36.70B now sets out time periods and application fee portions for different types of permit processing. Jurisdictions will also need to report permit processing information to Commerce. Cities and counties are also encouraged to take additional measures to enable timely permit processing, with additional direction to improve permitting over time.[78]

**State Environmental Policy Act (SEPA) process**
SEPA review helps agencies identify the likely environmental impacts of projects and policy decisions. The SEPA Rules (WAC 197-11-800(1)(c)) allow cities and counties to raise their exemption thresholds for minor new construction, thereby reducing costs and time in the development process. Many jurisdictions have already modified their exemption thresholds, but some have not. Not raising SEPA exemption thresholds may create additional unnecessary processing time and costs for the permitting of some new housing.[79] Jurisdictions may also consider using the optional Determination of Non-significance (DNS) process (under WAC 197-11-355) as appropriate, which allows for a single integrated comment period for the notice of application and the threshold determination.

## Limited land availability and environmental constraints

While a jurisdiction may have enough land capacity to accommodate all housing needs on paper, in some cases that land is difficult to develop. This may occur when sewer is not available to allow higher density or when most of the capacity is on under-developed parcels that would need to be assembled to provide for feasible multifamily housing development. Environmental constraints, such as the location of critical areas, may affect the feasibility of development on available lands.[80] If local conditions do not provide suitable sites, developers may look elsewhere. Flexible regulations, such as Planned Unit Development and cluster subdivisions, can help mitigate site constraints, or expansion of infrastructure to enable higher density development.

---

[77] See section 10 of the Final Bill Report on E2SSB 5258 located here: https://lawfilesext.leg.wa.gov/biennium/2023-24/Pdf/Bill%20Reports/Senate/5258-S2.E%20SBR%20FBR%2023.pdf?q=20230720170239.
[78] For more information, see Final Bill Report on 2SSB 5290 here: https://lawfilesext.leg.wa.gov/biennium/2023-24/Pdf/Bill%20Reports/Senate/5290-S2%20SBR%20FBR%2023.pdf?q=20230720164530.
[79] Several new SEPA exemptions and appeals protections have been added in the past few years. Please see Commerce's Washington State Housing Laws of 2019 through 2022 here: https://deptofcommerce.app.box.com/s/jfd6j7vsgpiotketm4c09eekocovd4lc.
[80] PSRC has guidance and resources on stormwater facility planning, which may be relevant where stormwater capacity is an environmental constraint. See https://www.psrc.org/our-work/stormwater-parks.

## Gaps in local funding

RCW 36.70A.070(2)(d)(ii) requires that local jurisdictions document "gaps in local funding" in their list of programs and actions needed to achieve housing availability. Typically, most affordable housing funding comes from state and federal sources.[81] However, local funding can also play an important role. A lack of available public funding can be a barrier to housing production and meeting all housing needs in several ways. Some examples include:

- Infrastructure or service costs: Lack of public funding can be a barrier to infrastructure or service level improvements necessary to make new housing development feasible.
- Capital costs for new affordable housing development: This gap includes public subsidies to support the development of new housing for low-income households that cannot afford local market-rate housing costs. Available federal, state and local funding and financing tools are currently insufficient to support construction of enough homes to meet the needs of all low, very low and extremely low-income households.[82]
- Operational costs for affordable and supportive housing: Rents for moderate (80-120% AMI) and some low-income (50-80% AMI) units are typically high enough to cover operational costs for housing. However, in many communities, rents for units affordable to very low (30-50% of AMI) and extremely low (0-30% of AMI) income households are not enough to cover operational costs. Additionally, PSH and emergency housing require additional support services for residents.[83] These services may include basic case management or coordination with medical, behavioral health or other service providers to remain stable and safely housed. Communities or developers may be reticent to build or acquire properties without commitments to provide services in place. Therefore, even if funding is available to build these kinds of housing, lack of funding for operational costs can make these types of housing infeasible.

To address the requirements of RCW 36.70A.070(2)(d)(ii), Commerce recommends that all jurisdictions, at minimum, complete a checklist to document which available local funding tools or incentives are already being used and which tools can be implemented to help close the funding gap. These tools may include ways to raise additional funds for supporting affordable housing development as well as tools to reduce the cost of affordable housing development, such as impact fee waivers and multifamily property tax exemption. While Commerce recognizes that local tools alone are likely to be insufficient for supporting enough subsidized housing production to meet all housing needs, local funding can play an important role. For example, local funding can often be critical during the pre-development phase to make projects more competitive in attracting additional state, federal or private funding.

Appendix B: Adequate provisions checklists provides a recommended checklist that all jurisdictions complete and include in their housing element. Jurisdictions are welcome to add additional local options for closing the

---

[81] For a listing of federal, state and local funding options for housing available as of 2020, see Appendix D: Resources for funding affordable housing in Washington state.

[82] In addition to exploring funding mechanisms for subsidized housing, jurisdictions may consider acquiring or surplusing property that can be used (wholly or in part) for income-restricted, permanent supportive or emergency housing. This work is possible in partnership with one or more organizations or local governments using affordable housing funds from a local housing tax levy or sales and use tax available for income-restricted housing. In addition, some religious or nonprofit organizations have available land they would be willing to provide, either in fee simple or under a long-term lease, for needed housing. Under state law, religious organizations are entitled to a bonus density over what local zoning would otherwise permit, when the use would be for low-income housing (RCW 35A.63.300).

[83] In 2022, Commerce performed an analysis of the property operations and maintenance costs and tenant supportive services costs for affordable housing projects that receive funding from the Washington State Housing Trust Fund. This report, titled Washington State Investments in Housing Operations and Tenancy Support Services (2022), is located here: https://deptofcommerce.box.com/shared/static/1eutafumw7kf5btvqw5i4p4h2lbqkas3.pdf.

funding gap to this list. This same Appendix includes an example of this checklist completed for a hypothetical city.

**Methodology for estimating affordable housing funding gap (Optional)**
In addition to the proposed method for identifying gaps in local funding for housing needs, the following methodology may be used to roughly estimate the gap in funding associated with capital costs for new affordable housing development. This methodology does not include operational costs and is not relevant for emergency housing.[84]

1) **Total annual affordable housing units needed:** Sum the total number of housing units needed at affordability levels below what the market will provide. This should typically include at least units affordable from 0-50% AMI, but in high-cost areas (relative to other parts of the state) it may also include a portion of the housing units affordable in the 50-80% AMI bracket. Then divide by the number of years in your planning period to determine the average number of new affordable units that are needed each year to meet your allocated needs.
2) **Average annual units produced:** Find data about recent affordable housing production in your community to calculate an average annual production rate.[85] This is the average number of affordable housing units per year developed in your community with support of any local, state, federal or philanthropic funding or financing, including low-income housing tax credits (LIHTC).
3) **Gap in annual affordable housing production:** Subtract your Average Annual Units Produced (#2) from Total Annual Units Needed (#1) to calculate the total gap in average annual production.
4) **Gap in funding:** To calculate the total gap in funding, multiply the Gap in Annual Affordable Housing Production (#3) by an assumed total cost per unit. To support this step, Commerce summarized data from the Washington State Housing Finance Commission about the average project cost per unit of LIHTC projects completed between 2015 and 2022 in Exhibit 25.[86] Jurisdictions can use values from this table for this calculation. A jurisdiction can either select the average cost per unit for their own county or the statewide average if data is not available for their county. If better local data is available, that cost figure may be used with documentation of the cost data per unit.

It is important to note that this methodology will result in a rough estimate of funding gaps in 2022 dollars. Construction costs and interest rates have been escalating rapidly. Therefore, expect the funding gap to grow during the projection period. The methodology also does not consider rents paid by tenants that can offset the total amount of public subsidy needed.

---

[84] Costs for emergency housing are not included in these figures as those needs are better planned for in the county level 5-year homeless housing plans required under RCW 43.185C.050.
[85] Ideally, you should analyze five or more years of data to determine the average annual rate of units produced.
[86] The data analyzed is based on Total Residential Project Cost, which includes the total cost of the residential portion of a project, including land, capitalized reserves and offsite infrastructure improvements. Data is available for 22 counties as well as statewide. The other 17 counties did not have LIHTC projects for new construction completed during the period for which data was available (2015-2022). Unit costs are presented in 2022 dollars. Construction costs have escalated rapidly in recent years, so the total gap in funding will quite likely be higher assuming that units are built over time during the entire planning period.

## Exhibit 25. Average cost per unit for new construction LIHTC projects completed between 2015 and 2022

| County | Total project count | Average units per project | Total units | Inflation adjusted cost per unit (2022$) |
|---|---|---|---|---|
| Adams | 1 | 86 | 86 | $ 212,217 |
| Benton | 5 | 90 | 448 | $ 205,397 |
| Chelan | 1 | 67 | 67 | $ 274,816 |
| Clallam | 2 | 42 | 84 | $ 359,266 |
| Clark | 15 | 79 | 1,184 | $ 244,098 |
| Franklin | 1 | 38 | 38 | $ 318,104 |
| Grant | 2 | 50 | 99 | $ 242,595 |
| Island | 1 | 26 | 26 | $ 346,717 |
| King | 79 | 130 | 10,262 | $ 340,579 |
| Kittitas | 1 | 49 | 49 | $ 275,122 |
| Lewis | 1 | 35 | 35 | $ 285,141 |
| Okanogan | 4 | 24 | 96 | $ 498,625 |
| Pierce | 12 | 121 | 1,456 | $ 281,780 |
| San Juan | 1 | 45 | 45 | $ 418,433 |
| Snohomish | 23 | 174 | 4,001 | $ 297,224 |
| Spokane | 20 | 83 | 1,665 | $ 217,419 |
| Stevens | 1 | 40 | 40 | $ 349,962 |
| Thurston | 6 | 117 | 702 | $ 260,916 |
| Walla Walla | 2 | 54 | 108 | $ 316,272 |
| Whatcom | 5 | 42 | 212 | $ 475,818 |
| Whitman | 1 | 56 | 56 | $ 238,676 |
| Yakima | 6 | 50 | 302 | $ 265,586 |
| Statewide | 190 | 111 | 21,061 | $ 307,407 |

Source: Washington State Housing Finance Commission, 2022; BERK, 2022.

Note: The Inflation-Adjusted Average Cost per Unit includes all costs associated with development, such as land, construction, permit fees and financing. It also adjusts for construction cost inflation to the year 2022 based on the average of two multi-family construction cost indices available from the Census Bureau: Fisher and Laspeyres (https://www.census.gov/construction/cpi/). There were no LIHTC projects for new construction during the analysis period for counties missing from this list. For more details about data source, see Affordable Housing Cost Data (Commerce, 2019), see: http://www.commerce.wa.gov/wp-content/uploads/2020/01/Affordable-Housing-Cost-Data-Report.pdf.

## Step 3: Identify and document appropriate programs and actions to overcome each barrier identified

RCW 36.70A.070(2)(d)(ii) requires that all jurisdictions document programs and actions needed to achieve housing availability. These programs and actions should be designed to address and overcome barriers to housing development identified by the jurisdiction such as those described above. It is not required that a jurisdiction implement these programs and actions in advance of adoption of the comprehensive plan.[87] More information about implementation planning is in Chapter 9. Implementing and monitoring your housing element.

Counties and cities subject to the Review & Evaluation Program of RCW 36.70A.215 are responsible for a somewhat similar requirement to identify and implement "reasonable measures," which are actions necessary to reduce the difference between actual development patterns and assumptions and targets that may be contained in the countywide planning policies and city and county comprehensive plans.[88] Some reasonable measures that focus on addressing residential development trends may also be relevant to addressing barriers to achieving housing availability. Therefore, the same action(s) can appear in both lists.

However, the requirements for reasonable measures are somewhat different than the requirements in the housing element under RCW 36.70A.070(2)(d)(ii). So, jurisdictions that have adopted reasonable measures related to residential development should carefully review the findings of their barriers analysis to determine whether additional programs and actions to achieve housing availability for all housing types and incomes is needed, and if so, which actions or programs are most appropriate.

Exhibit 26 identifies some examples of programs and actions that may be used to address the barriers to housing production discussed above. This information may support jurisdictions in identifying appropriate programs and actions based on their unique barriers. This list indicates which strategies may be more effective in addressing the identified barriers. Many of these actions overlap with strategies for addressing racially disparate impacts, displacement or exclusion required in housing elements.[89]

Keep in mind that market conditions vary, and some actions or programs may not be as relevant in your community. Commerce's June 2020 Guidance for Developing a Housing Action Plan provides a more detailed discussion about selecting actions and strategies that are a good fit for your community type. It may also be appropriate for jurisdictions to select and document other programs or actions that do not appear in this list.[90]

---

[87] While GMA-compliant comprehensive plans and implementing development regulations (which must provide for sufficient land capacity) must be adopted by the periodic update deadline, actions taken to "make adequate provisions" may be taken after the periodic update deadline.
[88] See Buildable Lands Guidelines (Commerce, 2018) for more information: https://deptofcommerce.box.com/shared/static/3admh8ew6olyoqh48js4v6fs4lzcu664.pdf.
[89] See Commerce's Guidance to Address Racially Disparate Impacts (2023).
[90] https://deptofcommerce.box.com/shared/static/pophc16jetggsctctmnbjomm0qa7tpu8.pdf.

## Exhibit 26: Barriers and strategies matrix[91]

| Matrix legend:<br>Potential high impact ★<br>Strategy | Development regulations | Process obstacles | Limited land availability & environmental constraints | Funding gaps |
|---|---|---|---|---|
| **Reduce minimum lot sizes**<br>(HAP Guidance Exhibit 22: Z-1 and page 65) | ★ | | ★ | |
| **Require a minimum density**<br>(HAP Guidance Exhibit 22: Z-2 and page 67) | ★ | | | |
| **Upzone**<br>(HAP Guidance Exhibit 22: Z-3 and page 70) | ★ | | ★ | |
| **Increase building height**<br>(HAP Guidance Exhibit 22: Z-4 and page 73) | ★ | | ★ | |
| **Integrate or adjust floor area ratio standards**<br>(HAP Guidance Exhibit 22: Z-5 and page 75) | ★ | | ★ | |
| **Increase allowed housing types in existing zones (cottages; 2, 3, 4-plexes; townhouses; micro-housing)**<br>(HAP Guidance Exhibit 22: Z-6 and page 77) | ★ | | ★ | |
| **Increase or remove density limits**<br>(HAP Guidance Exhibit 22: Z-7 and page 93) | ★ | | ★ | |
| **Revise ADU standards**<br>(HAP Guidance Exhibit 22: Z-8 and page 95; see also Commerce's ADU Guidance) | ★ | | | |
| **Offer density and/or height incentives for desired unit types**<br>(HAP Guidance Exhibit 22: Z-9 and page 98) | ★ | | ★ | |
| **Reduce off-street parking requirements**<br>(HAP Guidance Exhibit 22: R-1 and page 99) | ★ | | ★ | |
| **Relax ground floor retail requirements**<br>(HAP Guidance Exhibit 22: R-2 and page 101) | ★ | | | |
| **Reduce setbacks, lot coverage and/or impervious area standards**<br>(HAP Guidance Exhibit 22: R-3 and page 103) | ★ | | ★ | |
| **Adopt design standards**<br>(HAP Guidance Exhibit 22: R-4 and page 104) | ★ | ★ | | |
| **Use a form-based approach**<br>(HAP Guidance Exhibit 22: R-5 and page 108) | ★ | ★ | ★ | |
| **Planned Unit Development (PUD) / Planned Residential Development (PRD) and cluster subdivisions**<br>(HAP Guidance Exhibit 22: R-6 and page 111) | ★ | | ★ | |

[91] More information is available in the Guidance for Developing a Housing Action Plan.

| Matrix legend:<br>Potential high impact ★<br>Strategy | Development regulations | Process obstacles | Limited land availability & environmental constraints | Funding gaps |
|---|---|---|---|---|
| **Manufactured home and tiny house communities** (HAP Guidance Exhibit 22: R-7 and page 112) | ★ | | ★ | |
| **Allow a variety of housing land use types in more areas** (adult family homes, transitional housing, senior housing, etc.) | ★ | | ★ | |
| **SEPA threshold exemptions** (HAP Guidance Exhibit 22: P-1 and page 115, see MRSC for most up-to-date information) | | ★ | | |
| **SEPA infill exemption** (HAP Guidance Exhibit 22: P-2 and page 117) | | ★ | ★ | |
| **Subarea plan with non-project environmental impact statement (EIS)** (HAP Guidance Exhibit 22: P-3 and page 119) | | ★ | | |
| **Planned action** (HAP Guidance Exhibit 22: P-4 and page 121) | | ★ | | |
| **Protection from SEPA appeals on transportation impacts** (HAP Guidance Exhibit 22: P-5 and page 123) | | ★ | | |
| **Permitting process streamlining** For all housing types or types that the community wishes to encourage, such as affordable housing. (HAP Guidance Exhibit 22: P-6 and page 124) | | ★ | | |
| **Subdivision process streamlining** (HAP Guidance Exhibit 22: P-7 and page 125) | | ★ | | |
| **Multifamily housing tax exemption (MFTE)** (HAP Guidance Exhibit 22: A-1 and page 128; Commerce MFTE Workbook and webpage) | | | | ★ |
| **Density bonuses for affordable housing** (HAP Guidance Exhibit 22: A-2 and page 130) | ★ | | | ★ |
| **Alternative development standards for affordable housing,** such as reduced parking requirements (HAP Guidance Exhibit 22: A-3 and page 132) | ★ | | | |
| **Fee waivers for affordable housing** (HAP Guidance Exhibit 22: A-4 and page 133) | | | | ★ |
| **Inclusionary zoning** (HAP Guidance Exhibit 22: A-5 and page 134) | ★ | | | |
| **Local option taxes, fees and levies** This may include:<br>• Housing and related services sales tax (RCW 82.14.530)<br>• Affordable housing property tax levy (RCW 84.52.105) | | | | ★ |

| Matrix legend:<br>Potential high impact ★<br>Strategy | Development regulations | Process obstacles | Limited land availability & environmental constraints | Funding gaps |
|---|---|---|---|---|
| • Real Estate Excise Tax 2 (REET 2) (RCW 82.46.035) – GMA jurisdictions only<br>• Affordable Housing Sales Tax Credit (HB 1406 in 2019) – was only available to jurisdictions through July 2020<br>• Lodging Tax (RCW 67.28.150 and RCW 67.28.160)<br>• General funds (including levy lid lift for affordable housing)<br>• Mental Illness and Drug Dependency Tax – jurisdictions with a population over 30,000<br><br>(See HAP Guidance Exhibit 22: F-1 and page 137, MRSC – Funding Local Affordable Housing Efforts, MRSC – Affordable Housing Funding Sources, and AWC – Homelessness and Housing Toolkit) | | | | |
| **Surplus land and other opportunities**<br>Including:<br>• Donating surplus public land for affordable housing development[92]<br>• Acquiring and assembling properties and donating to an affordable housing developer<br><br>(HAP Guidance Exhibit 22: F-3 and page 139) | | | | ★ |
| **Partner with local housing providers**<br>(HAP Guidance Exhibit 22: F-4 and page 141) | | | | ★ |
| **Strategic infrastructure and service investments**<br>(HAP Guidance Exhibit 22: O-1 and page 144) | | ★ | ★ | |
| **Simplify land use designation maps**<br>(HAP Guidance Exhibit 22: O-2 and page 144) | ★ | | | |
| **Local programs to help build missing middle housing**, including demonstration projects<br>(HAP Guidance Exhibit 22: O-3 and page 145) | | ★ | | |
| **Strategic marketing of housing incentives**<br>(HAP Guidance Exhibit 22: O-4 and page 146) | ★ | | | ★ |
| **Temporary emergency housing**<br>(HAP Guidance Exhibit 22: O-5 and page 146) | ★ | | | |
| **Accommodating emergency/PSH housing facilities**<br>(for example, ensuring spacing, occupancy, parking and permitting requirements are reasonable, and not overly restricting support uses such as offices) | ★ | ★ | | |
| **Short-term rental regulations** | ★ | | | |

[92] Affordability level of units produced can be a required condition of sale or donation under a contract with the developer.

| Matrix legend:<br>Potential high impact ★<br>Strategy | Development regulations | Process obstacles | Limited land availability & environmental constraints | Funding gaps |
|---|---|---|---|---|
| (see this resource from MRSC and Regulating Short-Term Rentals: A Guidebook for Equitable Policy from the Sustainable Economies Law Center) | | | | |
| **Coordination with 5-year homelessness plans**<br>This process can help identify and prioritize funding gaps, particularly gaps for support services. | | | | ★ |
| **Urban growth area swaps**<br>Under SB 5593, communities can swap out environmentally sensitive areas that may not develop. See this Commerce fact sheet for more information. | | | ★ | |
| Other resources for potential actions include:<br>• Local Housing Solutions, a library of housing strategies<br>• PSRC Housing Innovations Program (HIP), a collection of planning resources to support housing affordability and choice<br>• Commerce's Guidance for Developing a Housing Action Plan | | | | |

## Barrier review checklists and example

Checklists are a useful way to document the barrier review and findings. Appendix B: Adequate provisions checklists, includes checklists for common housing types for accommodating lower- and moderate-income housing needs.

For each housing type you identified as having insufficient production to meet housing need, Commerce recommends that you make a copy of the corresponding checklist in Appendix A, and include it in your HNA. For example, if you found that there is not enough moderate density housing production to meet the projected needs of moderate-income households, you would use the Moderate Density Housing Barrier Review Checklist. For some housing types, it may be appropriate to complete multiple checklists (e.g., if you expect PSH to be built in a mid-rise zone, then you should review barriers to mid-rise development in addition to the PSH checklist). It is important that, while completing the checklists, you consider barriers to both market-rate and sub-market rate housing development.

To provide evidence to indicate the presence or absence of a barrier, you might:

- Reference your buildable lands analysis (for counties and cities that conduct this analysis)
- Document permitting timelines and interview permitting staff
- Review existing code and resources that explain the permitting process to prospective developers
- Compare your code and processes to neighboring jurisdictions
- Review data about permit processing timelines
- Interview local market rate, affordable housing, non-profit and emergency shelter/emergency housing/transitional housing/PSH developers and resident property owners that have prior experience with the needed housing type(s). You may look to developers who work in neighboring areas if there are few in your jurisdiction. Jurisdictions may also choose to work together and interview developers as a group.

Note that, although developer interviews are a source of information about barriers, jurisdictions are not expected to modify regulations to accommodate every developer request. The interview process is intended to better understand the barriers and jurisdictions have a menu of options on how to address these, as described in Exhibit 26: Barriers and strategies matrix above.

## Questions for developer barrier information

Guiding questions for developer outreach could include the following:

- Development regulations
  - What regulatory barriers, either state or local, have had a significant impact on the design, timeline or cost of projects?
  - What regulatory changes or incentives would make this housing type development more feasible to build?
  - How do the current parking minimums affect your projects? Would lowering parking requirements make projects more feasible? Could you build more units on a site if parking minimums were reduced?
- Process obstacles
  - What could be improved about the permitting process?
  - Are you able to accurately estimate permitting costs prior to application?
  - Is it easy to find clear information about permitting and what is required of applications?
  - How do permitting and impact fees compare to nearby jurisdictions?
  - Are design review requirements clear?
  - How long has it taken projects to go through design review?
  - How does the conditional use permit process impact your project(s)?
  - How do the SEPA thresholds influence your project(s)?
- Land availability and environmental constraints
  - How have environmental constraints affected your project(s)?
  - Do you experience any challenges with finding suitable land in this jurisdiction for single-family residential / moderate density / high density / emergency housing or PSH facility development?
- Affordable housing funding gaps
  - What kinds of local funding or incentives have you found to be most effective in supporting project feasibility?
- What role(s) can our jurisdiction play in more effectively supporting the financial feasibility of affordable housing projects?
  - Have you built or attempted to build (selected housing type) in this jurisdiction in the past? If yes, what processes and regulations could be improved?
  - Would you consider building new projects that are undersupplied in this jurisdiction in the future? Why or why not?
  - Are there other factors that have made affordable projects more challenging from a design, construction or permitting perspective?

Appendix B: Adequate provisions checklists includes an example of a complete barriers review checklist. Though not required, Commerce recommends that after identifying actions to address barriers, jurisdictions plan for next steps to implement them after the Comprehensive Plan periodic update. For more information on

implementation plans, see "Guidance for implementation planning" in Chapter 9. Implementing and monitoring your housing element.

# Housing locations in relation to employment location

The third adequate provision required by RCW 36.70A.070(2)(d) is the consideration of housing locations in relation to employment location. Commerce recommends jurisdictions analyze these issues and document their findings in their HNA. These questions may also prompt possible countywide planning policies and/or housing element policies.

## Allocating housing needs with consideration for employment location

First, counties and cities should consider employment location during the housing needs allocation process, as detailed in the "Allocating housing needs" chapter of Commerce's Establishing Housing Targets for your Community (2023) guidebook. Some considerations include:

- Consider increasing capacity and encouraging housing production near employment centers and areas of planned employment growth. This includes housing types that are affordable to the local workforce.
- Consider the location of transit routes and high-capacity transit serving employment centers. It may be appropriate to focus more housing growth in jurisdictions that have high quality transit serving employment centers than elsewhere in the county.
- Consider the wage level of jobs in each jurisdiction,[93] and the alignment with local housing affordability. This consideration can inform the allocation of housing need by income level. One great source of information about local job counts and wage levels is Census OnTheMap.[94] You can use this tool to select a city or Census defined place, and then see a breakdown of jobs located inside those boundaries. LEHD Origin-Destination Employment Statistics are another potential source.[95]

For PSRC jurisdictions, additional direction is provided in VISION 2050 and the Regional Growth Strategy.[96]

## Planning for housing within your jurisdiction

Jurisdictions can also show consideration of housing locations in relation to employment location by conducting several kinds of analysis that can be documented in your HNA and referenced in your housing element. Recommended analysis includes:

- **Evaluating housing proximity/access to employment locations within the jurisdiction.** Identify job centers within your jurisdiction as well as major transit routes that connect to job centers. Identify areas zoned for moderate and higher density housing. Are the areas zoned for higher density housing within walking or biking distance of the job centers or connected via transit? What other neighborhoods are connected to job centers either via proximity or transit? Are there opportunities for increased housing density and diversity in these areas?

- **Evaluating housing proximity/access to employment locations outside of the jurisdiction.** Identify job centers outside the jurisdiction but within reasonable commute distance. Identify major transit routes that connect to outside job centers. Identify areas zoned for higher density housing. Are the areas zoned for

[93] Note that this number will be different from the median income for residents, since many residents commute to jobs outside of their own home jurisdiction.
[94] https://onthemap.ces.census.gov/.
[95] https://lehd.ces.census.gov/.
[96] https://www.psrc.org/planning-2050/vision-2050.

higher density housing within commute distance of job centers or connected via transit? What other neighborhoods are connected to job centers either via proximity or transit? Are there opportunities for increased housing density and diversity in these areas?

- **Evaluating housing needs of local workforce.** Planners should also examine the wage levels and types of jobs located inside their jurisdictional boundaries[97] as well as the housing needs of these workers. What kinds of housing are most affordable to people earning those wages and are those housing types available within your jurisdiction? Does a broader diversity of housing options need to be allowed and encouraged in your jurisdiction? Where do these housing units need to be located to provide adequate access to these local jobs?

## Consideration of the role of ADUs in meeting housing needs

Housing elements must also consider the role of accessory dwelling units (ADUs) in meeting housing needs according to RCW 36.70A.070(2)(d)(iv). In 2023, HB 1337 changed the way local governments planned for ADUs. See sidebar for more information on these changes and Commerce's Periodic Update checklist for what to consider when updating your ADU regulations.[98]

Commerce recommends all jurisdictions consider the issues and questions outlined below. Answers to the following questions, can help jurisdictions to develop defensible assumptions about the role that ADUs can realistically play in meeting housing needs. For additional guidance, see Commerce guidance on ADUs (2023).[99]

### Questions to consider

#### What kinds of ADUs are likely to be developed in your community?

You can review ADU permit data to understand the types of ADUs that are being produced in your community, but be aware this will change with updates required with HB 1337 (2023).[100] Answer questions such as:

- Where are new ADUs being produced? Which zones have lots large enough for detached ADUs?
- Is the local market strong enough to produce ADUs if they are allowed?
- Is there potential for new attached or basements suites within existing housing?
- Are there students or other populations that would increase the demand for ADUs?
- Is it likely that new ADUs could be sold as condominiums for separate ownership than the primary housing unit or subdivided off from large lots in your community?

Answers to these questions will help you understand what kinds of new housing are being created through new ADU production, and therefore what kinds of households might be accommodated.

---

[97] Census OnTheMap is a good source of information about local job counts, job types and wage levels. You can use this tool to select a city or Census defined place, and then see a breakdown of jobs located inside those boundaries. https://onthemap.ces.census.gov/
[98] https://www.commerce.wa.gov/serving-communities/growth-management/periodic-update/.
[99] Commerce's ADU guidance is available on the Middle Housing webpage: https://www.commerce.wa.gov/serving-communities/growth-management/growth-management-topics/planning-for-middle-housing/.
[100] https://lawfilesext.leg.wa.gov/biennium/2023-24/Pdf/Bills/Session%20Laws/House/1337.SL.pdf?q=20230828130502.

## How are ADUs being used?

While available data may be limited, it is important to understand how ADUs are being used in your community.

- What is the typical rent for ADUs? What is the affordability relative to AMI? See Step 3 in the preceding Land Capacity chapter for recommended methodology.
- What segment(s) of the population do they seem to be serving? (for example: what is the typical age or household size of residents?)
- Are many ADUs being used as short-term rentals and not available for long-term tenants?[101]

**Consideration of ADUs in light of HB 1337**

In 2023, HB 1337 directed all jurisdictions to make significant changes to ADU regulations. Among other changes, jurisdictions must allow two ADUs per lot in all GMA urban growth areas, may not require the owner to occupy the property, may not prohibit the sale as independent units, must allow an ADU of at least 1,000 square feet, and must limit required parking based on distance from transit and lot size.

Since jurisdictions are not required to make these changes until six months after the periodic update, the impacts of these changes will not be evident yet. As jurisdictions consider the role of ADUs in meeting future housing needs, Commerce recommends jurisdictions document what will change for the jurisdiction as a result of HB 1337 and the areas in which they expect an increase in ADUs. For example, newer subdivisions may be less likely for new ADU production whereas older subdivisions may have space for ADUs.

## Recommended steps for addressing ADUs in your housing element

Commerce recommends that jurisdictions take, at minimum, the following steps to meet this ADU requirement.

- Summarize your estimated capacity for ADU production. See the Step 1.6 in Chapter 3 Land capacity analysis for details.
- Complete the barriers checklist in Appendix B: Adequate provisions checklists for ADUs, and document programs or actions to overcome those barriers.
- Identify the typical affordability level of ADUs in your jurisdiction, using best available data.[102]
- Include a narrative explaining the potential role of ADUs in meeting housing needs in the jurisdiction's HNA and reference in the housing element.

[101] One way to answer this question is to browse listings for your community on one or more popular short-term rental websites like AirBnb and VRBO.

[102] See Step 3.1 in the previous Land Capacity chapter for guidance on determining affordability. Per the footnote in that section, Commerce recommends jurisdictions assume that ADU rents are on par with apartment rents unless a better local source of information is available.

# Chapter 5. Housing element review

Any jurisdiction undergoing a comprehensive plan update should review and evaluate the current housing element. The best time to conduct this review is after completing a preliminary HNA and after the county has developed new countywide planning policies (CPPs) that address housing and population growth (see the chapter 1 titled "Countywide planning policies" in Book 1: "Establishing Housing Targets for Your Community"). This chapter provides guidance on how to carry out a housing element review.

## Purpose of a housing element review

A housing element review can serve several purposes:

- Assess the alignment of goals and policies with:
  - Growth Management Act goals
  - CPPs and multi-county planning policies (MPPs) (for jurisdictions in the Central Puget Sound region)
  - New housing element requirements that require jurisdictions to address housing equity and displacement in planning[103]
  - Other comprehensive plan elements
  - Current and projected housing needs in your region and jurisdiction
  - Community vision and engagement findings
  - Regional plans and initiatives
- Evaluate progress in meeting housing needs or various housing types
- Consider new opportunities that were not foreseen by the current comprehensive plan
- Review the future land use map and designations for potential to meet housing needs
- Identify related infrastructure or service needs, including those that are barriers to new housing development
- Consider reasonable measures identified in buildable lands reports

The findings from a housing element review can inform the development of new goals and policies (see Chapter 6 Updating goals and policies) as well as strategies for effective implementation.

[103] See "Guidance for Addressing Racially Disparate Impacts" (Book 3) and the new requirements in RCW 36.70A.070(e)-(h).

# Review of housing element goals and policies

## Alignment with GMA

First, the housing element review should determine whether the element reflects the GMA goal for housing (see sidebar). This goal directs local governments to take more action to plan for their housing needs. During this review, consider the following questions:

- Do housing element policies reflect the GMA goal for:
  - Housing production;
  - A variety of housing types, densities and price points; and
  - Housing preservation?
- Does the housing element have policies to reflect the newly added housing element requirements that jurisdictions:
  - Implement policies and regulations to address and begin to undo racially disparate impacts, displacement and exclusion in housing caused by local policies, plans and actions; and
  - Include anti-displacement policies?[104]
- Does the housing element update comply with the latest GMA requirements (tip – see Commerce's Periodic Update Webpage)?[105] The legislature frequently updates the GMA and new requirements may require policy updates.

**GMA housing goal**

In 2021, the Legislature changed the GMA housing goal from "encourage the availability of affordable housing" to "plan for and accommodate affordable housing."

The housing goal now reads: "plan for and accommodate housing affordable to all economic segments of the population of this state, promote a variety of residential densities and housing types, and encourage preservation of existing housing stock."

**Growth Management Act Housing Goal, RCW 36.70A.020(4)**

[104] See "Guidance for Addressing Racially Disparate Impacts" (Book 3) and the new requirements in RCW 36.70A.070(e)-(h).
[105] https://www.commerce.wa.gov/serving-communities/growth-management/periodic-update/

## Alignment with CPPs and MPPs

As discussed in Commerce's "Updating Housing Targets for Your Community" guidebook, the housing element must be consistent with and help to implement countywide planning policies. Therefore, the housing element review should consider whether the goals and policies are consistent with CPPs (and MPPs, where applicable). It should also consider whether those goals and policies help to implement CPPs/MPPs at the local level.

For example, during the City of Auburn Housing Element Update (2015), planners reviewed housing policies from PSRC VISION 2040, including MPP-H-1: "Provide a range of housing types and choices to meet the housing needs of all income levels and demographic groups within the region." The city's own housing element partially implemented this policy (e.g., mixed use, ADUs, manufactured homes) and needed some adjustment to add additional housing types (e.g., single family - small lots, townhomes, cottages, and other attached homes) to further promote housing diversity.

Therefore, the city identified a new policy in its housing element update: "Policy H-11. Promote opportunities for home ownership through single family detached and semi-attached housing, fee-simple cottages and townhouses, and condominium apartments." This is an example of the types of findings that a housing element review can reveal. Exhibit 27 provides additional details about Auburn's housing element review process.

**Ensuring vitality and character of established residential neighborhoods**

In their efforts to align with GMA, some communities approach housing policy as a balancing act between encouraging new types of housing development to meet housing needs and "ensuring the vitality and character of established residential neighborhoods" as called for in RCW 36.70A.070(2).

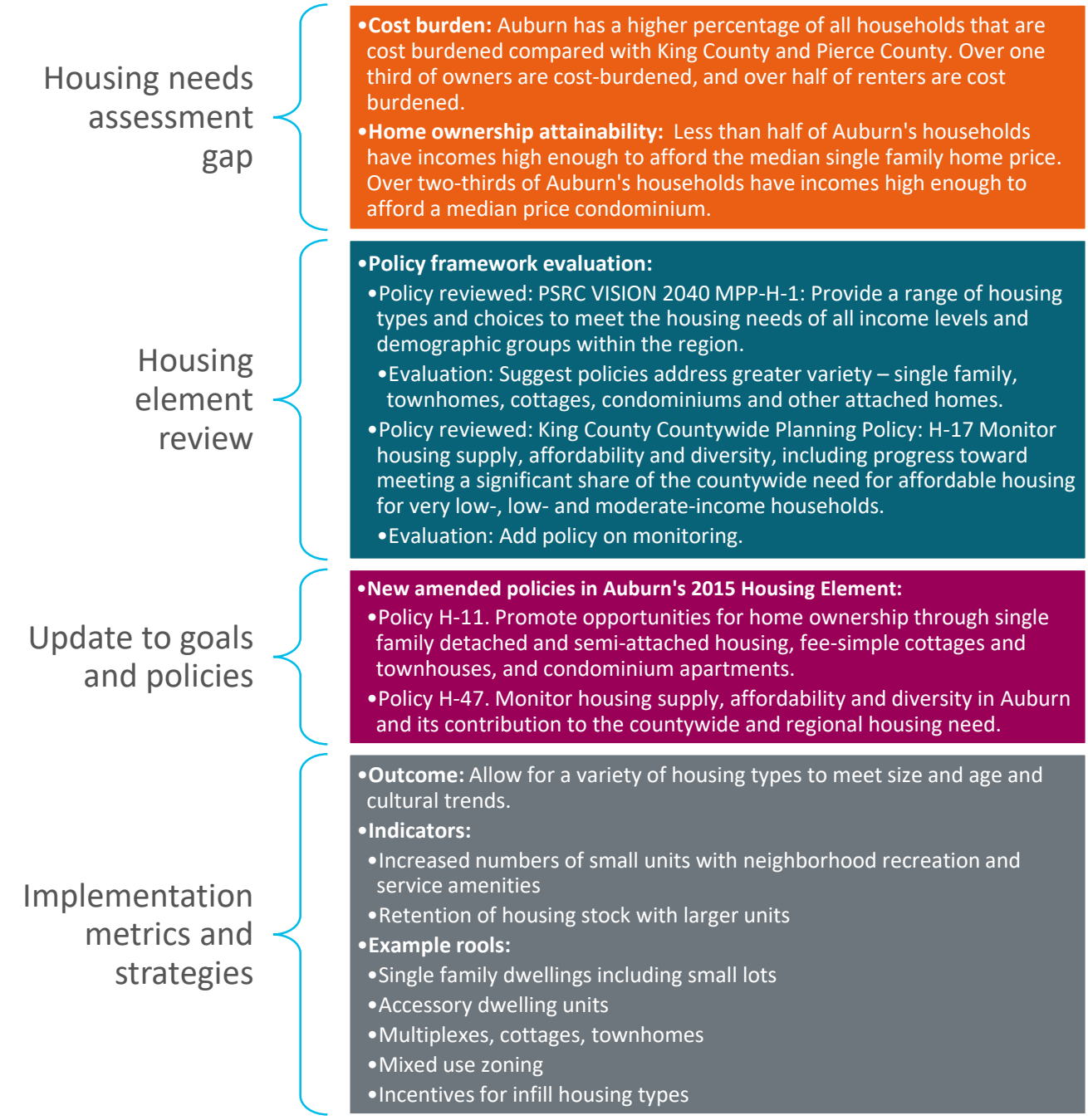
It is important to keep in mind that these two goals do not necessarily conflict. All neighborhoods and communities in Washington will change over time as residents come and go and the demographic profile of our population continues to change.

Planners have an important role to play in making sure that our neighborhoods can change over time to adapt to the changing needs of residents. Policies that seek to preserve neighborhoods from new forms of development can contribute to housing supply shortages, exclusion and the displacement of long-time residents when housing costs escalate. These outcomes fail to align with the GMA housing goal and can detract from the vitality and character of established neighborhoods.

Vison 2040 has evolved into Vision 2050 and applies to King, Pierce, Snohomish and Kitsap counties, as well as cities, towns, ports, state and local transportation agencies, and tribal governments within the region. It includes 12 housing policies to guide the development of countywide planning polices and local policies (Exhibit 2 in "Updating Housing Targets for Your Community"). It also includes five local actions to address the housing policies at the local level. This progressive and comprehensive document is likely to be useful to other Washington jurisdictions as they develop countywide planning policies and comprehensive plan goals and policies.

WAC 365-196 defines consistency as: "…no feature of a plan or regulation is incompatible with any other feature of a plan or regulation. Consistency is indicative of a capacity for orderly integration or operation with other elements in a system."

## Exhibit 27. Example: Auburn housing element update, 2015




This example walks through how the City of Auburn's housing element review aligned with findings from their HNA, updated policies, and ultimately developed implementation metrics and strategies.

Source: City of Auburn 2015 Comprehensive Plan Update; BERK, 2020

## Alignment with housing needs

The most effective housing element policies recognize the diverse housing needs of its population including affordability, life cycle, cultural desires and others. The HNA is the primary way to identify these needs and gaps.

Review existing policies to see whether they guide and authorize actions to address these needs, or if they need updates to reflect changes in the community. The example from Auburn's 2015 Comprehensive Plan Update (Exhibit 27) shows the link between gaps identified in their HNA and new housing policies selected to address those gaps.[106]

Many jurisdictions may not have policies to address and support development of the lowest income housing needs. See sidebar on homelessness planning and Appendix C: Housing element policy examples for some examples of policies that support a jurisdiction in accommodating the housing needs of the lowest income segments.

## Alignment with community vision and engagement findings

Through the public engagement process, planners may find qualitative housing needs not seen in data and the interrelationships of housing and services. For example, Auburn found in its housing needs and characteristics assessment a concern about the cost of assisted living with seniors, and a desire for improved safety and children's play areas affecting quality of life for a Latinx community. Insights like this help inform the housing element review and development of updated goals and policies.

## Alignment with regional plans and initiatives

The review should also consider whether the housing element is aligned with, and implements, regional plans and initiatives, such as regional transportation plans or countywide homeless housing plans (see sidebar). For example, consider questions such as:

- Does your housing element and comprehensive plan concentrate higher densities of housing in areas of opportunity such as designated centers and transit hubs?
- Does your housing element promote greater access to jobs and services, particularly among residents with low- and moderate-incomes?

**Homelessness planning**

In 2006, the Washington state Legislature passed the Homeless Housing and Assistance Act (RCW 43.185c) directing Commerce to grant document recording fees to local governments to help meet the need of homeless families and individuals.

This includes writing a local five-year plan to address homelessness (due in 2024), responsibility for administering the annual Point-in-Time Count, reporting client data in the Homeless Management Information System (HMIS), conducting outreach to landlords, ensuring coordinated entry and more. Lead grantees are also responsible for ensuring their homeless crisis response system prioritizes people most in need and that services meet funders' performance expectations.

As your housing element should consider the housing needs of people experiencing homelessness, it is important that policies be consistent with the needs identified in the local five-year and Continuum of Care (CoC) plans. Countywide planning policies should also be considering these plans to align strategies and approaches on a countywide basis. Therefore, Commerce recommends coordination between planners and the human services staff who normally develop these plans.

The Homelessness & Housing Toolkit for Cities produced by Association of Washington Cities (AWC) and Municipal Research and Services Center (MRSC) (2020) provides resources and case studies to help communities address homelessness and affordable housing issues.

[106] https://www.auburnwa.gov/city_hall/community_development/zoning__land_use/auburn_s_comprehensive_plan.

- Does this analysis identify logical places for higher density housing with infrastructure or priorities for investment in capital facilities to further the regional and local land use plan?
- Are the land use, transportation and capital facilities elements also consistent with the regional plan?

**Rural housing**

Rural elements must protect rural character and provide for a variety of rural densities (RCW 36.70A.070(5)). Counties should define rural development both in terms of its visual character and in terms of the density and intensity of uses (WAC 365-196-425 (2)(c)).

Clustering and density transfer are potential tools to protect rural character. Counties should establish a limit on the size of residential cluster so that a cluster does not constitute urban growth in a rural area; although it is possible to have multiple smaller clusters that are separated from each other and use a different access point (WAC 365-196-425 (5)(b)).

As of 2022, infill development or redevelopment in limited areas of more intensive rural development (LAMIRDs), which recognize pre-GMA villages, is allowed and may be encouraged if there is sufficient capacity of existing providers of public facilities and services to serve the new development or redevelopment.

Plan accessory dwelling units (ADUs) carefully in rural areas to limit service demands and extra density. Attached ADUs have not been challenged, but any detached ADUs should share sewer, well, driveways, yard and parking so they are clearly not creating an additional primary unit that increases rural density. See Commerce's ADU Guidance for more on ADUs in rural areas.

## Alignment with the comprehensive plan

Comprehensive plans must be internally consistent.[107] This means that all elements of the plan include goals and policies that are consistent and mutually supportive. An important step in the housing element review is to compare the goals and policies in the housing element to those in other elements, such as land use, capital facilities and economic development.

For example, this review could identify issues such as whether the land use element and future land use map designate sufficient land for higher density housing development to meet identified housing needs, and whether that housing capacity is focused in areas with investments in public transportation and other supporting facilities. Have you considered programming investments in areas that need facilities in order to develop? Along with the land use element, counties should also review rural elements at the same time as the housing element update. (See "Rural housing" sidebar above.)

## Review for new housing element requirements related to racially disparate impacts and displacement

With the passage of HB 1220 in 2021, jurisdictions need to evaluate if any of their policies contributed to or resulted in racially disparate impacts, displacement or exclusion in housing. If so, they will need to identify policies to address and begin to undo these impacts.

[107] RCW 36.70A.070

If jurisdictions do not already have anti-displacement policies, they will need to add policies to prevent and address displacement. More information on how to do this work can found in Step 3 (Evaluate Policies) of Commerce's "Guidance to Address Racially Disparate Impacts" guidebook (Book 3).

## Consider opportunities and trends not foreseen by the comprehensive plan

The housing element review can reveal new opportunities for development including surplus public land, changing land needs and other trends not addressed in the last comprehensive plan update. The need for specific land uses may have changed, and new opportunities for housing may present themselves. For example, vacant or under-used commercial areas, former military or institutional sites, power and utility properties and others can be repurposed as new housing opportunities. Major transportation investments may also bring opportunities for new transit-oriented development (TOD). See sidebar for examples.

Societal and cultural trends can also shape housing needs and land use implications. For example, previous comprehensive plans likely did not anticipate the rapid shift to widespread teleworking that occurred in 2020 due to COVID-19. This shift has permanently affected some economic sectors, including increasing use of retail delivery. Also look for increased use of short-term rentals, which may take available homes off the market. A quick review of some of the rent by owner websites can tell you whether this is an issue in your community. Municipal Research and Services Center (MRSC) provides guidance on this topic.[108]

**Examples of new opportunities**

Non-residential sites converted to mixed use

- Vista Field, Kennewick, former airport
- Southport, Renton, former power plant

Major transportation investments and TOD

- Bothell's State Route 522 and State Route-527 improvements and downtown revitalization plan
- Seattle's Othello Station light rail station and transit oriented development

Other housing trends to consider as housing costs remain high compared to wages and vacancy rates remain low is potential evictions as federal pandemic stimulus support expires. Local governments can develop policies and programs to support those who may be displaced, or at a minimum provide a zoning and land use framework to encourage more multifamily housing production. In addition, as many individuals or households have reduced housing mobility due to the tight housing market, some jurisdictions see more multigenerational households and residents living with roommates. This trend could impact household demand patterns and needed neighborhood amenities and services.[109]

## Evaluating progress towards housing needs

With the changes to the housing element to plan for all economic segments based on housing needs provided by Commerce, jurisdictions now have targets or objectives for housing growth. These may be found in countywide planning policies, and will also now be detailed in comprehensive plans. Chapter 4. Adequate provisions provides guidance on how to measure progress towards these targets.

---

[108] See MRSC's 12 Examples of Short-term Vacation Rental Regulations and other webpages. https://mrsc.org/Home/Stay-Informed/MRSC-Insight/November-2017/Short-Term-Vacation-Rental-Sample-Regulations.aspx

[109] See American Planning Association's 2023 Trend Report for Planners, starting on page 31: https://planning-org-uploaded-media.s3.amazonaws.com/publication/download_pdf/2023-Trend-Report-For-Planners.pdf.

The housing element review should consider the findings of this analysis and its implications for progress towards achieving goals and policies. Jurisdictions may need to make adjustments to goals, policies or implementing actions when housing production does not keep pace with targets, or when the diversity of new housing produced does not align with housing needs.

## Review the future land use map and designations

Future land use maps and corresponding designations function like the "heart" of a comprehensive plan, and are usually found in a plan's land use element. A well-crafted land use map and corresponding designations can simplify the development process and facilitate production of the types of housing necessary to address community needs.

Using the findings from your community's HNA, including the land capacity analysis, how can you update the map and designations to meet those needs? Beyond a general need to increase the overall densities to address the lowest income housing needs, the HNA may illustrate gaps in specific types of housing that will guide map and land use designation updates. The solution likely involves a combination of strategies. Utilize the following guiding principles to review and revise land use maps and designations.

- **Alignment with goals, policies and growth targets:** As discussed above, examine whether the designations and map align with the community's allocated housing needs from the countywide process, housing needs from the HNA, vision and engagement findings, and regional transportation system and countywide planning policies. From a mapping perspective, do you need to make adjustments to:
  - Change the characteristics of a land use zone to address findings in the land capacity analysis?
  - Update the boundaries of existing designations?
  - Change to another designation?
  - Create a new designation? Sometimes, key sites or areas warrant creation of a new designation to help fit the evolving context and community needs and priorities.
  - Simplify and/or reduce the list of land use designations? Ideally, comprehensive plan future land use maps are not the same as zoning maps. When they are, each rezone will require a comprehensive plan amendment, a lengthy process that delays new housing. The plan works better when it employs broad, not narrow, land use designations. For example, two or three implementing zones under one land use designation allow more flexibility with future rezones and responses to unforeseen market changes (see Prosser sidebar at right).
  - Completely update the map and designations to fit new approach? In some cases, the map and designations are so out of date that communities seek a new approach to fit the evolving context and community needs and objectives.

**Example of simplifying land use designations:**
The City of Prosser's recent comprehensive plan update simplifies land use designations by consolidating residential areas into two designations: (1) Residential, and (2) Steep Slope Residential. This allowed for three higher density rezones and the City's first private affordable housing development, which would have previously been prohibited.

- **Make the map and designations clear and usable.** Many land use maps and designation text are not easy to read. The best maps have:
  - Easy to follow designations and legends.
  - Logical colors, patterns and order of land use designations.
  - Simple and descriptive naming conventions.

- **Include descriptive purpose statements, including a summary of principle uses and densities.** Although not required, land use designation purpose statements can prove a useful communication tool and helpful in describing unique locational attributes and/or community intentions that may apply. It is important to provide a useful description without too much detail.

## Identify related infrastructure or service needs

When evaluating the housing element, be sure to support the type and location of housing with necessary infrastructure and capital facilities planning, or it may impede the timing, cost and quality of housing.

Evaluating infrastructure needs in already built communities can help support infill development and keep existing housing affordable. Anticipating new infrastructure needs in redeveloping or newly developing areas helps facilitate desired growth, housing variety and supply.

**Costs:** After determining what infrastructure is needed to support your growth strategy, it is important to estimate the cost. Communities then must decide how to allocate those costs between new development and existing residents and ratepayers. Impact fees, system development charges, certificates of concurrency or SEPA mitigation are all different strategies to finance the construction of needed infrastructure to bring housing plans to fruition.

To support affordable housing, local governments can structure fees to recognize differences in demand and costs and housing goals (see sidebar), as well as consider deferrals and exemptions.[110] Develop policy to guide these structures.

Some examples of jurisdictions with already restructured fees to support more affordable housing include the following:

- King County provides impact fee exemption/reduction for low- and moderate-income housing (Sec 21A.43.080).
- Tukwila waives park impact fees for accessory dwelling units (Ordinance 2599).
- Port Townsend allows deferrals of connection fees for affordable housing until units are occupied (PMC 13.03.115).

**Accurately assessing the effect of impact and utility connection fees**

For the sake of simplicity, communities tend to base impact fees on average impacts of a residential unit when the marginal impact of a particular unit can vary greatly. The structure of how these charges are assigned to duplexes, triplexes and ADUs can influence the development of these types of units.

For example, a new unit on an existing lot near the center of town with good transit access can generate significantly less demand for infrastructure than a new unit on a relatively large lot on the edge of town. Lower average trip distance, compact development patterns and use of existing infrastructure all tend to reduce marginal cost of serving infill development.

The City of Spokane has recognized this correlation and implemented significantly reduced transportation impact fees for housing in the downtown area, compared to areas outside of the downtown.

A system reliant on average costs will tend to subsidize expensive development types (such as large single-family homes at the periphery) and overcharge less expensive development types (such as infill ADUs), creating an incentive to build more costly housing types.

Carefully examining how you calculate the charge for different housing types in different parts of the community can help identify when you are sending signals to the market at cross purposes with your community goals. This same type of review can be applied to connection fees as well.

[110] See SB 5258 (2023), which requires local governments adopt impact fee schedules where there are proportionally lower impact fees for smaller housing units: https://app.leg.wa.gov/billsummary?BillNumber=5258&Initiative=false&Year=2023.

Find more information on reduction or waivers of fees on MSRC's webpage on Affordable Housing Techniques and Incentives.[111]

**Gaps, phasing and urban densities:** Local governments can review gaps in the sewer, water, transportation and other systems and prioritize funding and phasing mechanisms through policies in both the housing and capital facilities elements. First, prioritize appropriate areas for infrastructure to support higher density housing.

Where urban infrastructure is not yet fully available, jurisdictions can set regulatory standards to maintain the ability to achieve urban densities in the long run while allowing for some incremental development in the meantime. Examples include requiring building placement that preserves the ability to achieve future urban densities and allowing for interim water and septic systems provided such systems allow for full-service connections in the future (called shadow platting). Example communities with such standards include Pierce County interim urban septic systems and City of Chelan rural to urban transition standards.

If certain areas are too difficult or too expensive to serve, consider their removal from the urban growth area. Review WAC 365-195-320, which notes the limited circumstances in which reduced infrastructure is acceptable, and review Commerce's 2012 Urban Growth Area Guidebook.

[111] More information and a few other examples of impact fee waivers and reductions and reduced infrastructure connection charges are available on MRSC's "Affordable Housing Techniques and Incentives" webpage located here: https://mrsc.org/explore-topics/planning/housing/affordable-housing-techniques-and-incentives#fee-reduction.

# Chapter 6. Updating goals and policies

This chapter provides guidance for designing clear and effective goals and policies for your housing element.

## What are goals and policies?

Goals and policies in a housing element describe how the community plans to address its identified needs and wants. They articulate local priorities for the production of specific housing types, housing affordability, housing design, preservation of existing housing and allocation of local resources to support housing goals.[112]

When updating your housing element, take a step back and consider how goals and policies differ from each other. Consider the following definitions:

- **Goal.** Goals state desired outcomes or intended achievements. For example: "Provide for a range of housing options to address the needs of all economic segments of the community."
- **Policy**. Policies establish guiding actions and commitment to these actions. Policies provide the framework for future decision making and authorization for regulations to implement the policies. Policies may express intent, such as: "Encourage townhouses and multifamily development that have a similar design and scale as the surrounding neighborhood." Policies may also describe an action to be taken. For example: "Allow townhouses and multifamily development designed and scaled consistent with the surrounding neighborhood."

Each goal may have a number of associated policies. For example, if the goal is to zone for a variety of housing densities and types, the relevant policies may address a number of related issues and local priorities regarding that goal.

Goals and policy statements intended to describe a future accomplishment may be very specific, or more general if intended to provide direction to later planning efforts and decisions. Depending on the purpose and desired outcome, communities must decide how specific to be in expressing goals and policies.

When crafting or reviewing goals and policies, the strength of the words makes a difference**:**

- Language like "encourage," "consider" and "should" are tentative, exploratory words that could articulate policies that the community would like to consider and include in their plan, but is not yet ready to implement.
- Language such as "allow," "ensure" or "require" are stronger and point to policies to implement in the near future.

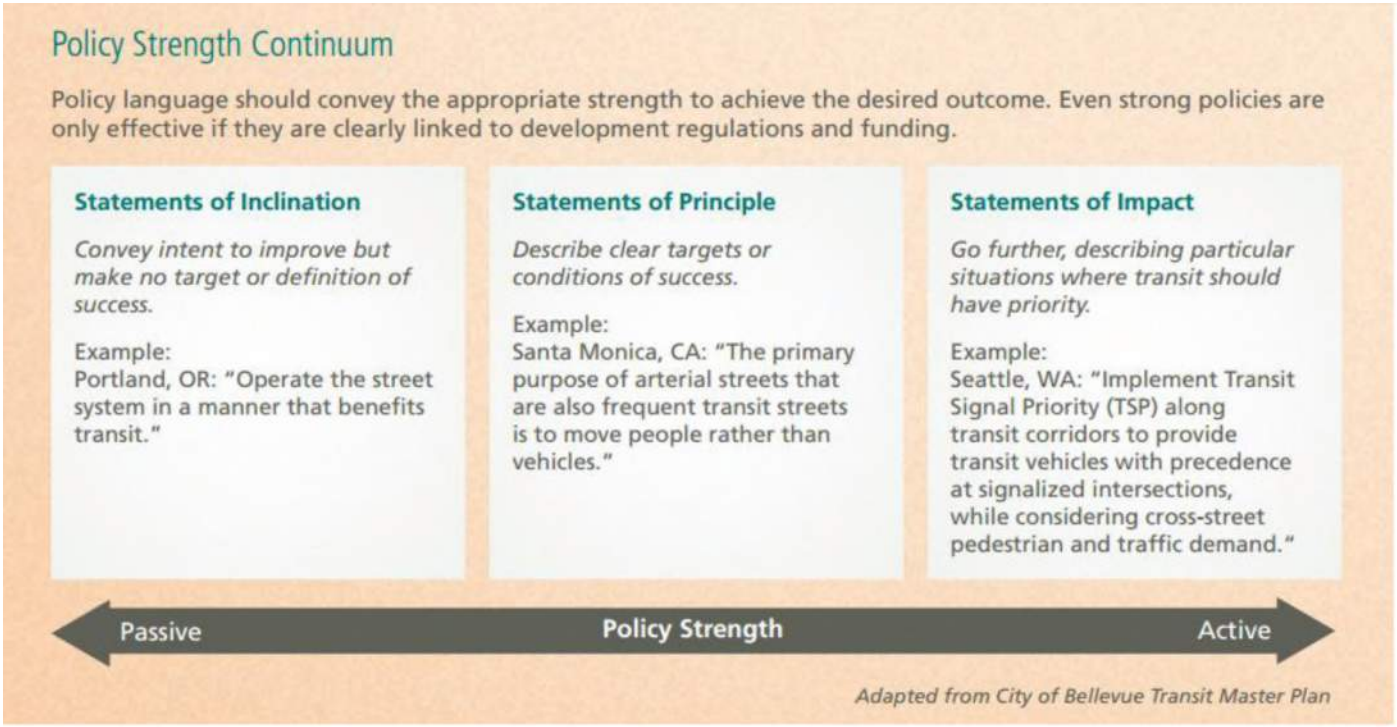
When reviewing your housing element, consider strengthening and adjusting policies by changing the words based on alignment with state law and alignment with your community's vision.

Regardless of the degree of specificity, clearly and accurately describe the intended outcome of goals and policies. Many older comprehensive plans suffer from overly vague policy language that offers minimal guidance to future decision making. The more specific your policies, the greater likelihood to produce results

[112] Some of the content in this section is adapted from Washington's Department of Community Development's 1993 Housing Element Guide. (https://www.ezview.wa.gov/Portals/_1976/Documents/Guidance/Housing%20Your%20Community%20-%20A%20Housing%20Element%20Guide-1993-Commerce.pdf)

that meet the desired intent. Exhibit 28 below, adapted from the City of Bellevue Transit Master Plan and illustrated in PSRC's 2014 Housing Element Guidance, provides guidance on crafting strong, active policies.

### Exhibit 28. Policy strength continuum




Source: PSRC, 2014

Housing goals and policies should be written to allow the evaluation of progress toward achieving the housing element's goals and policies.[113] Clear language will help the jurisdiction to review whether policies have been implemented. See Chapter 9. Implementing and monitoring your housing element.

## Requirements and guidelines for housing goals and policies

The GMA provides direction on what to include in the housing element. The housing element goal is to plan for and accommodate housing affordable to all economic segments of the population of this state, promote a variety of residential densities and housing types and encourage preservation of existing housing stock.

Countywide planning policies should be consistent with and reflect this statewide goal. The GMA countywide planning requirement is that these policies "consider the need for affordable housing, such as housing for all economic segments of the population and parameters for its distribution."[114] Ensure local policies align with this cascading policy hierarchy while also reflecting local needs and goals.

The GMA requirements for the housing element must include a statement of goals, policies, objectives and mandatory provisions for the preservation, improvement and development of housing, including single-family

[113] WAC 365-196-410(2)(a)(iv)
[114] RCW 36.70A.210(3)(e)

residences and moderate density housing. Given that direction, housing goals and policies should address the following:

- Working towards housing that is affordable to all economic segments of the population, with special consideration for low, very low, extremely low, and moderate-income households, recognizing that the market will not provide this without policy direction.
- Zoning for a variety of housing types and densities to allow the development of a variety of housing.
- Within urban growth areas, policies specifically for moderate density housing options including, but not limited to, duplexes, triplexes, and townhomes.
- Ensuring the vitality and character of established residential neighborhoods, recognizing that neighborhoods will change over time.
- Preserving and improving existing housing, especially affordable housing.
- Considering other local goals for housing to address local needs.

In addition to the above guidelines for housing element goals, jurisdictions should consider the following guidelines for housing element goals and policies from WAC 365-196-410 when updating their housing element:

- Goals and policies should guide the creation and adoption of development regulations and may also guide the exercise of discretion in the permitting process.
- Housing goals and policies of counties and cities should align with countywide planning policies and, where applicable, multicounty planning policies.
- Housing goals and policies should address at least the following: affordable housing and provision of a variety of housing types along with a variety of densities.
- Housing goals and policies should allow for the evaluation of progress toward achieving the housing element's goals and policies.

## Recent updates to housing laws

Some things are not policy choices and are required by law. Local jurisdictions should review their policies on a regular basis to ensure they do not conflict with any housing laws. Below are some recent updates, but you should also review recent laws noted in the periodic update checklists from the Growth Management Services (GMS) periodic update webpage. Also see Appendix E: Housing law and case law. When considering policies on these topics, you may want to provide information about how your jurisdiction would apply these laws.

- **Middle housing:** Cities over 25,000 and those cities contiguous with Everett, Seattle, Spokane and Tacoma must allow middle housing in designated areas. See the GMS middle housing web page. (HB 1110, 2023)
- **Two ADUs in UGAs:** Fully planning cities and counties:
  - must allow two ADUs per lot within urban growth areas,
  - may not require the owner to occupy the property,
  - may not prohibit sale as independent units,
  - must allow an ADU of at least 1,000 square feet,
  - must set consistent parking based on distance from transit and lot size, and
  - may not charge more than 50% of the impact fees charged for the principal unit.

  See the ADU Checklist in Appendix B: Adequate provisions checklists for a complete list of requirements and Commerce's ADU guidance (2023) for more information. (HB 1337, 2023)

- **Streamlining housing development:** Local governments must streamline local design review processes, requiring "clear and objective" standards that do not reduce development capacity otherwise allowed. Any design review process must be conducted concurrently, or otherwise logically integrated, with the consolidated review and decision process for project permits set forth in RCW 36.70B.120(3). No design review process may include more than one public meeting. (HB 1293, 2023)
- **Impact fees for housing:** Local governments must publish a schedule of impact fees that reflect the proportionate impact of new housing units. This includes multifamily and condominium units, based on square footage, number of bedrooms or trips generated, to produce a proportionally lower impact fee for smaller housing units. (SB 5258, 2023)
- **Unit lot subdivisions:** All cities and towns must adopt procedures for unit lot subdivisions to allow division of a parent lot into separately owned unit lots, or owned in common by the owners of the lots. (SB 5258, 2023)
- **Adding housing to existing multifamily buildings:** Local governments must loosen restrictions on adding housing within existing multifamily buildings by exempting the added units from density limits, parking and other regulatory requirements. (HB 1042, 2023)
- **Local Areas of More Intense Rural Development (LAMIRDs):** Any development or redevelopment of building size, scale, use or intensity may be permitted within a LAMIRD, with a few retail exceptions, subject to all existing providers of public facilities and services having confirmed that the existing service capacity is sufficient to accommodate the new development or redevelopment. Changes in use are allowed if the new use is consistent with the local character. See RCW 36.70A.070(5)(d).
- **Affordable housing on religious property:** If asked, communities must provide a density bonus for affordable housing located on property owned by a religious organization. See RCW 36.70A.545.
- **New definitions** for affordable housing, low-, very low- and extremely low-income households at RCW 36.70A.030.
- **Limits on parking requirements** for low-income, senior, disabled and market-rate housing units located near high-quality transit service at RCW 36.70A.620.
- **Tiny homes and recreational vehicles:** Cities and towns may regulate tiny homes and recreational vehicles in manufactured home parks, and may regulate the creation of tiny home communities according to RCW 35.21.686.
- **Surplus land for affordable housing:** local governments can sell or give land for a public benefit, defined as affordable housing in RCW 39.33.015.
- **No impact fees for emergency housing:** RCW 82.02.090 provides an exemption from impact fees for emergency housing.

Hearings board and court decisions also have an impact on your local housing policies. Stay current on recent decisions. Refer to Appendix E: Housing law and case law for a list of important decisions.

## Update existing housing goals and policies

Some comprehensive plan updates require only modest adjustments to the housing goals and policies, whereas other situations may call for a complete update. The nature of the update depends on a variety of factors:

- **Age and quality of the existing housing element.** Outdated or hard to read plans may warrant a complete update. These factors, along with changing housing needs and evolving community objectives, made it an easy decision for the City of Anacortes (see Exhibit 29 below) to start fresh in their most recent update.
- **Changing physical context, including growth**. Rapidly growing outer suburb communities are a good example of a type of community that may need a complete update as their housing inventory and population change. Land-locked established suburbs with slower growth or population change, on the other

hand, may only require some strategic adjustments to align with changing state laws or regional policies, as well as evolving local housing needs and community priorities.

- **Alignment with GMA, CPPs and MPPs**. Review the future land use map, land use designations, and goals and policies to ensure they are consistent with changes to state law, or applicable county and multi-county planning policies. See "Countywide planning policies" in Commerce's Establishing Housing Targets for Your Community (Book 1) for details, as well as the previous section on "Recent updates to housing laws." You may want to simplify the number of land use designations in the comprehensive plan to reduce the need to amend the comprehensive plan when a change in zoning is needed. Fewer zones are also helpful.
- **Changing demographics and housing needs**. As referenced in Chapter 2, the HNA identifies the housing needs and gaps beyond the existing housing element. Looking at the results of the land capacity analysis will also point to specific housing need gaps. It is important to integrate goals and policies to address evolving gaps, particularly lower income housing needs and special needs housing (e.g., senior housing, farmworkers, homelessness, and adults with disabilities), as discussed in Chapter 5.
- **Addressing racially disparate impacts, exclusion, displacement and displacement risk.** As of 2021, housing elements need to include policies to address and begin to undo racially disparate impacts, displacement, exclusion and displacement risk. See Steps 3 and 4 in Guidance to Address Racially Disparate Impacts (Book 3).
- **Changing community objectives**. The public engagement process is likely to lead to adjustments to goals and priorities. Examples include a greater emphasis in missing middle housing types, housing affordability, housing design and compatibility, and the location and type of growth.

In some cases, housing goals may still be valid, but new policies may be needed to address identified housing needs and priorities. For example, you may need policy support to authorize the community to adopt tax incentive programs, inclusionary zoning or other programs. WAC 365-196-410 emphasizes that goals and policies serve as a guide to the creation and adoption of development regulations and may also guide decision-making in the permitting process. See RCW 36.70A.120 and WAC 365-196-800 for requirements and guidance on consistency between the plan, regulations and capital budget.

## Exhibit 29. Example: housing affordability policies in Anacortes' Comprehensive Plan

The City of Anacortes's recently updated its comprehensive plan based on the age of the previous plan, the evolving housing context and changing community objectives. The plan included the following affordable housing goal and policies.

While most of the policies are advisory, they provide enough detail to guide future decision making. The column of strategies on the right provides details that do not fit in the policy format. These policies later proved useful in the land use code update and other affordable housing actions.

**Goal H-3. Housing Affordability. Provide for a range of housing opportunities to address the needs of all economic segments of the community.**

**Policy H-3.1.** Encourage preservation, maintenance, and improvements to existing affordable housing.

**Policy H-3.2.** Develop meaningful, measurable goals and strategies that promote the development of affordable workforce housing to meet local needs and monitor progress toward meeting those goals.

**Policy H-3.3.** Support non-profit agencies and public/private partnerships to preserve or develop additional housing for very low, low and moderate income households.

**Policy H-3.4.** Support both rental and ownership forms of affordable housing in a variety of types and sizes.

**Policy H-3.5.** Locate affordable housing throughout the city and especially in areas with good access to transit, employment, education, and shopping.

**Policy H-3.6.** Consider a housing levy to provide ongoing funding for affordable housing.

**Policy H-3.7.** Consider developing an inclusionary zoning program as a means of increasing the City's affordable housing supply.

**Policy H-3.8.** Require that affordable housing achieved through public incentives or assistance remains affordable for the longest possible term.

**Policy H-3.9.** Evaluate land owned by the City and other public entities for use for affordable housing utilizing a community land trust,-or similar, -type model.

***Possible Workforce & Affordable Housing Strategies:***

***Incentive zoning**. Development Incentives such as increased height or floor area ratio, could be tied to the provision of affordable housing or payment of a fee-in-lieu to an affordable housing fund.*

***Inclusionary zoning.** Requires that a given share of new construction is set aside to be affordable to low to moderate income households.*

***Multi-family Tax Exemption (MFTE) Program.** Washington state law authorizes this program, which offers a limited 12-year tax exemption from ad valorem property taxation if 20% of the housing is affordable.*

***Fee reduction or waivers.** Costs associated with the development process, such as impact fees and building permit fees, can be reduced or eliminated to encourage selected types of development.*

Source: City of Anacortes, 2016

## What policy changes might you need in other comprehensive plan elements?

Changes to housing element policies may make it necessary to change policy in other related elements of the comprehensive plan, and vice versa.

The community's land use element sets the future land use designations, identifies growth targets and is a key element to consider in tandem with the housing element. Housing growth is also supported by, and should be consistent with, capital facilities, utilities and transportation elements. The housing needs identified by an HNA impact and may require changes to other elements in the comprehensive plan. You may need to amend policies in other elements that address land use types and patterns to ensure consistency with the updated housing element and the GMA. Common scenarios might include:

- **Higher density land use designations and corresponding transportation and/or capital facilities investments**: Where the HNA and housing policy evaluation show greater housing affordability is required, you may need to reconsider the land use element to add higher density designations, particularly in places of opportunity. This higher density designation change may also require improvements to transportation systems, water, sewer or stormwater infrastructure.

- **Smaller dwelling units and opportunity for walkable districts with amenities:** Compact development with greater numbers of smaller housing units could increase demand for services and amenities. In many areas, you may need amenities and an improved design context to attract new housing investments. Such amenities could include strategic streetscape improvements and sidewalks along with updated standards to accommodate more intensive development patterns. More people means demand for more services, such as coffee shops, restaurants, grocery stores and daycares, and therefore the potential need to adjust zoning for neighborhood centers.

- **More public open space and connectivity:** As private open space gets smaller with compact development, access to public open space such as parks, trails or complete sidewalks becomes more important to support housing development. Amendments to the parks and recreation plan and transportation improvement plan could focus on providing more frequent park or amenity spaces, or high quality but potentially smaller amenities in proximity to higher intensity neighborhoods. Such changes could support multiple goals and policies across several elements including reducing sprawl, reducing greenhouse gas emissions, increasing walkability and supporting active living.

- **Balancing jobs with housing:** Some communities may wish to seek a greater balance of jobs and housing for more complete neighborhoods where people can live and work in the same area. This proximity improves work-life balance, reduces greenhouse gas emissions and improves overall quality of life. This may require stronger policies to support new businesses and appropriately zoned land. If the economic development strategy will attract more employers and new jobs, it should also consider housing for those new workers and their prospective incomes.

See Exhibit 30 illustrating how the housing policy framework is integrated in multiple elements of a comprehensive plan, a consideration when setting up a policy review.

## Exhibit 30. Example: Jefferson County housing policy framework integrated in multiple comprehensive plan elements




Note: *In 2020, the state of Washington's capital budget included funding for design and engineering of the Port Hadlock sewer project.
Source: Jefferson County, 2018

# Additional housing policy issues

Beyond those factors noted above, below are additional considerations in updating your housing goals and policies:

- **Address special needs housing**. Every community contains its own mix of special needs housing issues (e.g., senior housing, permanent supportive housing, homelessness, and farmworkers). With aging populations and increasing economic pressures, addressing these needs requires increasingly proactive efforts. Policies may include barrier-free design to allow people of various abilities to use the housing stock. See Exhibit 31 for Bellingham's special needs housing goal and policies.

- **Address inequality and equity**. Historic and contemporary housing and land use practices have contributed to patterns of inequality in many communities, as identified in Appendix A: Zoning and Race in Commerce's Guidance for Addressing Racially Disparate Impacts (Book 3). Policies that help expand the supply and diversity of housing, preserve existing affordable housing and protect existing communities and households are the primary ways that communities can address existing inequalities. Policies that promote diverse housing options in areas with access to transportation, parks, schools and amenities are also particularly important. Tacoma's Goal H-2 from One Tacoma Housing Element in Exhibit 32 illustrates

policies focusing on equity issues. See Step 3 and 4 of Commerce's Guidance for Addressing Racially Disparate Impacts for more policy guidance on promoting equity in housing policy.

- **Address displacement.** For the many Washington communities facing rapidly increasing rental and for-sale housing prices, displacement is a critical issue. Step 5 of Commerce's Guidance for Addressing Racially Disparate Impacts examines a great variety of strategies to minimize and mitigate displacement. Policies H-2.5 and H-2.6 illustrated in Tacoma's housing element in Exhibit 32 address displacement.

- **Monitor housing supply and affordability.** Policies that monitor progress towards achieving goals and growth targets are important to realizing your community's vision. See Chapter 9. Implementing and monitoring your housing element for more details on monitoring.

- **Address housing design and compatibility**. As many communities have limited quantities of vacant land and upzone existing neighborhoods to accommodate growth and housing that may be more affordable, policies that emphasize compatible design may become more important. Such policies could provide guidance on the types of lot and building design provisions to address in implementing zoning codes and design standards or guidelines.[115] While compatibility is important, design policies can add complexity and expense to housing development. Your community may wish to balance these objectives.

- **Plan for housing away from natural hazards.** Hazards could include wild fire, floods or steep slopes.

**EXAMPLE POLICIES IN APPENDIX C**

- Preservation *(Maintenance and Code Enforcement)*
- Variety of Housing Types *(ADUs, Tiny Homes and Manufactured Housing, Infill Development and Density Near Places of Opportunity)*
- Home Ownership
- Accommodate Growth
- Housing Location and Transportation and Land Use *(Location of Affordable Housing, Jobs/Housing Balance)*
- Infrastructure *(College Housing, Rural and Farmworker Housing)*
- Affordable or Subsidized Housing *(Incentives or Requirements, Funding or Financing, Prevent Barriers)*
- Vulnerable Populations and Homelessness *(Special Needs Housing, Homeless Focus, Aging Adults Focus, Surplus Land and Non-Profit Housing)*
- Equity, Displacement and Integration
- Regional Coordination and Fair Share
- Design and Development Standards *(Sustainable Housing, Historic Preservation)*
- Tracking and Monitoring

- **Encourage sustainable housing models.** Consider solar access, passive solar design, energy efficiency and net zero buildings.

Appendix C: Housing element policy examples includes additional housing policy examples from jurisdictions in Washington. The National American Planning Association (APA) Housing Policy Guide (2019) also includes policies for local governments to consider.[116]

---

[115] When developing housing policies regarding design, keep the following new state laws in mind. (1) Design regulations must be "clear and objective" and not reduce development capacity otherwise allowed (HB 1293, 2023). (2) For jurisdictions who are required to implement middle housing because of HB 1110 (2023), design standards must also not be more restrictive than those required for detached single-family residences.

[116] https://www.planning.org/publications/document/9178529/.

## Exhibit 31. Example: Bellingham's 2016 Comprehensive Plan special needs housing policies

**Special housing needs and homelessness *(excerpt from Bellingham's Comprehensive Plan 2016)***

Special needs citizens include people who require some assistance in their day-to-day living such as the mentally ill, people with developmental or physical disabilities, victims of domestic violence, at-risk youth, veterans and the elderly. Housing for special needs citizens may or may not incorporate supportive services, and may be permanent or transitional. Examples include adult family homes, assisted living facilities and group homes for people with developmental disabilities.

Due to rising housing costs and general unavailability of affordable housing for low-income households, homelessness is recognized as the most basic and extreme housing problem. According to the 2015 point-in-time count, there are least 651 homeless persons (a person may be part of a family household or an unaccompanied individual) and 449 homeless households (a household may include one or more persons) in Whatcom County. Twenty-six percent of all homeless households are considered chronically homeless. According to the 2015 Annual Report by the Whatcom County Coalition to End Homelessness, point-in-time counts generally underestimate the number of people who are homeless.

**GOAL H-4:** Support housing options for special needs populations.

***Policy H-46:*** Work with agencies, private developers and nonprofit organizations to locate housing to serve Bellingham's special needs populations, particularly those with challenges related to age, health or disability.

***Policy H-47:*** Allow housing opportunities for special needs populations in appropriate locations throughout the community.

***Policy H-48:*** Encourage and consider incentives for the dedication of a portion of housing in new projects to special needs housing.

***Policy H-49:*** Support implementation of the Whatcom County Plan to End Homelessness.

***Policy H-50:*** Continue to encourage and support the development of emergency, transitional and permanent supportive housing with appropriate on-site services for people with special needs and the homeless throughout the City and county. Moving people into permanent housing as quickly as possible should be a priority.

***Policy H-51:*** Maintain an inventory and expand the city's supply of interim housing for target populations.

***Policy H-52:*** Foster and support partnerships that have proven to be successful in reducing homelessness, preventing homelessness and assisting the chronically homeless with needed care.

***Policy H-53:*** Support a range of housing types for retirees and seniors, including townhomes, condominiums and assisted living and independent living communities near daily needs and transit.

***Policy H-54***: Support ways for older adults and people with disabilities to remain in their homes and the community as their housing needs change by encouraging universal design and home retrofits for lifetime use.

Source: City of Bellingham, Bellingham Comprehensive Plan 2016, updated 2019

## Exhibit 32. Example: Tacoma Comprehensive Plan's anti-displacement policies

**GOAL H–2** **Ensure equitable access to housing, making a special effort to remove disparities in housing access for people of color, low-income households, diverse household types, older adults, and households that include people with disabilities.**

***Policy H–2.1*** Foster inclusive communities, overcome disparities in access to community assets, and enhance housing choice for people in protected classes throughout the city by coordinating plans and investments with fair housing policies.

***Policy H–2.2*** Support barrier-free access for all housing consistent with the Americans for Disabilities Act (ADA). Consider additional actions to increase access such as implementation of visitability and universal design features.

***Policy H–2.3*** Coordinate plans and investments with programs that prevent avoidable, involuntary evictions and foreclosures.

***Policy H–2.4*** Evaluate plans and investments and other legislative land use decisions to identify potential disparate impacts on housing choice and access for protected classes.

***Policy H–2.5*** Evaluate plans and investments for the potential to cause displacement in areas with concentrations of communities of color, low- and moderate-income households, and renters.

***Policy H–2.6*** When plans and investments are anticipated to create neighborhood change, pursue corrective actions to address involuntary displacement of under-served and under-represented people. Use public investments, incentives, and programs, and coordinate with nonprofit housing organizations, to mitigate the impacts of market pressures that cause involuntary displacement.

***Policy H–2.7*** Encourage a range of housing options and supportive environments to enable older adults to remain in their communities as their needs change.

***Policy H–2.8*** Help people stay in their homes through expanded tenant's protections, providing resources for households experiencing a crisis, increasing community organizing capacity, and other means.

Source: City of Tacoma, https://www.cityoftacoma.org/UserFiles/Servers/Server_6/File/cms/Planning/OneTacomaPlan/1-5%20Housing.pdf

## Evaluating your goals and policies

In summary, as you review existing goals and policies for a potential update, consider the following:

- Are all the goals and policies consistent with the state laws and GMA requirements?
- Are all the goals and policies consistent with countywide planning policies and multi-county planning policies (if applicable)?
- Do the goals and policies reflect the needs identified in the HNA and the jurisdiction's share of countywide allocated housing needs?
- Are some policies no longer relevant, or do some need updating due to changing community needs?
- Are there policies to address all income levels of housing need, including emergency housing and permanent supportive housing?
- Are there policies that address equity in housing and affordable housing in proximity to opportunity, specifically as it relates to racially disparate impacts, exclusion, displacement and displacement risk?
- Are any of the policies inconsistent with each other or other parts of the plan?
- Can you make policies stronger by increasing the strength of the words?
- Do policies clearly describe their implementation in your development regulations, permitting processes, development fee structures and other programs?
- How will you measure success? Identify specific goals or policies to measure, such as the number of new accessory dwelling units or the number of new units permitted at varying densities.

# Chapter 7. Identifying strategies to implement your housing policies -

To effectively implement goals and policies, select realistic strategies to help you move toward your goals. Housing strategies are individual actions that jurisdictions take to encourage and facilitate the kinds of housing production identified in policy to achieve housing element goals. Strategies are strongest when included in the policies themselves. Alternatively, they can be listed in comments associated with policies or selected later through local implementation.

Commerce's 2020 Guidance for Developing a Housing Action Plan[117] ("HAP Guidance")[118] provides detailed recommendations to identify and select strategies with the greatest potential to address housing needs given your community's unique characteristics and market conditions. It also describes a wide-range of possible strategies for jurisdictions to use to achieve housing supply, diversity and affordability goals, including case studies and tips for most effective implementation.

In addition to identifying strategies to meet specific housing needs, look at housing strategies to reduce or remove barriers to achieving housing needs. Exhibit 26: Barriers and strategies matrix identifies how the housing strategies in the HAP Guidance, plus a few new strategies, can be used to remove barriers to affordable housing needs in a community.

## Strategies should work together

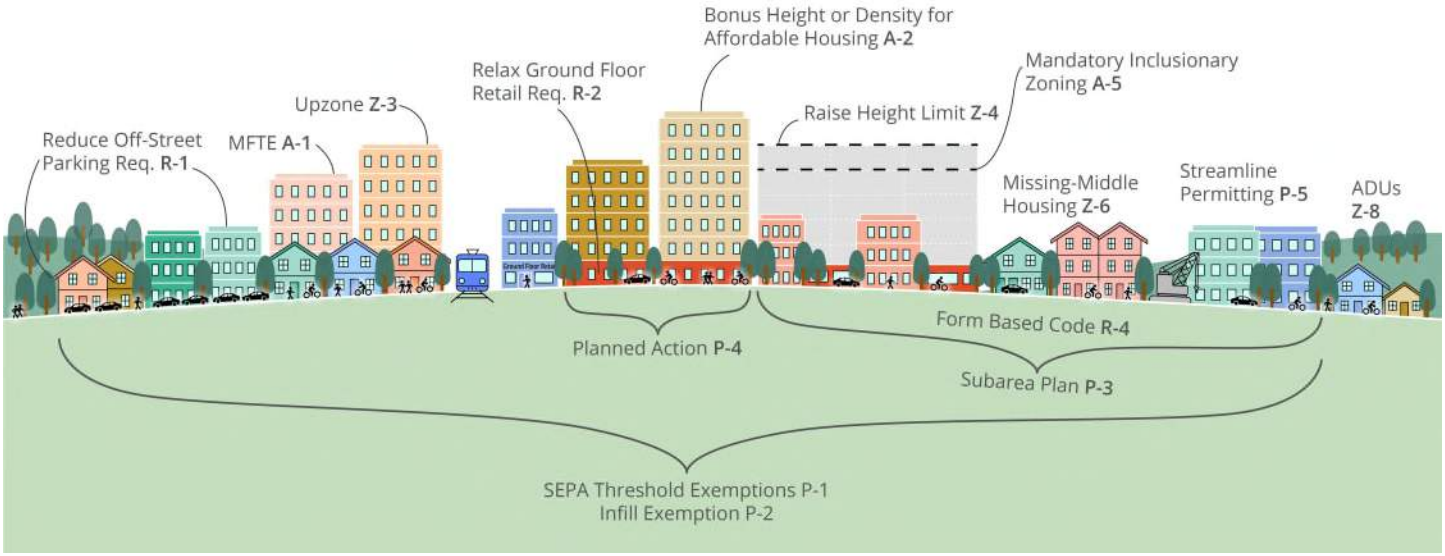
Just as no single housing policy addresses all of a community's needs, no single housing strategy is a complete solution. Housing strategies do not generally work in isolation. Multiple strategies work together to shape opportunities for development and encourage the kinds of housing production in greatest need.

The unique size, demographic, and physical and political context of each community means that the most effective combination of strategies will also be unique. Exhibit 33 shows examples of how multiple housing strategies can encourage the development needed to reach a community's housing goals and remove existing barriers to meeting a community's affordable housing needs. Exhibit 34 shows how a single housing policy may call for more than one strategy for successful implementation.

[117] https://deptofcommerce.box.com/shared/static/pophc16jetggsctctmnbjomm0qa7tpu8.pdf

[118] In 2019 and 2021, funding was provided for cities to develop housing action plans as described in RCW 36.70A.600(2). Cities that received grant funding were required to identify strategies to encourage housing development that meets housing needs, as well as a plan for implementing those strategies. This chapter adapts and summarizes key material from the HAP Guidance.

## Exhibit 33. Example: A mix of interrelated housing strategies




Note: The letters and numbers next to each strategy correspond to Commerce's Guidance for Developing a Housing Action Plan (2020)
Source: MAKERS, 2020

## Exhibit 34. Example: Linking housing policies to implementation strategies

| **Housing policy: Promote more opportunities for home ownership through single-family detached housing, middle housing, fee-simple cottages and townhouses, accessory dwelling units, and condominium apartments.** |
|---|
| Strategy 1. Reduce minimum lot sizes in residential zones. |
| Strategy 2. Allow for additional housing types in residential zones, including fee-simple cottages, middle housing and townhouses. |
| Strategy 3: Add unit lot subdivisions to the subdivision ordinance to allow separate sale of ADUs and middle housing. |

## Types of housing strategies

The HAP Guidance includes six categories of housing strategies, as described below. A full list of these strategies is in Exhibit 35 below. See the HAP Guidance report for detailed descriptions of individual strategies, including tips for prioritization and effective implementation.

1. **Revising zoning standards**: Strategies for regulating building heights, density levels and permitted uses.
2. **Additional regulatory strategies**: These include adjusting other regulatory standards such as parking requirements, setbacks and design standards that may affect the feasibility of projects.
3. **Process improvements:** Strategies to provide for a smoother, faster or more predictable permitting process for developers seeking to build housing that is consistent with jurisdictional goals. Many developers maintain that providing for predictability is the most important thing jurisdictions can do to encourage housing production. Therefore, jurisdictions should consider the value of discretionary processes such as design review and determine whether there are other ways to achieve similar goals.
4. **Housing incentives**: Strategies to encourage and support multifamily and affordable housing development, particularly income-restricted affordable housing, such as fee waivers, multifamily tax exemptions or inclusionary zoning. Housing incentives are important for encouraging production of lower income housing units that the market would not provide on its own.
5. **Funding options for affordable housing development**: These are options to directly fund or subsidize affordable housing production, including grants, loans and new revenue generation.
6. **Other strategies**: Such as strategic infrastructure investments or programs to support homeowners with ADU financing, design, permitting and/or construction.

Often strategies are most successful when implemented with the support of partners. Examples might include engaging a housing authority or not-for-profit developer to identify specific changes to regulations or incentives that would allow more affordable housing types to be developed.

## Identifying strategies for implementing housing policies

Several common themes and needs are identified in housing policies across the state, including the need for:

- Increasing housing supply
- Housing diversity
- Affordable homeownership
- Middle-income rental housing
- Senior housing
- Very low-income housing

Exhibit 35 provides a table to help identify housing strategies that will help to address these common themes and needs. Use this table to identify the kinds of housing strategies most effective for implementation based on your community's needs.

## Exhibit 35. Housing strategies for implementing housing policies

| **Matrix Legend:**<br>★<br>Potential high impact<br>☆<br>Potential moderate impact<br><br>Strategy name and number from HAP Guidance | Increase housing supply | Distinct Housing Needs | | | | |
|---|---|---|---|---|---|---|
| | | Housing diversity | Affordable homeownership | Middle-income rental housing | Senior housing | Very low income housing |
| **Revised Zoning Standards** | | | | | | |
| Reduce Minimum Lot Sizes (Z-1) | ☆ | ☆ | ★ | ☆ | | |
| Require a Minimum Density (Z-2) | ☆ | | ☆ | | | |
| Upzone (Z-3) | ★ | ☆ | ☆ | ☆ | | |
| Increase Building Height (Z-4) | ☆ | | | ☆ | | |
| Integrate or Adjust Floor Area Ratio Standards (Z-5) | ☆ | ☆ | | ☆ | | |
| Increase Allowed Housing Types in Existing Zones (Z-6) (cottages; 2, 3, 4-plexes; townhouses; micro-housing) | ☆ | ★ | ★ | ★ | ★ | |
| Increase or Remove Density Limits (Z-7) | ★ | ☆ | ☆ | ★ | | |
| Revise ADU Standards (Z-8) | ☆ | ☆ | ☆ | ★ | ★ | |
| Offer Density and/or Height Incentives for Desired Unit Types (Z-9) | ☆ | | ☆ | ★ | ☆ | ☆ |
| **Additional Regulatory Strategies** | | | | | | |
| Reduce Off-Street Parking Requirements (R-1) | ☆ | ☆ | | ★ | ★ | |
| Relax Ground Floor Retail Requirements (R-2) | ☆ | | | ☆ | | |
| Reduce Setbacks, Lot Coverage and/or Impervious Area Standards (R-3) | ☆ | ☆ | ☆ | ☆ | | |
| Adopt Design Standards (R-4) | | ☆ | | | | |
| Use a Form-Based Approach (R-5) | ☆ | | | ☆ | | |
| PUD/PRD and Cluster Subdivisions (R-6) | ☆ | ☆ | | | | |
| Manufactured Home and Tiny House Communities (R-7) | ☆ | ☆ | ☆ | ☆ | ☆ | ★ |
| **Process Improvements** | | | | | | |
| SEPA Threshold Exemptions (P-1) | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ |
| SEPA Infill Exemption (P-2) | ☆ | ☆ | ☆ | ☆ | | |

| **Matrix Legend:**<br>★<br>Potential high impact<br>☆<br>Potential moderate impact<br><br>Strategy name and number from HAP Guidance | Increase housing supply | Distinct Housing Needs | | | | |
|---|---|---|---|---|---|---|
| | | Housing diversity | Affordable homeownership | Middle-income rental housing | Senior housing | Very low income housing |
| Subarea Plan with Non-Project EIS (P-3) | | ☆ | ☆ | ☆ | | |
| Planned Action (P-4) | ☆★ | ☆ | ☆ | ☆ | | |
| Protection from SEPA Appeals on Transportation Impacts (P-5) | ☆ | | ☆ | ☆ | | |
| Permitting Process Streamlining (P-6) | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ |
| Subdivision Process Streamlining (P-7) | ☆ | | ☆ | | | |
| **Affordable Housing Incentives** | | | | | | |
| Multifamily Tax Exemption (A-1) | ★ | | ☆ | ★ | ★ | ☆ |
| Density Bonuses for Affordable Housing (A-2) | ★ | ☆ | ☆ | ☆ | ☆ | ☆ |
| Alternative Development Standards for Affordable Housing (A-3) | | ☆ | ☆ | ☆ | | ☆ |
| Fee Waivers for Affordable Housing (A-4) | | | ★ | ☆ | ☆ | ★ |
| Inclusionary Zoning (A-5) | ☆ | | ☆ | ★ | | ☆ |
| **Funding Options for Affordable Housing** | | | | | | |
| Local Option Taxes, Fees and Levies (F-1) | ☆ | | ☆ | ☆ | ☆ | ☆ |
| Local Housing Trust Fund (F-2) | ☆ | | ☆ | ☆ | ☆ | ☆ |
| "Found Land": Surplus Land and Other Opportunities (F-3) | ☆ | | ☆ | ☆ | ☆ | ★ |
| Partner with Local Housing Providers (F-4) | ☆ | | ☆ | ★ | ★ | ★ |
| **Other Strategies** | | | | | | |
| Strategic Infrastructure Investments (O-1) | ☆ | | ☆ | ☆ | | ☆ |
| Simplify Land Use Designation Maps (O-2) | ☆ | ☆ | ☆ | ☆ | | ☆ |
| Local Programs to Help Build Missing Middle Housing (O-3) | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ |
| Strategic Marketing of Housing Incentives (O-4) | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ |
| Temporary Emergency Housing (O-5) | | | | | | ☆ |

# Chapter 8. Adopting your housing element

A comprehensive plan may only be amended once per year, but must be reviewed, and if needed, updated according to the schedule in RCW 36.70A.130. Planners navigate the periodic review or annual amendment process frequently, and each agency will have its own approach to ensure a transparent and predictable review process. Routine amendments may be straightforward, while other amendments may garner more public interest. Below are some universal tips for managing the adoption process to a successful conclusion.

- **Plan for adoption at the beginning**: Preparing for adoption should begin when establishing the project plan and schedule and public participation plan at the start of the project. Establish a critical path, and work backward from desired legislative action dates with the city council. Allow for some cushion in case more time is needed to respond to public and decision maker comments. Ensure that any administrative appeal periods for environmental review are accounted for as well.
- **Engage decision makers along the way:** Addressing critical housing needs and defining strategic actions can inspire enthusiasm and concern from a range of stakeholders, including elected and appointed officials. Engaging with decision makers early and continuously will create a smoother path for the adoption process.
- **Simplify the process:** Integrating the requirements of environmental review and planning can reduce paperwork and align public comment opportunities, which creates a streamlined schedule and a more accessible process for members of the public. See discussion of SEPA/GMA integration below in the "Adoption process" section below.

**Tips for adoption success**

Inform and empower participants using simple, legible graphics and narrative allowing them to critically assess the housing system.

Go on tours, either real or virtual to provide a more concrete and less threatening image of possible future outcomes.

Test preferred concepts such as with a pro-forma analysis.

Bring in experts to answer questions.

Be clear about what policy options will mean to people.

Provide strong visual examples.

Deal with controversy early, ensure diverse representation on committees, avoid jargon and use the planning process to cultivate advocates.

## Public engagement

When community members and stakeholders help shape a housing element's policies, it reflects their interests and they become its advocates. Public engagement is an important part of gathering and verifying information, highlighting and addressing inequities, and building support for policies and an implementable plan. A well-rounded public engagement approach includes developing a public participation program as one of the first steps, engaging a wide spectrum of the public and stakeholders, particularly people having trouble finding housing that meets their needs. It is important to reflect this public input in the housing element updates so it can be included in the final decision making process.

This section summarizes a more complete description of public engagement recommendations in the Guidance for Developing a Housing Action Plan. As you develop a public participation program, also review Step 1 of the Guidance to Address Racially Disparate Impacts (Book 3), which covers how to identify and engage with those who have been adversely impacted by housing and land use policies.

## Develop a public participation program

RCW 36.70A.140 states: "*Each county and city that is required or chooses to plan under RCW 36.70A.040 shall establish and broadly disseminate to the public a public participation program identifying procedures providing for early and continuous public participation in the development and amendment of comprehensive land use plans and development regulations implementing such plans. The procedures shall provide for broad dissemination of proposals and alternatives, opportunity for written comments, public meetings after effective notice, provision for open discussion, communication programs, information services, and consideration of and response to public comments.*"

Though this statute refers to the whole comprehensive plan, applying this statute is also required when a single element is being revised. Regardless of whether you are updating just your housing element or your entire comprehensive plan, early and continuous public involvement is essential.

Though the public participation plan is created early to set the direction, be ready to revisit it throughout the process and update as needed to fill in emerging gaps. An engagement plan should identify:

- Public engagement goals
    - Audience(s) for engagement, including community members, stakeholders, staff, boards, commissions, council, any advisory committees and other parties involved (e.g., state agencies)Planners should also strive to identify those within the community who have been subject to historical injustices, different racial identities or those most impacted by housing struggles to ensure the housing element addresses racially disparate impacts, exclusion and displacement
- Appropriate engagement activities, such as open houses, surveys, web-interface community meetings and web pages
- Draft engagement schedule with re-evaluation opportunity(ies)
- Media contacts and timelines for communication about the project

A useful tool for considering public engagement plan goals and types of engagement is the International Association for Public Participation's (IAP2) Spectrum of Public Participation; see Exhibit 36. All stages on the spectrum are valuable. Depending on whether you are educating about options ("informing"), extracting information about community preferences ("consulting") or problem-solving together ("collaborating"), you will choose your venues and design your methods and activities for the right level of communication. Regardless of where you are on the spectrum, listening to community members with an open mind is an important skill.

## Exhibit 36. Spectrum of public participation

| | INFORM | CONSULT | INVOLVE | COLLABORATE | EMPOWER |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| GOAL | To provide balanced and objective information in a timely manner. | To obtain feedback on analysis, issues, alternatives and decisions. | To work with the public to make sure that concerns and aspirations are considered and understood. | To partner with the public in each aspect of the decision-making. | To place final decision-making in the hands of the public. |
| PROMISE | "We will keep you informed" | "We will listen to and acknowledge your concerns." | "We will work with you to ensure your concerns and aspirations are directly reflected in the decisions made." | "We will look to you for advice and innovation and incorporate this in decisions as much as possible." | "We will implement what you decide." |

Source: International Association for Public Participation, www.iap2.org

## Identify audiences

Though housing policy affects all members of a community, focusing your engagement efforts helps set a timely, budget-efficient and equitable process. The Stakeholder Prioritization Chart (Exhibit 37) offers a way to narrow your efforts by identifying important stakeholders and defining an approach to their engagement.

Shifting decision making power toward traditionally at-risk groups (the "Prioritize" quadrant) and truly listening to their needs and interests is fundamental to creating socially equitable housing policies. These steps ensure that their needs are met and help the project team to understand potential unintended consequences of housing policies.

At the same time, powerful influencers (the "Collaborate" quadrant) must also be heavily involved to ensure the policies are feasible and implementable. This means higher levels of engagement and true collaboration are important with these two groups. Those in the "Monitor for Change" and "Leverage" quadrants are important for verifying data and building advocates, so informing and consulting are appropriate levels of engagement with these groups.

## Exhibit 37. Stakeholder prioritization chart




Source: MAKERS, 2020, adapted from multiple versions, including Kapwa Consulting's emphasizing a social equity lens and the original "power-interest" matrix (Mendelow, 1991).[119]

## Prioritize at-risk communities

The people most impacted by housing policies — the "at-risk communities" in the stakeholder prioritization chart — often have the most challenges to participating in traditional meetings and outreach methods. For that reason, extra effort should be made to identify populations and stakeholders who could be most affected by housing policies and potential barriers to participation.

[119] Mendelow, A. "'Stakeholder Mapping', Proceedings of the 2nd International Conference on Information Systems." Cambridge, MA 5, no. 2 (1991): 61.

Collaboration with people who have historically been left out can lead to more creative and productive problem solving. Good practices and goals include:

- Identify communities at risk of displacement, who may have been subject to historical injustices (e.g., redlining), different racial identities, and those most impacted by housing struggles
- Build capacity of disadvantaged communities to meaningfully participate and affect decisions — i.e., prioritize engagement with at-risk communities
- Gather input from identified communities to identify root causes of disparate impacts in housing and their input on potential policy solutions
- Identify potential unintended consequences of proposed strategies (e.g., displacement of vulnerable populations and/or affordable community spaces with redevelopment, construction impacts to local businesses, etc.)
- Jointly find housing solutions and strategies to prevent and/or mitigate negative impacts

Ways to engage at-risk communities include:

- **Value participants' time and expertise:** Pay participants for their time and expertise, especially when they come from communities that have been systemically underserved. Compensation can range from stipends (e.g., $50 per meeting) for participating in a stakeholder work group, consultant funding for engaging their community, raffles and gift cards for attending an event, to providing food at events.
- **Avoid engagement fatigue:** Some community leaders and organizations feel they have been asked for their opinion in numerous processes, but often are not seeing how their input has been used or results from their efforts. This is leading to "engagement fatigue." The best way to prevent future engagement fatigue is to show that participants' efforts were fruitful. Throughout the process, show how participants' needs, ideas, preferences and solutions are being incorporated.
- **Make engagement methods accessible:** Consider hiring community liaisons, providing translations, offering childcare, providing food, etc.
- **Focus efforts:** When developing your plan, consider and plan for the various barriers to participation. Not every barrier can be mitigated, and regardless of how welcoming events are, people have competing demands on their time. To prioritize your efforts, consider what will help you meet these basic needs: gather the information needed to understand the full housing picture in your community, build advocates and empower at-risk communities.

## Engage stakeholders

How much you engage people will vary by audience and point in the process, as well as the nature and extent of the housing element update or amendment process. The size and type of community, complexity of housing issues and strategies under consideration will also factor into your engagement plan.

Think strategically about who will be involved, which methods to use and at what times. Consider the most basic engagement needs — to gather information, build plan "authors"/advocates and empower underserved communities. Also consider your more specific desired outcomes to match stakeholders/community members with appropriate engagement activities, timing and level of effort.

The methods listed below are ordered roughly from broadest to most in-depth and focused. More details on each of these can be found in the HAP Guidance, Chapter 2. The engagement plan should include a mix of engagement methods depending on the engagement goals for different audiences and phases of the project.

- Online presence, including project website
- Focus groups and interviews

- Social media
- Online engagement platforms
- Public open house
- Public workshop
- Pop-up at community hotspot
- Piggyback on public events
- Piggyback on pre-existing meeting/community conversations
- Community liaisons

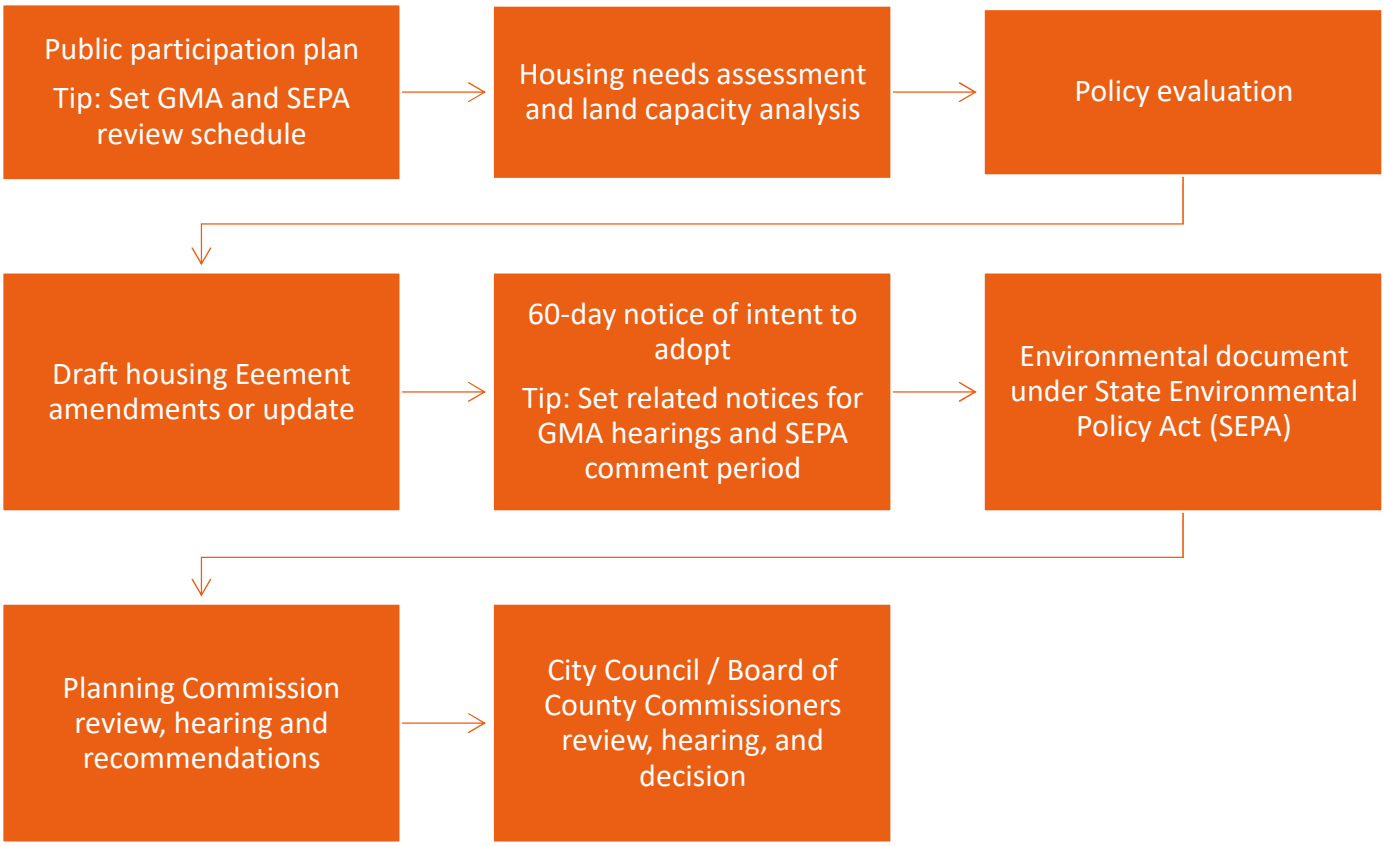
## Adoption process

Opportunities for public comment and engagement with the public and stakeholders, as well as review and recommendations by the planning commission, ultimately culminate in a review and decision by the city council. Generally, there will have been opportunities for public engagement in reviewing the HNA and considering policies. The final draft of the housing element will require at least one public hearing prior to adoption (RCW 36.70A.130(1)(b)). The planning commission typically holds a hearing, and the city council or board of county commissioners may also hold a hearing depending on whether there are substantial changes to planning commission recommendations and the nature of the local government's procedural regulations.

Adoption of a comprehensive plan or single elements must be part of the annual comprehensive plan amendments or the periodic updates, and must be adopted by ordinance. See Exhibit 38 for an example adoption process.

Two examples of adoption ordinances include Anacortes' Ordinance 2982, adopting a complete update to the Comprehensive Plan in 2016, and Island County's 2018 Ordinance C-97-18, updating the housing element after a comprehensive review of housing affordability. The final adopting ordinance may include key findings from the HNA as the rationale for adopting the amendments or update.

## Exhibit 38. Housing element update or amendment: adoption steps flow chart




# SEPA integration with adoption

In tandem with preparing the housing element update or amendments, planners will need to conduct non-project environmental review under the State Environmental Policy Act (SEPA) (RCW 43.21c). SEPA (RCW 43.21c) helps government agencies consider the environment before taking actions. SEPA considers the adoption of plans, policies and programs under any law to be non-project actions,[120] and SEPA applies to these types of actions.

Amendments to the comprehensive plan, including the housing element, are considered a non-project action and require SEPA review. A jurisdiction may have several options for completing the SEPA process:

- **Relying on existing relevant SEPA documents** and adopting, adding an addendum or supplementing them along with threshold determinations as appropriate (WAC 197-11-600).
- **Creating a new SEPA document** and threshold determination addressing the housing element update or amendments as a new non-project proposal. This may mean a determination of non-significance (DNS) and a checklist (WAC 197-11-340). Potentially a determination of significance (DS) and environmental impact statement (EIS) could be prepared if the housing element identified substantial proposed changes in policies and regulations such that it was important to review the proposals early (WAC 197-11-360).

[120] See description of non-project actions at WAC 197-11-060. SEPA also applies to "project" actions like development proposals (WAC 197-11-060(3))

Local governments are encouraged to integrate SEPA and GMA requirements so that the decisions benefit from environmental information and the engagement process is seamless for the public (WAC 197-11-235 et seq.). SEPA/GMA integration could include:

- Preparing studies that inform both GMA and SEPA procedures,
- Identifying early the features of the legislative proposal and potential alternatives for the decision making and environmental review process,
- Considering the likely threshold determination at the beginning,
- Preparing a complete analysis of likely impacts even if using a non-project checklist,[121]
- Determining the associated schedule of document and notice preparation (see Exhibit 39), and
- Early identification of policy or code-based mitigation measures (e.g., compatibility measures for different density housing types, etc.).

**Environmental Review Resources**

- SEPA Handbook (2018 update)
- SEPA Frequently Asked Questions
- WAC 197-11: SEPA Rules
- WAC 197-11-210 thru 235: GMA / SEPA integration

See the tips on SEPA/GMA integration in Exhibit 39, as well as the SEPA Handbook for more information.[122]

## Exhibit 39. SEPA/GMA integration tips

- **Integrated process:** Required notices and public meetings or comment opportunities can be combined to meet SEPA and GMA requirements. For example, if the local government issues a DNS with a 14-day comment period, that could overlap the periodic review or annual amendment hearing(s) so that the public comment opportunities are in alignment and people can comment on both the proposal and the environmental review.

- **Integrated document:** An integrated SEPA/GMA process can also mean an integrated document where the proposed policies and regulations are integrated with the SEPA-required analysis in one document. More commonly, GMA and SEPA documents are issued in separate volumes and at the same time for coordinated review. They could also be integrated in the same document, which may be more complex for future housing element amendments.

[121] See OLYMPIANS FOR SMART DEVELOPMENT & LIVABLE NEIGHBORHOODS, et al., Petitioners, v. CITY OF OLYMPIA, Respondent: Final Decision and Order, Case No. 19-2-0002c, available at: https://www.gmhb.wa.gov/search/case.
[122] SEPA Handbook, 2018: https://ecology.wa.gov/DOE/files/4c/4c9fec2b-5e6f-44b5-bf13-b253e72a4ea1.pdf.

# Chapter 9. Implementing and monitoring your housing element

Adopting an updated housing element is only the first step toward achieving your new housing goals, policies and objectives. Moving from adoption of new or updated goals and policies to seeing new housing production that meets your community's needs can be more effective with an implementation and monitoring plan.

While not required for a GMA housing element, identifying implementation steps and monitoring performance are important ways to help your community work toward housing goals. WAC 365-196-410(2)(f) lists a series of potential implementation steps and suggestions for monitoring. Some communities include an implementation and monitoring plan directly in their housing element or elsewhere in the comprehensive plan. Others treat this step as separate from, and subsequent to, the adoption of the housing element or comprehensive plan. Either approach can be appropriate.

This chapter provides guidance for what is expected to be implemented with a comprehensive plan vs. after, including guidance on the GMA requirement for some counties and cities to develop implementation progress reports five years after the adoption of their periodic comprehensive plan update. This chapter also provides guidance for the development of an implementation plan and monitoring framework to help track progress towards meeting community goals and needs.

## Guidance for implementation planning

The GMA requires counties and cities required or choosing to plan under RCW 36.70A.040 to adopt a comprehensive plan including a housing element that identifies sufficient capacity of land for all housing needs. RCW 36.70A.115 further clarifies that those fully planning jurisdictions shall ensure that, taken collectively, the comprehensive plan and development regulations provide sufficient land capacity to accommodate their allocated housing need. Under RCW 36.70A.130(1)(a), comprehensive plans and development regulations must be compliant with the GMA when they are adopted at the periodic update.

Based on these statutory requirements, both the comprehensive plan and implementing development regulations must be adopted no later than the periodic update deadline to ensure GMA compliance. For example, if a jurisdiction’s comprehensive plan identifies a residential land capacity deficit for middle housing types to serve the projected number of low to moderate-income households, then the adopted implementing development regulations must include changes to the development regulations to allow a sufficient amount of middle housing to overcome that deficit. That additional capacity should be allowed “by right” to ensure that there are minimal hurdles to building the needed capacity.

The GMA also requires fully planning jurisdictions to make adequate provisions for existing and projected needs for all economic segments of the community, including:

- Incorporating consideration for low, very low, extremely low and moderate-income households;
- Documenting programs and actions needed to achieve housing availability including gaps in local funding, barriers such as development regulations and other limitations;
- Consideration of housing locations in relation to employment locations; and
- Consideration of the role of ADUs in meeting housing needs.

Therefore, while GMA-compliant comprehensive plans and implementing development regulations (which must provide for sufficient land capacity) must be adopted by the periodic update deadline, actions taken to “make adequate provisions” for a jurisdiction’s housing needs that do not involve changes to the implementing

development regulations for meeting capacity may be taken after the periodic update deadline. Types of actions falling under this category include, for example, implementing regulation changes to remove barriers that may be contributing to market inactivity, or modifying permitting or fee structures to incentivize certain housing types to meet income needs.

In recognition that these steps may take some time to implement after the comprehensive plan and development regulations are adopted, RCW 36.70A.130(9) requires that certain jurisdictions[123] provide the Department of Commerce with a report detailing the progress they have achieved in implementing their comprehensive plan five years after its adoption. The implementation progress report shall cover:

- The implementation of previously adopted changes to the housing element and any effect those changes have had on housing affordability and availability,
- Permit processing timelines, and
- Progress towards implementing any actions to achieve reductions to meet greenhouse gas and vehicle miles traveled requirements as provided for in any element of the comprehensive plan under RCW 36.70A.070.

If a jurisdiction required to provide an implementation progress report has not implemented any specifically identified regulations, zoning and land use changes, or taken any other legislative or administrative action necessary to implement changes in the most recent periodic update by the deadline to submit the progress report, that jurisdiction must adopt a work plan to implement such actions. Then, according to RCW 36.70A.130(9), they must also complete all work necessary for implementation of those actions within two years of the report's submission.

Given this statutory deadline, a jurisdiction should aim to implement actions required to make adequate provisions for the jurisdiction's housing needs by the due date for the five-year implementation progress report and be prepared to demonstrate progress made towards implementing their housing element in the report. If the jurisdiction has not made additional adequate provisions (i.e., beyond basic zoning changes for capacity per RCW 36.70A.115) to accommodate its housing needs, the report must demonstrate how those actions will be taken in the next two years.

# Develop an implementation plan

An implementation plan identifies specific actions that will be needed to carry out the policies and/or strategies. It also organizes and prioritizes them in the form or a work plan that can guide next steps. When drafting your implementation plan, consider including the below components. Keep in mind that public and stakeholder engagement are essential for developing a successful implementation plan. See Chapter 8. Adopting your housing element for recommendations on stakeholder engagement.

## Implementation planning matrix

An implementation planning matrix is a useful framework for organizing and prioritizing actions needed to implement the housing element. Each housing policy and its associated strategies can require several actions to support effective implementation. A planning matrix is a way to identify, for each action, the responsible party (or parties), resources needed, implementation steps and a target timeline for completion. The same

[123] Larger counties and cities within them with a population over 6,000. These larger counties include King, Pierce, Snohomish, Kitsap, Whatcom, Thurston, Clark, Benton, Franklin and Spokane.

matrix can be used to track progress toward implementation in annual reports or as a live document on your website. Topics to consider in your implementation planning matrix include:

- An action's **priority** is determined by how critical it is for accomplishing the housing goals or objectives.
- The anticipated **timeline** for each action refers to how long it will take to implement that action. For example, categorizing actions as near-term (0-2 years), medium-term (3-5 years) and long-term (6-10 years).
- The matrix should identify **responsible parties** for each action. These can be departments or organizations that are key players in completing this step. Categorize parties as primary and secondary according to their needed level of involvement.
- The **method of accomplishing the action** is helpful to include, such as legislative, administrative or partnership development.
- It is important to assess and plan how much **investment** and the level of effort an action requires, including staff and volunteer hours and financial resources, which can affect the action's timeline. This may be measured as a gradation of effort - minimal, moderate or significant.
- **Comments** such as potential resource needs, challenges, opportunities or other considerations.

Exhibit 40 shows a simple example format for an implementation planning matrix for organizing this information. After identifying these elements for each action, they can be grouped to reveal priorities and responsible parties. You can use this tool to begin allocating resources and starting processes necessary to accomplish the actions you have identified to meet your community's housing needs.

### Exhibit 40. Example format for an implementation planning matrix

Policy H-3: Encourage the development of workforce housing supply in **mixed-use centers.**

*Strategy H-3.1: Create a density bonus to incentivize new workforce housing production by private developers.*

**Action H-3.1.1: Conduct a market study to determine which kinds of incentives would maximize impacts.**

| *Priority* | *Timeline* | *Type* | *Lead Party* | *Who can assist?* | *Investment* |
|---|---|---|---|---|---|
| High | 6 months | Administrative | Community and Economic Development Department | | Staff – 0.5 Full-time employee (FTE) or $75,000 consultant led work |

**Action H-3.1.2: Develop and adopt new density bonus program.**

| *Priority* | *Timeline* | *Type* | *Lead Party* | *Who can assist?* | *Investment* |
|---|---|---|---|---|---|
| High | 1 year | Legislative | City Council | Community and Economic Development Department | Staff – 0.5 FTE |

## Implementation schedule and work plan

A good example of a schedule and implementation work plan is shown in the Bainbridge Island 2017 Comprehensive Plan, which identified 56 action items.[124] In order to provide clarity about what would be necessary to achieve these items, each element of the comprehensive plan includes a work plan. The work plans consist of a matrix describing each action, along with tasks necessary to complete the action, tasks

[124] See https://www.bainbridgewa.gov/162/Comprehensive-Plan.

currently in progress and any completed tasks. The work plan also includes a graphic schedule, showing timing and required staff effort from different departments for each high-priority action. Progress toward implementation is reported annually. Exhibit 41 shows some excerpts from the comprehensive plan and annual work plan priorities report. Beginning in 2019, the city now provides a report on progress to implement the actions identified within the comprehensive plan.

When developing your schedule, think about the following:

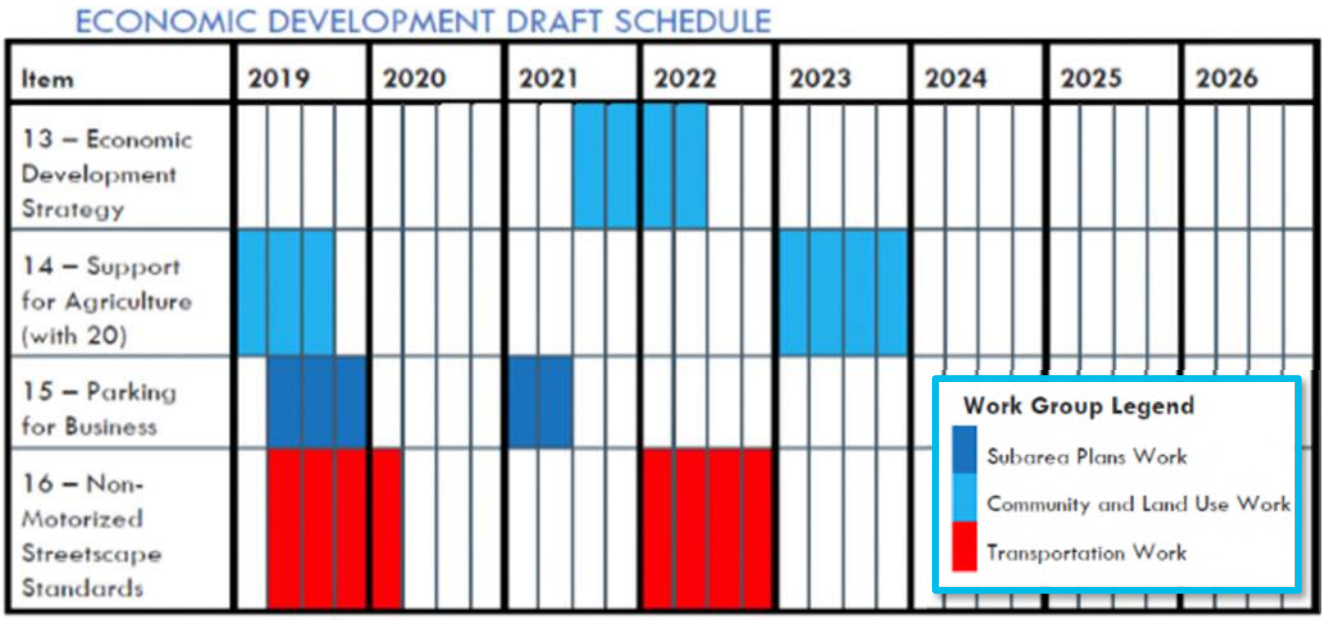
- Whether there are any windows of opportunity or time constraints that might motivate the scheduling of a high-priority action
- Steps, tasks and processes that will be required to implement the action
- Investment needed for each program or action (staff time, budget, etc.)
- Annual resources available (staff time, budget, partner capacity)
- Sequencing of actions with other actions, plan updates or work priorities

Next, start putting actions on the calendar, making sure to avoid overcommitting annual resources available to support implementation. The economic development draft schedule in Exhibit 41 is a simple example.

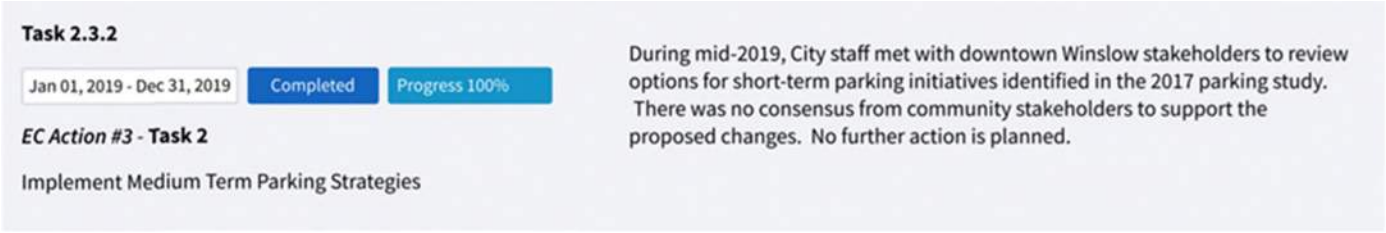
## Exhibit 41. Bainbridge Island 2017 Comprehensive Plan economic development element work plan and 2019 year-end plan priorities

| | Implementing Actions | Tasks to Complete | Tasks in Progress | Completed Tasks |
|---|---|---|---|---|
| 15 | High Priority EC Action #3<br>Assure that adequate parking is available to support businesses. | Begin strategy development<br>Develop code updates | Implement medium term strategies | Winslow parking study |
| 16 | High Priority EC Action #4<br>Identify capital projects and streetscape standards to implement Policy EC 11.1, to improve non-motorized facility links between the ferry terminal, downtown Winslow, and the harbor. | Transportation Improvement Plan Update<br>Update streetscape standards | Capital Improvements Plan (CIP) Update | |

Source: City of Bainbridge Island, Economic Development Element Workplan and Schedule, 2019, p. EC-1




Source: City of Bainbridge Island, Economic Development Element Workplan and Schedule, 2019, p. EC-2




Source: City of Bainbridge Island, 2019 Year End Report Comprehensive Plan Implementation Update, p. 16

Another example of a housing implementation plan is included in Appendix D of Redmond's Housing Action Plan, which includes the recommended actions, the phase of Redmond 2050, implementation timeframe, who is responsible, the amount of city resources needed, considerations and next steps, challenges, regulatory impacts and staff notes.[125]

## Develop a monitoring program

An important step of implementing your housing element is developing a program to monitor outcomes. A monitoring program can be designed to track progress toward achieving housing goals and evaluate the effectiveness of implementing actions.

### Identify performance metrics

For each implementing action, identify performance metrics to track progress or outcomes over time. To identify appropriate metrics, first consider what change the action is designed to make in your housing system. Then consider the best available data source for tracking outcomes associated with that change.

[125] https://www.letsconnectredmond.com/housing.

Exhibit 42 includes a simple example of a performance. It links a housing action to a measurable goal and an appropriate performance metric for which data is already being collected. It also provides a goal to evaluate whether the action is working well enough or whether additional actions are needed.

**WAC 365-196-410(2)(f)(iv):** "The housing element should include provisions to monitor the performance of its housing strategy."

## Exhibit 42. Example framework for performance measurement

| Action | Goal | Performance metric | Performance target |
|---|---|---|---|
| Allow two ADUs in all residential zones | Increase the diversity of housing options available, particularly in historically single-family neighborhoods | ADU permits | Permit 200 new ADUs before 2028 (25 units per year) |
| Allow duplexes in more than 50% of single-family residential zones | Increase the diversity of housing options available in historically single-family neighborhoods | Permits with two or more units on a lot in residential zones | Permit 20 new duplexes or higher density middle housing types before 2028 |

Redmond's Final Housing Action Plan (HAP) includes another example of potential indicators to consider for monitoring housing progress that can be applied to a housing element monitoring plan. A sampling of the general performance metrics and potential indicators in that report are included in Exhibit 43.

## Exhibit 43. Redmond's Final HAP potential indicators for monitoring progress

| General plan performance metrics | Potential indicators |
|---|---|
| **Increase affordable housing units** | Number of properties or units acquired/preserved by City, King County, A Regional Coalition for Housing (King County) (ARCH) or other organizations (report by AMI). Potential Data Sources: Assessor's data, ARCH, City of Redmond Data. |
| | Share of rent-burdened residents. Potential Data Sources: Census Data. |
| | Share of racial and ethnic diversity as compared to King County and region. Potential Data Sources: Census. |
| | Number of new affordable housing units built via MFTE and through the Inclusionary Housing/Zoning policy (report by AMI). Potential Data Sources: ARCH, City of Redmond Data. |
| | Number and description of affordable housing projects and partnership driven projects (describe partners and contributions). Potential Data Sources: King County, ARCH, Community Partners, City of Redmond, Assessor's Data. |
| **Increase both market-rate and affordable housing production** | Number of new market-rate and affordable homes in Redmond. Potential Data Sources: Assessor's Data, Agency Partners, Census Data. |
| **Support TOD and investments in transit corridors** | Number of new market-rate and affordable homes within ½ mile proximity/10- to 15-minute walk to transit stations. Potential Data Sources: Assessor's Data, Agency Partners, Census Data. |

| General plan performance metrics | Potential indicators |
|---|---|
| **Increase housing options and choices** | Number and type of new homes produced and total within the City over time - location, tenure, size, sale price/asking rent, and unit type (ADUs, backyard homes, condos, duplex, triplex, quadplex, townhome, etc.). Potential Data Sources: Assessor's Data, City of Redmond Data, CoStar, Census Data, or the State of Office of Financial Management Data. |
| | Share of homebuyers receiving assistance (e.g., down payment assistance). Potential Data Sources: ARCH, King County, Community Partners. |
| **Increase in home-ownership support (targeting households not considered high-income)** | Amount of funding and number of households supported by home-ownership programs. Potential Data Sources: ARCH, King County, Community Partners. |
| **Increase in education and awareness on housing topics** | Number of factsheets and educational materials released (including languages). Potential Data Sources: City of Redmond, ARCH. |
| | Number of meetings, training/educational workshops, events. Potential Data Sources: City of Redmond, ARCH, Community Partners. |
| | Number of participants, views to city website, requests for information. Potential Data Sources: City of Redmond. |

Source: Redmond's Final Housing Action Plan, 2021

In some cases, it does not make sense to have a unique performance metric and goal for each individual action. For instance, a city may adopt a series of different incentives for affordable housing production that are meant to work together as a package. The strategic objective of the entire package is to increase the number of new income-restricted affordable units built. Therefore, it makes sense to use an individual performance metric (affordable units built) for evaluating the effectiveness of the package.

In this case, it may also make sense to track how often developers use the individual incentives to determine if some are created in a way that makes them difficult to use. Interviews with housing developers following implementation can also be helpful to get feedback on what is working well and where there may still be barriers.

## Integrate your monitoring program with established practices

One challenge many communities face is maintaining a monitoring program after the planning process is complete. This challenge is particularly acute in smaller jurisdictions with limited or no spare capacity for taking on additional tasks. One solution is to select performance metrics and a schedule for monitoring that builds on existing activities that are already being tracked. These could include:

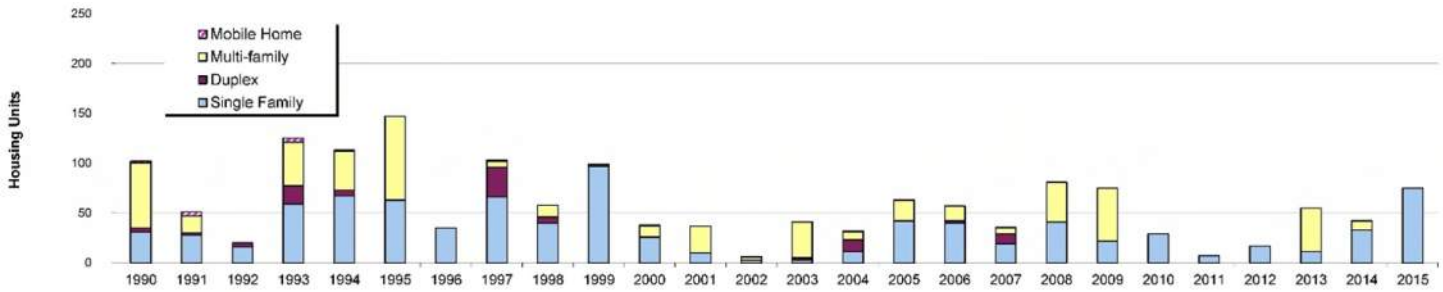
- Comprehensive plan monitoring programs
- Buildable lands reports
- Annual reports or updates to elected officials
- Growth monitoring

- Priority-based budgeting[126]

By building your monitoring program on established practices or efforts within your jurisdiction, you can gain efficiencies, promote coordination and consistency between initiatives, and decrease the chances that your ongoing monitoring program will be deprioritized in years to come.

**Example: Integrating performance measures into a growth monitoring report**
Snohomish County and cities have adopted housing targets for the number of units to go into each community.[127] Snohomish County has also committed to track the provision of affordable housing units in its policy HO 4.B.1 to assess whether an adequate supply of housing affordable to residents of the county with lower incomes and special needs is being provided. Snohomish County also tracks development of residential units in its Growth Monitoring Reports.[128] The example from the City of Snohomish and its UGA shows the numbers of duplex, multifamily and single-family units built year to year (Exhibit 44).

### Exhibit 44. Snohomish UGA (City and Unincorporated UGA) – New housing units permitted by type 1990-2015




Source: Snohomish County Tomorrow, 2016

## Report on outcomes

There are three main ways to track and report on outcomes in your monitoring program. Each serves an important purpose.

**1. Track and report on progress**
Track and report on progress toward implementation of actions identified in your plan. As discussed in the implementation plan section above, this includes identifying whether work on an action has begun, what tasks or portions of the work have been completed, or whether the action is complete. Exhibit 41 (above) includes an example from Bainbridge Island Comprehensive Plan.

**2. Measure progress toward an outcome goal**
Assess whether you are on track to achieve an outcome goal, such as a target number of new affordable units built by a certain year. The city of Tacoma does this in its Results 253 website for performance monitoring across multiple city programs.[129] Exhibit 45 shows an example visualization of cumulative progress over time. The city also includes a discussion about the actions it has taken to achieve the goal.

---

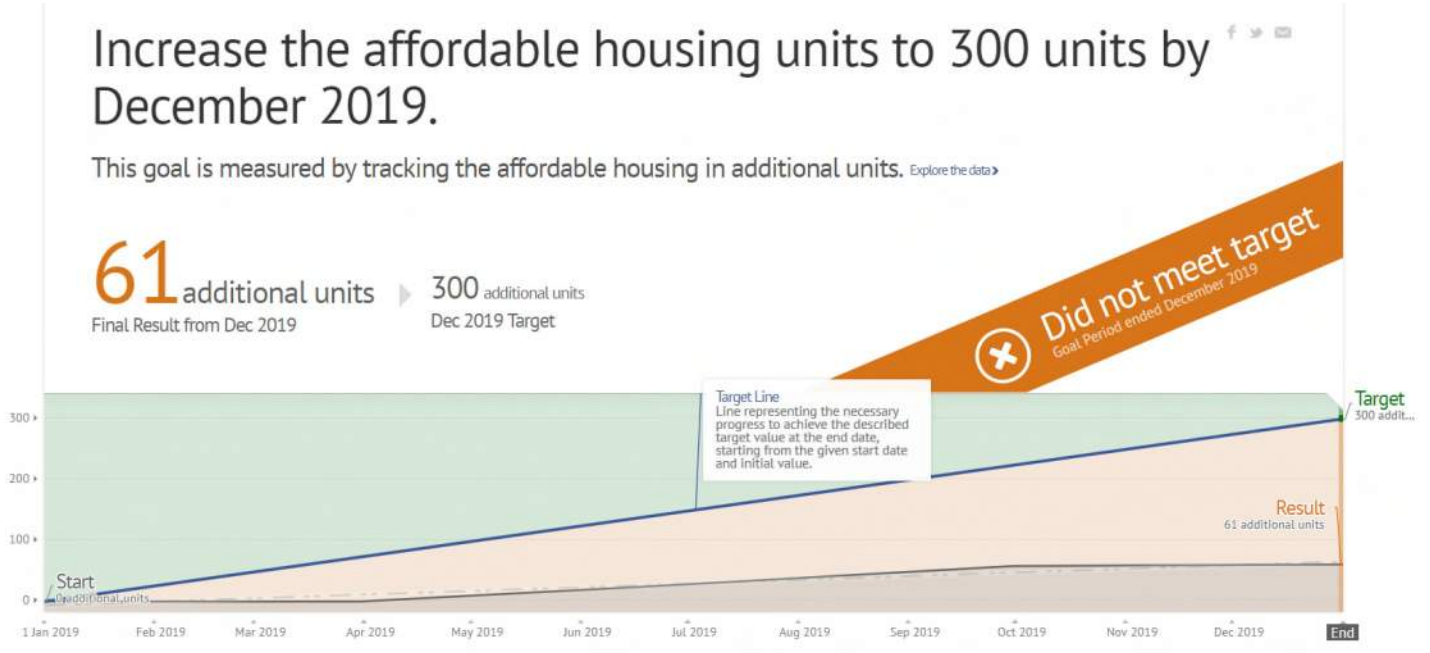
[126] For examples see: Baily, Mike. 2015. Building the Budget around the Community it Serves.
[127] Snohomish County Municipal Code, Appendix D: Growth Targets, https://snohomish.county.codes/CompPlan/GPP-AxD
[128] https://snohomishcountywa.gov/1360/Growth-Monitoring-Reports.
[129] https://data.cityoftacoma.org/.

**3. Monitor outcomes over time**

In addition to measuring progress from implementation toward a target goal, it can be helpful to track and visualize a performance metric over time, including before and after implementation of an action. This can be useful for understanding whether the actions taken had their intended effect or not. An example of this kind of tracking can be seen in the "Draft Reasonable Measures Assessment" conducted in support of the Kitsap County comprehensive plan update in 2015 (Exhibit 46).[130] The visualizations clearly show the peak of units generated in 2005 followed by fluctuation. The dotted black line showing non-single family unit permits as a percentage of all permits provides useful context, since all permit activity reduced during the last economic recession.

This kind of performance monitoring is best for supporting a diagnosis of what may be the cause of outcomes. For instance, there may have been a change in permit staffing levels one year and an inconsistency in the way applications were handled. Alternatively, a peak may be due to a single atypical development that is not expected to be a trend.

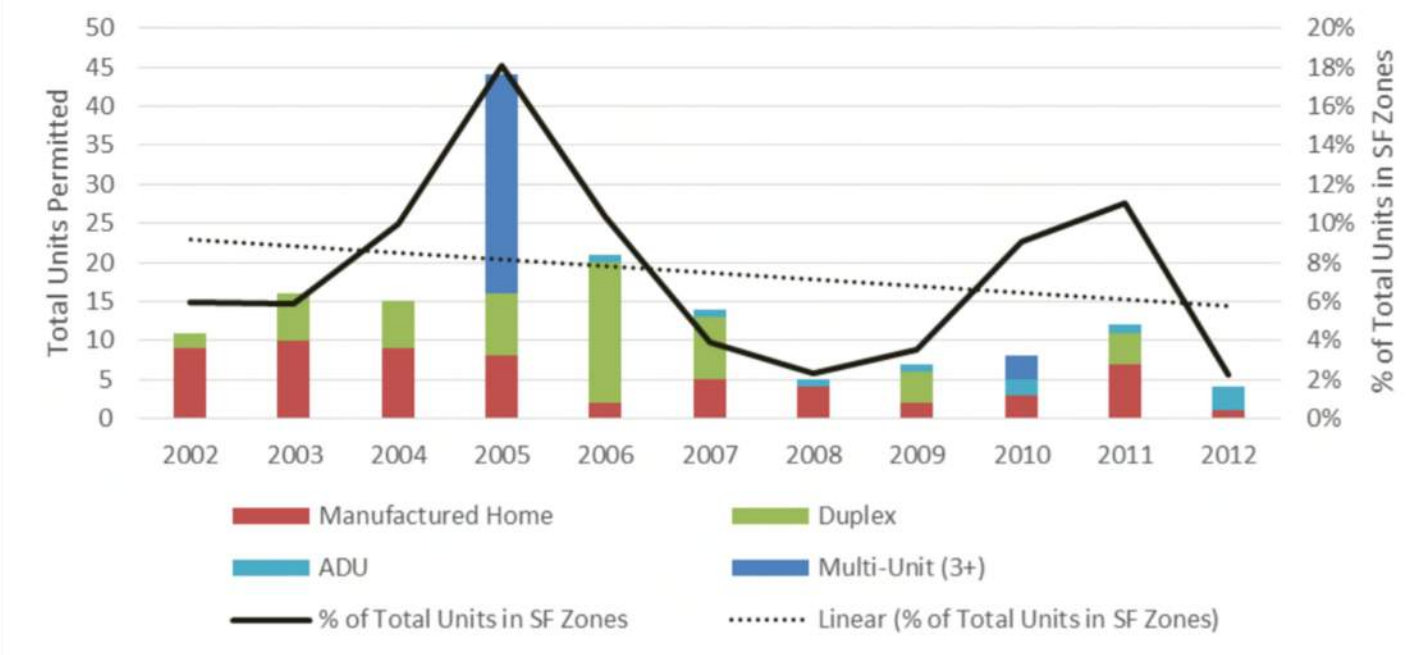
## Exhibit 45. Affordable housing stock goal in Tacoma's Results 253 data portal




Source: City of Tacoma, 2020

[130] http://compplan.kitsapgov.com/Documents/Appx_G_Reas_Meas_2015_11_DSEIS.pdf.

**Exhibit 46. Housing diversity: non-single-family units permitted in UGA within single-family zones by housing type: 2002-2012**




Source: Kitsap County Draft Reasonable Measures Assessment, 2015

## Additional examples of monitoring programs

- Skagit County and cities: The Skagit Council of Government's Housing Action Plan (2017) has an annual growth monitoring report that includes population, housing and jobs, as well as households by income level and units available by affordability level.[131]
- The city of Chelan's Comprehensive Plan (2017) identifies measurable objectives for evaluating the implementation of the plan.[132] These include several measures related to housing and affordability. See Exhibit 1-4.
- Snohomish County releases annual Growth Monitoring Reports that include residential development profiles showing unit mix produced for each city/UGA.[133]
- King County tracks a variety of different data points on its Regional Affordable Housing Dashboard including how the county as a whole and individual cities are achieving progress on their Five Year Action Plan to address affordable housing.[134] This dashboard includes an assessment of how the regional actions are having their intended impact and provides jurisdictional housing affordability snapshots.

[131] https://www.scog.net/skagit-county-housing-action-plan/ and https://www.scog.net/growth-management/growth-monitoring-program/.
[132] https://cityofchelan.us/pdfdocs/2017/11/1-B_Consolidated_Elements_2017_1101-_CleanwCover-PDF-for-web.pdf.
[133] https://snohomishcountywa.gov/DocumentCenter/View/44881/9---2016-GMR---UGA-Residential-Developement-Profiles?bidId=.
[134] https://kingcounty.gov/depts/community-human-services/housing/affordable-housing-committee/data.aspx.

## What is the monitoring telling you?

As you conduct annual monitoring, you should be looking at what the results are telling you about policy implementation. Are you noticing the trends you expected because of policy changes? Are there other sources of data that might inform your progress and understanding of the trends you are seeing? Are there ways you can tweak the performance metrics to help understand barriers or track new trends?

If you are not seeing progress towards your housing goals with monitoring, jurisdictions should evaluate which actions as identified in Chapter 4. Adequate provision they have completed, which are underway, and which have had no progress and develop an updated plan to implement remaining actions. It may also be helpful to re-evaluate the barriers to affordable housing. You may also want to re-evaluate what housing strategies from Chapter 7 Identifying strategies to implement your housing policies could help achieve your community's housings goals.

# Appendix A: Acronyms

ADU - accessory dwelling unit
AMI - area median income
CPP - countywide planning policies
DNS - determination of non-significance
EIS - environmental impact statement
FAR - floor area ratio
GMA - Growth Management Act
GMS - Growth Management Services at the Department of Commerce
HAP - housing action plan
HB - House Bill
HNA - housing needs assessment
HOA - homeowners association
HUD - Housing and Urban Development
IZ - inclusionary zoning
LAMIRD - local area of more intense rural development
LCA - land capacity analysis
LIHTC - low-income housing tax credit
MFTE - multifamily property tax exemption
MPP - multicounty planning policies
MRSC - Municipal Research and Services Center
OFM - Office of Financial Management
PRD - planned residential development
PSH - permanent supportive housing
PSRC - Puget Sound Regional Council
PUD - planned unit development
RCW - Revised Code of Washington
REET - real estate excise tax
SB - Senate Bill
SEPA - State Environmental Policy Act
SRO - single room occupancy
STR - short-term rental
TOD - transit-oriented development
UGA - urban growth area
WAC - Washington Administrative Code
WCRER - Washington Center for Real Estate Research
WSHFC - Washington State Housing Finance Commission

# Appendix B: Adequate provisions checklists

This appendix provides checklists to use in documenting barriers and programs and actions to achieve housing availability (RCW 36.70A.070(2)(d)), as well as examples of how to complete each of these steps and document the work. These checklists include the following:

- Exhibit B1: Moderate Density housing barrier review checklist
- Exhibit B2: Low-Rise or Mid-Rise housing barrier review checklist
- Exhibit B3: Supplemental barrier review checklist for PSH and emergency housing
- Exhibit B4: Accessory dwelling unit barrier review checklist
- Exhibit B5: Checklist for local option tools for addressing affordable housing funding gaps
- Exhibit B6: Example completed Moderate Density barriers review checklist
- Exhibit B7: Example completed local option tools for addressing affordable housing funding gaps checklist

Documentation of the barriers to housing availability and the programs or actions needed to overcome these barriers must be in a public document and typically should be included as an appendix to the comprehensive plan housing element.

## Exhibit B1: Moderate Density housing barrier review checklist

| Barrier | Is this barrier likely to affect housing production? (yes or no) | Why or why not? Provide evidence. | Actions needed to address barrier. |
|---|---|---|---|
| **DEVELOPMENT REGULATIONS** | | | |
| Unclear development regulations | | | |
| Prohibiting some moderate density housing types, such as:<br>○ Duplexes<br>○ Triplexes<br>○ Four/five/six-plexes<br>○ Townhomes<br>○ Cottage housing<br>○ Live-work units<br>○ Manufactured home parks | | | |
| High minimum lot sizes | | | |
| Low maximum densities or low maximum FAR | | | |
| Low maximum building heights | | | |
| Large setback requirements | | | |
| High off-street parking requirements | | | |
| High impervious coverage limits | | | |
| Lack of alignment between building codes and development codes | | | |
| Other (for example: complex design standards, tree retention regulations, historic preservation requirements) | | | |

| Barrier | Is this barrier likely to affect housing production? (yes or no) | Why or why not? Provide evidence. | Actions needed to address barrier. |
|---|---|---|---|
| **PROCESS OBSTACLES** | | | |
| **Conditional use permit process** | | | |
| **Design review** | | | |
| **Lack of clear and accessible information about process and fees**[135] | | | |
| **Permit fees, impact fees and utility connection fees** | | | |
| **Processing times and staffing challenges** | | | |
| **SEPA process** | | | |
| **LIMITED LAND AVAILABILITY AND ENVIRONMENTAL CONSTRAINTS** | | | |
| **Lack of large parcels for infill development** | | | |
| **Environmental constraints** | | | |

[135] For example: guidance resources are unclear or difficult to find, no digital permit tracking system, staff do not provide fee estimates or permitting time estimates are unavailable or inaccurate.

## Exhibit B2: Low-Rise or Mid-Rise housing barrier review checklist

| Barrier | Is this barrier likely to affect housing production? (yes or no) | Why or why not? Provide evidence. | Actions needed to address barrier. |
|---|---|---|---|
| DEVELOPMENT REGULATIONS | | | |
| Unclear development regulations | | | |
| High minimum lot sizes | | | |
| Low maximum densities or low maximum FAR | | | |
| Low maximum building heights | | | |
| Large setback requirements | | | |
| High off-street parking requirements | | | |
| High impervious coverage limits | | | |
| Lack of alignment between building and development codes | | | |
| Other (for example: ground floor retail requirements, open space requirements, complex design standards, tree retention regulations, historic preservation requirements) | | | |
| PROCESS OBSTACLES | | | |
| Conditional use permit process | | | |
| Design review | | | |
| Lack of clear and accessible information about process and fees | | | |

| Barrier | Is this barrier likely to affect housing production? (yes or no) | Why or why not? Provide evidence. | Actions needed to address barrier. |
|---|---|---|---|
| Permit fees, impact fees and utility connection fees | | | |
| Process times and staffing challenges | | | |
| SEPA process | | | |
| LIMITED LAND AVAILABILITY AND ENVIRONMENTAL CONSTRAINTS | | | |
| Lack of large parcels for infill development | | | |
| Environmental constraints | | | |

## Exhibit B3: Supplementary barrier review checklist for PSH and emergency housing

| Barrier | Is this barrier likely to affect housing production? (yes or no) | Why or why not? Provide evidence. | Actions needed to address barriers. |
|---|---|---|---|
| DEVELOPMENT REGULATIONS | | | |
| Spacing requirements (for example, minimum distance from parks, schools or other emergency/PSH housing facilities)[136] | | | |
| Parking requirements | | | |
| On-site recreation and open space requirements | | | |

[136] Note that RCW 35A.21.430 expressly states requirements on occupancy, spacing, and intensity of use may not prevent the siting of a sufficient number of permanent supportive housing, transitional housing, indoor emergency housing or indoor emergency shelters necessary to accommodate each code city's projected need for such housing and shelter under RCW 36.70A.070(2)(a)(ii). The restrictions on these uses must be to protect public health and safety.

| Barrier | Is this barrier likely to affect housing production? (yes or no) | Why or why not? Provide evidence. | Actions needed to address barriers. |
|---|---|---|---|
| Restrictions on support spaces, such as office space, within a transitional or PSH building in a residential zone | | | |
| Arbitrary limits on number of occupants (in conflict with RCW 35A.21.314) | | | |
| Requirements for PSH or emergency housing that are different than the requirements imposed on housing developments generally (in conflict with RCW 36.130.020) | | | |
| Other restrictions specific to emergency shelters, emergency housing, transitional housing and permanent supportive housing | | | |

## Exhibit B4: Accessory dwelling unit barrier review checklist

| Barrier | Is this barrier likely to affect housing production? (yes or no) | Why or why not? Provide evidence. | Actions needed to address barriers. |
|---|---|---|---|
| DEVELOPMENT REGULATIONS | | | |
| Consistent with HB 1337 (2023)<br>○ Must allow two ADUs on each lot in urban growth areas;<br>○ May not require the owner to occupy the property, and may not prohibit sale as independent units, but may restrict the use of ADUs as short term rentals;<br>○ Must allow an ADU of at least 1,000 square feet;<br>○ Must set parking requirements based on distance from transit and lot size;<br>○ May not charge more than 50% of the impact fees charged for the principal unit;<br>○ Must permit ADUs in structures detached from the principal unit;<br>○ May not restrict roof heights of ADUs to less than 24 feet, unless that limitation applies to the principal unit;<br>○ May not impose setback requirements, yard coverage limits, tree retention mandates, restrictions on entry door locations, aesthetic requirements, or requirements for design review for ADUs that are more restrictive than those for principal units;<br>○ Must allow an ADUs on any lot that meets the minimum lot size required for the principal unit; | | | |

| Barrier | Is this barrier likely to affect housing production? (yes or no) | Why or why not? Provide evidence. | Actions needed to address barriers. |
|---|---|---|---|
| ○ Must allow detached ADUs to be sited at a lot line if the lot line abuts a public alley, unless the city or county routinely plows snow on the public alley;<br>○ Must allow conversions from existing structures, even if they violate current code requirements for setbacks or lot coverage; and<br>○ May not require public street improvements as a condition of permitting ADUs. | | | |
| Unclear development regulations | | | |
| Large setback requirements | | | |
| Off-street parking requirements | | | |
| Other (for example: burdensome design standards, tree retention regulations, historic preservation requirements, open space requirements, etc.) | | | |
| PROCESS OBSTACLES | | | |
| Lack of clear and accessible information about process and fees | | | |
| Permit fees, impact fees and utility connection fees that are not proportionate to impact | | | |
| Processing times and staffing challenges | | | |

## Exhibit B5: Checklist for local option tools for addressing affordable housing funding gaps

| Local option tools for addressing affordable housing funding gaps* | Implementation status | Plans for implementation |
|---|---|---|
| Housing and related services sales tax (RCW 82.14.530) | | |
| Affordable housing property tax levy (RCW 84.52.105) | | |

| Local option tools for addressing affordable housing funding gaps* | Implementation status | Plans for implementation |
|---|---|---|
| REET 2 (RCW 82.46.035) – GMA jurisdictions only and only available through 2025 | | |
| Affordable Housing Sales Tax Credit (RCW 82.14.540) – was only available to jurisdictions through July 2020 | | |
| Lodging Tax (RCW 67.28.150 and RCW 67.28.160) to repay general obligation bonds or revenue bonds | | |
| Mental Illness and Drug Dependency Tax (RCW 82.14.460) – jurisdictions with a population over 30,000 | | |
| Donating surplus public lands for affordable housing projects (RCW 39.33.015) | | |
| Impact fee waivers for affordable housing projects (RCW 82.02.060) | | |
| Application fee waivers or other benefits for affordable housing projects (RCW 36.70A.540) | | |
| Multifamily Tax Exemption (MFTE) with affordable housing requirement (RCW 84.14) | | |
| General funds (including levy lid lifts to increase funds available) | | |

* Some tools may be unavailable for certain jurisdictions. For example, only GMA jurisdictions can use REET 2, or the surrounding county may have already implemented the housing and related services sales tax. See MRSC's summary of Affordable Housing Funding Sources for more details and the Association of Washington Cities (AWC)/MRSC booklet on Homelessness & housing toolkit for cities (2022).

# Completed checklist examples

## Exhibit B647. Example Moderate Density barriers review

| Barrier | Is this barrier likely to affect production? (yes or no) | Why or why not? Provide evidence. | Actions needed to address barriers. |
|---|---|---|---|
| **DEVELOPMENT REGULATIONS** | | | |
| **Unclear development regulations** | Yes | We reviewed our zoning code for inconsistencies and missing definitions and found several that relate to moderate density housing. | Updates to development regulations to add missing definitions and remove inconsistencies. |
| **Prohibiting some moderate density housing types, such as:**<br>○ **Duplexes**<br>○ **Triplexes**<br>○ **Four/five/six-plexes**<br>○ **Townhomes**<br>○ **Cottage housing**<br>○ **Live-work units**<br>○ **Stacked flats**<br>○ **Manufactured home parks** | No | All of these housing types, except for manufactured home parks, are allowed outright in all residential zones. Mobile home parks are allowed in the Mobile Home Park zone.<br><br>Developers indicated that [jurisdiction name] has much more flexible zoning than surrounding jurisdictions for moderate density housing. | N/A |
| **High minimum lot sizes** | No | This topic did not emerge in developer engagement. | N/A |
| **Low maximum densities** | No | This topic did not emerge in developer engagement. | N/A |
| **Low maximum building heights** | No | This topic did not emerge in developer engagement or discussions with development review staff. | N/A |
| **Large setback requirements** | Yes | Three out of four developers and all five individual property owners we spoke with indicated that required setbacks have presented a barrier for them, particularly for moderate density housing types. | New comprehensive plan policy H.2.B includes actions to add flexibility to development regulations, specifically setbacks for moderate density housing. |

| | | | |
|---|---|---|---|
| **Large off-street parking requirements** | Yes | Three out of four developers and all five individual property owners we spoke with indicated that parking minimums have presented a barrier for them, particularly for moderate density housing types. The developers advocated for eliminating parking minimums for all moderate density housing types. | New comprehensive plan policy H.2.C includes actions to add flexibility to parking minimums (but not eliminate them) for moderate density housing in areas served by major transit lines. |
| **High impervious coverage limits** | Yes | Two out of four developers and three out of five individual property owners we spoke with indicated that high impervious coverage limits presented a barrier to moderate density housing types. | New comprehensive plan policy H.2.B includes actions to add flexibility to development regulations, specifically impervious coverage limits for moderate density housing. Coordination with the Department of Ecology may be needed before changes to development regulations are implemented. |
| **Lack of alignment between building and development codes** | No | Developer interviews did not reveal any issues with lack of alignment between building and development codes. Staff are also not aware of any specific inconsistencies. | N/A |
| **Other (for example: complex design standards, tree retention regulations, historic preservation requirements)** | Yes | All four developers and all five individual property owners we spoke with indicated that the design standards were complex and difficult to meet without requesting any variances. | The jurisdiction will update its design standards to be clear and objective in response to HB 1293 (laws of 2023). The jurisdiction will work in partnership with stakeholders in this process. |
| **PROCESS OBSTACLES** | | | |
| **Conditional use permit process** | No | Moderate density housing types are all allowed outright in residential zones and no conditional use permit is required. | N/A |
| **Design review** | Yes | All four developers and all five individual property owners we spoke with indicated that the design review process was slow and costly for their projects. | New comprehensive plan policy H.4.F includes actions to clarify and simplify the steps for design review. The jurisdiction will also update its design standards to be clear and objective, include no more than one public meeting, and concurrently conduct design review |

| | | | |
|---|---|---|---|
| | | | with the consolidated review and decision process in response to HB 1293 (laws of 2023). |
| **Lack of clear and accessible information about process and fees**[137] | No | [Jurisdiction name] implemented a new permitting system in 2019, which addressed many of the known issues experienced by users in the past.<br><br>Staff also provide cost estimates for permitting at pre-application meetings, which developers and property owners have said they found to be helpful and similar to final costs.<br><br>Our discussions with developers and individual property owners revealed that the new system is working well. | N/A |
| **Permit fees, impact fees and utility connection fees** | Yes | [Jurisdiction name] revisited permit fees in 2020, substantially reducing them with special exceptions for affordable housing developers.<br><br>However, as development has increased, so has the need for water, sewer and storm sewer infrastructure. To address this, impact fees were raised substantially in 2022.<br><br>Our discussions with triplex and four-plex developers indicated that these impact fees are prohibitively expensive. | To comply with SB 5258 (laws of 2023), the jurisdiction will study the most appropriate way to scale impact fees (based on square footage or type of unit), instead of a standard fee per unit, and implement these changes so that impact fees reflect the proportionate impact of new housing units. |
| **Processing times and staffing challenges** | Yes | All four developers mentioned that permit timelines have slowed since 2020 and the timeline estimates on the permit site are inaccurate in their experiences. We are currently understaffed and having trouble filling two permit technician positions. | Work with human resources to fill the two open permit technician positions and/or hire contracted technicians until permanent positions can be filled. Create streamlined onboarding training to bring new staff up to speed quickly. |

[137] For example: guidance resources are unclear or difficult to find, no digital permit tracking system, staff do not provide fee estimates, permitting time estimates are unavailable or inaccurate.

| | | | |
|---|---|---|---|
| | | | Also, provide better communication on permit timelines and update the permit website with more accurate estimates. |
| **SEPA process** | No | Our jurisdiction has already modified SEPA exemptions in line with the flexible exemption thresholds (WAC 197-11-800(1)(c)).<br><br>We typically combine the DNS and notice of application comment periods where appropriate.<br><br>We have also engaged in a subarea plan with non-project EIS for a transit-oriented development center to simplify the SEPA process for later development. | N/A |
| **LIMITED LAND AVAILABILITY AND ENVIRONMENTAL CONSTRAINTS** | | | |
| **Lack of large parcels for infill development** | No | When asked, developers expressed that they do not have challenges finding large enough parcels for their projects. | N/A |
| **Environmental constraints** | Yes | The Land Capacity Analysis found that many otherwise buildable parcels contain wetlands. Developers mentioned that, in combination with setbacks, wetland buffers sometimes make development very difficult if not impossible. | Review code provisions for clustering and other site design provisions and consider modifying the regulations for more flexibility.<br><br>Consider other areas where upzoning may be appropriate to accommodate more moderate density housing.<br><br>Update the LCA data so that unbuildable parcels are reflected accurately in that analysis. |

## Exhibit B7. Example local option tools for addressing affordable housing funding gaps checklist

| Local option funding tools for affordable housing | Implementation status | Plans for implementation |
|---|---|---|
| **Housing and related services sales tax (RCW 82.14.530)** | Implemented. An affordable housing sales tax was adopted by ballot measure in 2019. | None. |
| **Affordable housing property tax levy (RCW 84.52.105)** | Not implemented | New comprehensive plan policy H.6.E includes an action to complete a study on the feasibility of affordable housing funding tools. |
| **REET 2 (RCW 82.46.035) – GMA jurisdictions only** | Not implemented | New comprehensive plan policy H.6.E includes an action to complete a study on the feasibility of affordable housing funding tools. |
| **Affordable Housing Sales Tax Credit (RCW 82.14.540) – was only available to jurisdictions through July 2020** | County implemented this tool and manages these funds through an inter-jurisdictional process that our city participates in. | None. |
| **Lodging Tax (RCW 67.28.150 and RCW 67.28.160) to repay general obligation bonds or revenue bonds** | Not implemented | New comprehensive plan policy H.6.F includes an action to implement affordable housing taxes, such as this lodging tax. After adoption of the comprehensive plan, the city will evaluate when imposing this tax is appropriate given a financial review of the lodging industry in the city and developing a plan for how the funds will be used. |
| **Mental Illness and Drug Dependency Tax (RCW 82.14.460) – jurisdictions with a population over 30,000** | Not implemented | New comprehensive plan policy H.6.F includes an action to implement affordable housing taxes, such as this lodging tax. After adoption of the comprehensive plan, the city will authorize the tax and coordinate dispersion of funds in coordination with the county program that dedicates funds as grants to develop and operate new supportive housing with mental health treatment programs. |
| **Donating surplus public lands for affordable housing projects (RCW 39.33.015)** | Not implemented | New comprehensive plan policy H.6.B prioritizes the disposal of surplus public lands for affordable housing. The city will then evaluate the feasibility of surplus public land for affordable housing and identify potential parcels for donation, as well as coordinate land assembly as needed. |

| Local option funding tools for affordable housing | Implementation status | Plans for implementation |
|---|---|---|
| **Impact fee waivers for affordable housing projects (RCW 82.02.060)** | Implemented. Ordinance No. 14583 exempts qualified affordable housing projects from Building Fees, Traffic Impact Fees, Parks Impact Fees and Sanitary Sewer System/ Facilities Charges subject to funding availability. | Assess if the budgeted general funds are sufficient to meet all demand for fee waivers in 2023 and adjust 2024 budget accordingly. |
| **Application fee waivers or other benefits (RCW 36.70A.540)** | Not implemented | Evaluate the costs and benefits of application fee waivers for affordable housing projects and determine at which scale waivers should be applied. Adopt ordinance if budgeted general funds are sufficient to meet all demand, as comprehensive plan policy H.6.D already supports this action. |
| **Multifamily Tax Exemption (MFTE) with affordable housing requirement (RCW 84.14)** | Implemented. 12-year MFTE requiring at least 20% of units affordable at 80% of AMI is available in the Downtown residential target area. | New comprehensive plan policy H.6.G includes an action to review the MFTE incentive program and designate additional residential target areas within ½ mile of frequent transit service. |
| **General funds (including levy lid lifts to increase funds available)** | The 2023 city budget includes $1,000,000 to offset waived impact fee revenue for qualified affordable housing projects. | See above. |

# Appendix C: Housing element policy examples

The Department of Commerce has collected a variety of housing element policies as examples. **The policies are arranged by topic and then arranged from strong policies to softer, longer-range policies.** See where in the range your community would fit within the ranking of the policies, based on their strength.

- Preservation
  - Maintenance and code enforcement
- Variety of housing types
  - ADUs, tiny homes and manufactured homes
  - Infill development and density near places of opportunity
- Home ownership
- Accommodate growth
- Housing location and transportation and land use
  - Location of affordable housing
  - Jobs/housing balance
- Infrastructure
  - College housing
  - Rural and farmworker housing
- Affordable and subsidized housing
  - Incentives or requirements
  - Funding or financing
  - Prevent barriers
- Vulnerable populations and homelessness
  - Special-needs housing
  - Homeless focus
  - Aging adult focus
  - Surplus land and nonprofit housing
- Equity, displacement and integration
- Regional coordination and fair share
- Design and development standards
  - Sustainable housing
  - Historic preservation
- Tracking and monitoring

# PRESERVATION

| Policy text quote | Source |
|---|---|
| Continue to fund the repair and rehabilitation of single-family and multi-family housing using federal, state, and local funding sources. | Public Service Policy PS8.1, Olympia Comprehensive Plan, 2019 |
| Coordinate with local organizations and agencies to provide sufficient and affordable home maintenance and support services. | Housing Element - Goal H-3, Policy A, Program 2, City of Ellensburg Comprehensive Plan, 2019 |
| Pursue public-private partnerships to preserve existing affordable housing stock and develop additional units. | Housing Element Policy H20, Shoreline Comprehensive Plan, 2012 |
| In conjunction with public and private housing providers, the City should identify and encourage preservation of affordable units in publicly assisted (subsidized) housing developments that are at risk of converting to market rate housing. | Housing Element Policy 4.2.1, Mount Vernon Comprehensive Plan, 2016 |
| Promote the maintenance, repair, and rehabilitation of the City's existing housing stock. Pursue financial incentives and funding for housing improvement programs, especially for low-income households. | Housing Policy H-2.2, Prosser Comprehensive Plan, 2018 |
| Encourage and support efforts to maintain opportunities for lower-cost housing where relatively affordable housing exists through preservation or other efforts and particularly in centers where most redevelopment pressure will occur. | Housing Policy HO-41, Redmond Comprehensive Plan, 2011 |
| Encourage homeowners to take advantage of existing maintenance and preservation programs, services, and resources including the Wenatchee Housing Rehabilitation Loan Program. | Housing Element – Maintenance & Preservation: Policy 3, Wenatchee Urban Area Comprehensive Plan, 2014 |
| Encourage the rehabilitation, relocation and reuse, rather than demolition, of existing housing. | Housing Chapter Policy H-34, Bellingham Comprehensive Plan, 2016 |

NOTE: Be careful of policy language that is about protecting character or seems exclusionary.

# Maintenance and code enforcement

| Policy text quote | Source |
|---|---|
| Enforce the City's Rental Registration and Safety Inspection Program to ensure that rental housing units comply with life and fire safety standards and provide a safe place for tenants to live. | Housing Chapter Policy H-30, Bellingham Comprehensive Plan, 2016 |
| Develop minimum property maintenance standards to ensure the safety and suitability of existing housing stock. | Housing Element Policy 2.2, Walla Walla Comprehensive Plan, 2018 |

# VARIETY OF HOUSING TYPES

| Policy text quote | Source |
|---|---|
| Accommodate changing demographic trends and housing preferences by allowing accessory units, co-housing, and other nontraditional housing types in appropriate locations. | Housing Element Policy H-3.3, Yakima Horizon 2040, 2017 |
| Provide incentives for developers that include a mix of housing types within new housing developments such as a broader assortment of housing sizes, accessory apartments, duplexes, etc. | Housing Element Policy H-3.6, Yakima Horizon 2040, 2017 |
| Develop and implement regulations that encourage diversity of new housing types and expand housing choices throughout Wenatchee. | Housing Element – Housing Affordability: Policy 1, Wenatchee Urban Area Comprehensive Plan, 2014 |
| Ensure policies, codes and ordinances allow for a compatible mix of uses and housing types in neighborhoods. | Housing Element Policy H-3.1, Yakima Horizon 2040, 2017 |
| Allow a variety of housing types to meet needs of households of varying sizes, income levels and preferences. Create regulations that allow alternatives to single-family detached housing such as attached housing, townhomes, cottage or cluster housing, accessory dwelling units, manufactured housing, floating homes, housing in multiuse projects, and other innovative housing types. | Housing Policy HO-6, Ridgefield Comprehensive Plan, 2016 |
| Support variable lot sizes in new subdivisions and housing type diversity within development projects. | Housing Element – Housing Equity: Policy 3, Wenatchee Urban Area Comprehensive Plan, 2014 |
| Provide an array of housing choices such as apartments, small lot single-family housing, accessory dwelling units, townhomes, manufactured homes, and cottages to meet the needs of people of all incomes throughout their lifespan. | Housing Element Policy 1.1, Walla Walla Comprehensive Plan, 2018 |
| Provide for a range of housing types and densities for all economic segments of the population. Encourage equal and fair access to housing for renters and homeowners. | Housing Policy H-1, Vancouver Comprehensive Plan, 2011 |
| Promote a wide range of housing types and housing diversity to meet the needs of the diverse population and ensure that this housing is available throughout the community for people of all income levels and special needs. | Housing Element Policy H 1.18, Spokane Comprehensive Plan, 2017 |

# ADUs, tiny homes and manufactured homes

| Policy text quote | Source |
|---|---|
| Support the creation and preservation of manufactured home parks as an important source of affordable housing in the city. | Housing Element – Maintenance & Preservation: Policy 5, Wenatchee Urban Area Comprehensive Plan, 2014 |

| Policy text quote | Source |
|---|---|
| Allow one accessory dwelling unit as an ancillary use to single-family homes in all designated residential areas as an affordable housing option. | Housing Element Policy H 1.20, Spokane Comprehensive Plan, 2017 |
| Promote the development of accessory dwelling units (ADUs) within new and existing single-family developments. Consider incentives for new housing developments that include a percentage of ADUs as part of the new construction, as well as explore opportunities to promote ADU construction in existing homes. | Housing Policy HO-32, Redmond Comprehensive Plan, 2011 |
| Integrate smaller housing types, such as cottages, duplexes, townhouses, and accessory dwelling units, into residential neighborhoods. | Housing Element Policy H-1.3, Anacortes Comprehensive Plan, 2016 |
| Facilitate lifecycle or "cradle to grave" neighborhoods and community stability by promoting alternative living arrangements such as accessory dwelling units (ADUs), shared housing, cohousing, and smaller housing types. | Housing Element – Housing Equity: Policy 2, Wenatchee Urban Area Comprehensive Plan, 2014 |
| Allow development of single-room occupancy units in downtown Spokane and in other areas where high-density housing is permitted. | Housing Element Policy H 1.21, Spokane Comprehensive Plan, 2017 |
| Consider the potential for development of tiny houses in selected areas of the city. | Housing Element Policy H-1.4, Anacortes Comprehensive Plan, 2016 |
| Consider regulations that would allow cottage housing in residential areas, and revise the Development Code to allow and create standards for a wider variety of housing styles. | Housing Element Policy H6, Shoreline Comprehensive Plan, 2012 |
| Encourage demonstration projects of innovative housing types or programs, such as co-housing, tiny houses, or others. | Housing Element Policy H-1.9, Anacortes Comprehensive Plan, 2016 |

NOTE: Manufactured homes must be allowed on all lots. Manufactured housing must not be regulated differently from site-built housing, but jurisdictions may require certain standards. Jurisdictions may not use setbacks limits to prohibit placement of a manufactured home on an existing lot. See RCW 35A.21.312, RCW 35A.63.145, RCW 35.63.160-161, RCW 36.01.225 and RCW 35.21.684.

## Infill development and density near places of opportunity

| Policy text quote | Source |
|---|---|
| Actively support residential rehabilitation and infill. Incentives such as reduction of System Development Charges (SDC) and Traffic Impact Fees (TIF) for infill projects can ease the financial burden of such developments enough to make these profitable and attractive for developers. The City can also actively seek grants and funding from State and Federal sources to partially subsidize development or redevelopment of infill lots. | Housing Policy HO-9, Ridgefield Comprehensive Plan, 2016 |
| Promote residential development of infill sites throughout the urban area by increasing densities where appropriate. | Housing Element – Housing Affordability: Policy 3, Wenatchee Urban Area Comprehensive Plan, 2014 |

| Policy text quote | Source |
|---|---|
| Encourage residential infill development on existing lots in the City, including the preparation of an inventory of potentially available lots with utilities, adoption of a zone code amendment that facilitates development of substandard lots for infill residential development, and amendments to appropriate codes to simplify and encourage consolidation of substandard lots to facilitate residential infill. | Housing Element Policy Implementation 4.3, Fife Comprehensive Plan, 2005 |
| Encourage infill as a redevelopment concept. Appropriate development regulations that accomplish infill should consider: 1. The Impact on older/existing neighborhoods; 2. Development that is compatible with the surrounding residential density, housing types, affordability or use characteristics; 3. Encouragement of affordable units; 4. The provision of development standards and processes for infill regardless of the sector (public, not-for-profit, or public sectors) creating it; and, 5. Compatibility with historic properties and historic districts. | Housing Element Policy H-3.2, Yakima Horizon 2040, 2017 |
| Encourage infill housing on vacant or underutilized parcels having adequate services, and ensure that the infill development is compatible with surrounding neighborhoods. | Housing Element Policy 2.1.1, Mount Vernon Comprehensive Plan, 2016 |
| Consider adopting regulations such as flexible lot sizes that encourage infill development on small lots consistent with the neighborhood's character. | Housing Element Policy 2.1.3, Mount Vernon Comprehensive Plan, 2016 |
| Review commercial zoning regulations that require commercial development along with residential development. Consider adding criteria that would allow, in certain circumstances, residential uses to develop independently or within commercial flex space. | Housing Chapter Policy H-6, Bellingham Comprehensive Plan, 2016 |
| Encourage increased density residential development in mixed-use and town center zones, especially those located within the City's Regional Growth Center, subject to compliance with appropriate development and design standards. Discourage or prohibit new detached single-family dwellings in these areas to promote more intensive use of commercial and mixed-use properties in order to accommodate an increasing share of the City's anticipated future population growth. | Housing Element Policy HS2D, University Place Comprehensive Plan, 2015 |

# HOME OWNERSHIP

| Policy text quote | Source |
|---|---|
| Create opportunities for ownership housing in a variety of settings, styles, sizes and affordability levels throughout Redmond. | Housing Policy HO-12, Redmond Comprehensive Plan, 2011 |
| Provide information to residents, including underserved populations, on affordable housing opportunities and first-time homeownership programs. | Housing Chapter Policy H-23, Bellingham Comprehensive Plan, 2016 |
| Help low-income and special needs residents find ways to purchase housing, such as shared or limited-equity housing, lease-purchase options, co-housing, land trusts, and cooperatives. | Public Service Policy PS9.6, Olympia Comprehensive Plan, 2019 |

| Policy text quote | Source |
|---|---|
| Encourage existing housing providers and private lenders to provide homebuyer education seminars for potential first-time homebuyers; include outreach to current renters. | Housing Element Policy YKH 1.2, Yakima Horizon 2040, 2017 |
| Promote opportunities for home ownership and owner occupancy of single- and multifamily housing. | Housing Policy H-7, Vancouver Comprehensive Plan, 2011 |
| Explore with the County, other local jurisdictions, and private lending institutions the availability and enhancement of educational programs for first time homebuyers. | Housing Element Policy 4.3.5, Mount Vernon Comprehensive Plan, 2016 |

# ACCOMMODATE GROWTH

| Policy text quote | Source |
|---|---|
| Support increasing housing densities through the well-designed, efficient, and cost-effective use of buildable land, consistent with environmental constraints and affordability. Use both incentives and regulations, such as minimum and maximum density limits, to achieve such efficient use. | Housing Policy PL16.1, Olympia Comprehensive Plan, 2019 |
| Provide a continuous and adequate supply of residential land to meet long-range multifamily and single-family housing needs for the City's anticipated population growth. The City shall adopt policies and regulations to meet the following objectives:<br>• New overall density target of six units per net acre.<br>• No more than 75% of new houses shall be of a single housing type.<br>• A minimum density of four units per net acre (10,890 sq. ft. average lot size) for single-family dwellings in any single development. | Housing Policy HO-1, Ridgefield Comprehensive Plan, 2016 |
| Prohibit any rezone that results in a reduction in residential capacity without first approving another rezone or rezones, resulting in at least a replacement of the lost residential capacity elsewhere in the city. | Housing Policy HO-17, Redmond Comprehensive Plan, 2011 |
| Consider the impacts on Citywide housing capacity, affordability and diversity when making land use policy decisions and code amendments. | Housing Chapter Policy H-13, Bellingham Comprehensive Plan, 2016 |
| Consider minimum density requirements for residential zones and commercial zones where residential development is allowed. | Housing Chapter Policy H-5, Bellingham Comprehensive Plan, 2016 |
| Promote a mix of new residential units and use other strategies that are designed to at a minimum meet the targets called for in the King County Countywide Comprehensive Planning Policies for creating residences that are affordable to low- and moderate-income households. | Housing Policy HO-2, Redmond Comprehensive Plan, 2011 |

# HOUSING LOCATION AND TRANSPORTATION AND LAND USE

| Policy text quote | Source |
|---|---|
| Direct new residential development into areas where community and human public services and facilities are available. | Housing Element Policy H 1.4, Spokane Comprehensive Plan, 2017 |
| Ensure that plans provide increased physical connection between housing, employment, transportation, recreation, daily-needs services, and educational uses. | Housing Element Policy H 2.4, Spokane Comprehensive Plan, 2017 |
| Provide for development of multifamily housing in areas close to shopping, employment, services and public transportation. | Housing Element Policy H-1.7, Anacortes Comprehensive Plan, 2016 |
| Create opportunities for housing developments to be easily accessible from both vehicle and bike/ped transportation corridors. | Housing Policy H-5.5, Prosser Comprehensive Plan, 2018 |
| Support high-density and mixed commercial/residential development in the City's urban villages, high capacity transit corridors connecting the villages and other appropriate areas that allow people to work, shop and recreate near where they live. | Housing Chapter Policy H-1, Bellingham Comprehensive Plan, 2016 |
| Encourage and provide incentives for residences above businesses. | Housing Policy PL16.8, Olympia Comprehensive Plan, 2019 |
| Encourage residential development in commercial and mixed use zones, especially those within proximity to transit. | Housing Element - Goal H-2, Policy B, City of Ellensburg Comprehensive Plan, 2019 |
| Promote accessible and affordable housing in areas that are close to services and the rest of the community. | Housing Element - Goal H-3, Policy A, Program 1, City of Ellensburg Comprehensive Plan, 2019 |
| Consider the impacts of transportation costs on housing affordability and accessibility of services and other opportunities when planning for housing. | Housing Chapter Policy H-17, Bellingham Comprehensive Plan, 2016 |
| Increase the supply of affordable rental and ownership housing that is context sensitive throughout the City, especially in areas with good access to transit, employment, education and services. | Housing Chapter Policy H-16, Bellingham Comprehensive Plan, 2016 |

# Jobs/housing balance

| Policy text quote | Source |
|---|---|
| Ensure an appropriate supply and mix of housing and affordability levels to meet the needs of people who work and desire to live in Redmond, especially near existing and planned employment centers, such as Downtown, Overlake and SE Redmond. | Housing Policy HO-18, Redmond Comprehensive Plan, 2011 |
| Encourage development of housing at pricing levels affordable for workers in a variety of sectors in Ridgefield, to increase the percentage of people who work in Ridgefield that can also find suitable housing in Ridgefield. Work with employers to promote residential options in Ridgefield to their employees, and to understand the housing needs of their employees. | Housing Policy HO-5, Ridgefield Comprehensive Plan, 2016 |

| Policy text quote | Source |
|---|---|
| Encourage the creation of mixed-use areas throughout the City characterized by living wage jobs, mixed income housing, and ample public open spaces all within a walkable urban context. | Housing Element Policy 3.1.1, Mount Vernon Comprehensive Plan, 2016 |
| Encourage Redmond employers to develop employer-assisted housing programs and provide technical assistance to employers wishing to obtain information on model programs. | Housing Policy HO-20, Redmond Comprehensive Plan, 2011 |

## Location of affordable housing

| Policy text quote | Source |
|---|---|
| Locate affordable housing throughout the city and especially in areas with good access to transit, employment, education, and shopping. | Housing Element Policy H-3.5, Anacortes Comprehensive Plan, 2016 |
| Integrate housing for lower and moderate income households and those with special needs into a variety of geographical locations throughout the city. | Housing Element Policy 2.1, Walla Walla Comprehensive Plan, 2018 |

Note: Policy choices may include providing affordable housing in a variety of locations around the city, preferably with a special focus on areas close to transit and other services. Be careful of language that may seem exclusionary or "not in my backyard" (NIMBY).

## INFRASTRUCTURE

| Policy text quote | Source |
|---|---|
| Provide physical infrastructure, recreational and cultural amenities, and educational facilities in Downtown and Overlake to support the creation of attractive neighborhoods for residents of all ages, incomes and household types. | Housing Policy HO-16, Redmond Comprehensive Plan, 2011 |
| Support public and private investment in improved infrastructure and amenities in existing neighborhoods, particularly in areas with high concentrations of low-income housing. | Housing Chapter Policy H-29, Bellingham Comprehensive Plan, 2016 |
| Leverage private investment in distressed neighborhoods through strategic infrastructure and service improvements. | Housing Element – Maintenance & Preservation: Policy 4, Wenatchee Urban Area Comprehensive Plan, 2014 |
| Work closely with local governments and the private sector to extend infrastructure and provide other services to accommodate residential growth, particularly in Urban, Rural Settlement and Rural Transitional areas which are suitable for higher density development. | Housing Element Policy H-1.5, Yakima Horizon 2040, 2017 |

## College housing

| Policy text quote | Source |
|---|---|
| Work with local institutions of higher education to develop a comprehensive strategy addressing issues associated with off-campus student housing, including adequate off-campus housing that is high quality and compatible with its surroundings (see Land Use Chapter). | Housing Chapter Policy H-43, Bellingham Comprehensive Plan, 2016 |

## Rural and farmworker housing

| Policy text quote | Source |
|---|---|
| Continue to allow seasonal and accessory farm worker accommodations in rural and agricultural resource areas, with the requirement that one or more persons in each household must be employed by the property owner. | Housing Element Policy H-7.1, Yakima Horizon 2040, 2017 |
| Work with the agricultural community to develop criteria and a process for siting permanent and migrant farm worker housing in rural and agricultural resource areas with consideration given to neighborhood and project security, health and sanitation, availability of public services, access, child care, and the availability of affordable housing in a nearby urban area. | Housing Element Policy H-7.2, Yakima Horizon 2040, 2017 |
| Provide a siting process to expedite farm worker housing projects using preapproved designs for housing of both temporary and permanent farm workers employed by the property owner. | Housing Element Policy H-7.3, Yakima Horizon 2040, 2017 |
| Continue to work with state and local agencies to remove barriers to providing farmworker housing, and explore innovative approaches to meeting farm worker housing needs. | Housing Element Policy H-7.4, Yakima Horizon 2040, 2017 |
| New, residential construction adjacent to designated forest, agricultural or mineral resource lands should be designed and sited to reduce potential conflicts between residents and adjacent resource lands. | Housing Element Policy H-5.1, Yakima Horizon 2040, 2017 |
| Housing in designated agriculture, mineral or forest lands should be considered secondary to the primary use of those areas. | Housing Element Policy H-5.2, Yakima Horizon 2040, 2017 |

## AFFORDABLE OR SUBSIDIZED HOUSING

| Policy text quote | Source |
|---|---|
| Develop and implement a detailed affordable housing program that identifies specific actions to increase the supply of housing that is affordable to low to middle-income individuals and families. | Housing Element Policy H-3.10, Anacortes Comprehensive Plan, 2016 |

| Policy text quote | Source |
|---|---|
| Provide affordable housing by formulating innovative policies, regulations and practices, and establishing secure funding mechanisms. Target affordability programs toward households with incomes below the median. | Housing Policy H-2, Vancouver Comprehensive Plan, 2011 |
| Achieve a minimum of 25 percent of the Pierce County 2030 growth population allocation for University Place through affordable housing -- consistent with CPP AH-3.3. | Housing Element Policy HS3E, University Place Comprehensive Plan, 2015 |
| Develop meaningful, measurable goals and strategies that promote the development of affordable workforce housing to meet local needs and monitor progress toward meeting those goals. | Housing Element Policy H-3.2, Anacortes Comprehensive Plan, 2016 |
| Participate in and promote the development of educational resources and programs that assist low and moderate-income households in obtaining affordable and suitable housing. | Housing Element Policy H 1.5, Spokane Comprehensive Plan, 2017 |
| Where affordable housing is proposed together with market rate housing, affordable housing units should be comparable in design, integrated into the whole development, and should match the tenure of the whole development. | Housing Element Policy 4.1.5, Mount Vernon Comprehensive Plan, 2016 |
| Support both rental and ownership forms of affordable housing in a variety of types and sizes. | Housing Element Policy H-3.4, Anacortes Comprehensive Plan, 2016 |

## Incentives or requirements

| Policy text quote | Source |
|---|---|
| Include a percentage of affordable housing within all new developments that include housing. | Housing Element Policy H 1.8, Spokane Comprehensive Plan, 2017 |
| As part of any rezone that increases residential capacity, consider requiring a portion of units to be affordable to low- and moderate-income households. | Housing Policy HO-38, Redmond Comprehensive Plan, 2011 |
| Maintain and explore enhancing regulatory incentives to encourage the production and preservation of affordable ownership and rental housing such as through density bonuses, impact fee reductions, permit fast-tracking, or other methods. | Housing Element Policy 4.1.6, Mount Vernon Comprehensive Plan, 2016 |
| Provide incentives including density bonuses, parking reductions, and flexible design standards to developments that include a percentage of affordable units to households at 30%, 50%, and 80% of median income. | Housing Element – Housing Affordability: Policy 2, Wenatchee Urban Area Comprehensive Plan, 2014 |
| Offer exemptions or reduced impact fees for construction of affordable housing units in qualifying developments. | Housing Policy HO-49, Redmond Comprehensive Plan, 2011 |
| Create meaningful incentives to facilitate development of affordable housing in both residential and commercial zones, including consideration of exemptions from certain | Housing Element Policy H7, Shoreline Comprehensive Plan, 2012 |

| Policy text quote | Source |
|---|---|
| development standards in instances where strict application would make incentives infeasible. | |
| Evaluate the adoption of zoning regulations targeted at otherwise market-rate developments that require or incentivize a minimum percentage of new dwelling units and/or lots that are created (whether multi-family or single-family) be income restricted. | Housing Element Policy 4.1.1, Mount Vernon Comprehensive Plan, 2016 |
| Explore a variety and combination of incentives to encourage market rate and non-profit developers to build more units with deeper levels of affordability. | Housing Element Policy H8, Shoreline Comprehensive Plan, 2012 |
| Consider developing an inclusionary zoning program as a means of increasing the City's affordable housing supply. | Housing Element Policy H-3.7, Anacortes Comprehensive Plan, 2016 |
| Require that affordable housing achieved through public incentives or assistance remains affordable for the longest possible term. | Housing Element Policy H-38, Anacortes Comprehensive Plan, 2016 |
| Consider mandating an affordability component in Light Rail Station Areas or other Transit-Oriented Communities. | Housing Element Policy H18, Shoreline Comprehensive Plan, 2012 |
| Consider revising the Property Tax Exemption (PTE) incentive to include an affordability requirement in areas of Shoreline where it is not currently required, and incorporate tiered levels so that a smaller percentage of units would be required if they were affordable to lower income households. | Housing Element Policy H13, Shoreline Comprehensive Plan, 2012 |

## Funding or financing

| Policy text quote | Source |
|---|---|
| Develop a housing assistance program that helps homeowners with low incomes with small remodeling projects to improve weatherization, increase sustainability, and provide accommodations for disabilities. | Housing Element Policy 2.7, Walla Walla Comprehensive Plan, 2018 |
| Maintain a City housing trust fund for low- and moderate-income housing that is based on the number of affordable units needs to serve Redmond's projected population and job growth changes. | Housing Policy HO-51, Redmond Comprehensive Plan, 2011 |
| Consider a housing levy to provide ongoing funding for affordable housing. | Housing Element Policy H-3.6, Anacortes Comprehensive Plan, 2016 |
| Help educate builders about the availability of funding and incentive programs to promote the construction of affordable housing in Redmond. | Housing Policy HO-47, Redmond Comprehensive Plan, 2011 |
| Use all available federal, state and county programs, as well as private and nonprofit options for financing affordable housing. | Housing Policy HO-53, Redmond Comprehensive Plan, 2011 |

| Policy text quote | Source |
|---|---|
| Support the development of affordable housing development funding sources. | Housing Element Policy H 1.12, Spokane Comprehensive Plan, 2017 |
| Support and expand low-income housing programs and public funding (e.g., the Housing Levy and HUD entitlement funds). | Housing Chapter Policy H-22, Bellingham Comprehensive Plan, 2016 |
| Advocate for regional and state initiatives to increase funding for affordable housing. | Housing Chapter Policy H-27, Bellingham Comprehensive Plan, 2016 |

## Prevent barriers

| Policy text quote | Source |
|---|---|
| Continue streamlining the regulatory review and building permit process and reviewing the cost of infrastructure improvements and their impact on housing costs. | Housing Chapter Policy H-24, Bellingham Comprehensive Plan, 2016 |
| Periodically review and update the City's residential zoning regulations and design standards to promote quality development with timely and predictable outcomes. | Housing Chapter Policy H-44, Bellingham Comprehensive Plan, 2016 |
| Ensure that policies, codes and procedures do not create barriers to affordable housing opportunities. Ensure that existing regulations, procedures or practices do not increase the cost of housing without a corresponding public benefit. Strive to increase benefits to the community while lowering housing costs by periodically reviewing, at a minimum, the following areas for possible revision or amendment:<br>• Comprehensive plan policies<br>• Zoning and subdivision regulation<br>• Infrastructure requirements<br>• Development standards<br>• Building and fire codes<br>• Administrative procedures<br>• Processing times<br>• Fees and exactions<br>• Inspection procedures | Housing Element Policy HS3M, University Place Comprehensive Plan, 2015 |
| Craft regulations and procedures to provide a high degree of certainty and predictability to applicants and the community-at-large to minimize unnecessary time delays in the review of residential, permits applications, while still maintaining opportunities for public involvement and review. | Housing Policy HO-29, Redmond Comprehensive Plan, 2011 |
| Evaluate barriers to achieving increased density in multifamily residential and mixed use zones and revise regulations if appropriate. | Housing Element Policy H-1.6, Anacortes Comprehensive Plan, 2016 |
| Consider housing cost and supply implications of proposed regulations and procedures. | Housing Element Policy H4, Shoreline Comprehensive Plan, 2012 |
| Consider modifying codes to maximize economical wood frame construction. | Housing Chapter Policy H-8, Bellingham Comprehensive Plan, 2016 |

| Policy text quote | Source |
|---|---|
| Minimize unnecessary housing development costs through regulations and standards contained in the Zoning Code and other City regulatory documents that are balanced with and maintained in concert with public safety considerations and all other goals of the Comprehensive Plan and Zoning Code. | Housing Policy HO-48, Redmond Comprehensive Plan, 2011 |

# VULNERABLE POPULATIONS AND HOMELESSNESS

| Policy text quote | Source |
|---|---|
| Coordinate and collaborate with private agencies to ensure housing for people with special needs including seniors, people with physical and developmental limitation, victims of domestic violence, and homeless individuals and families. | Housing Element Policy 1.5, Walla Walla Comprehensive Plan, 2018 |
| Continue to encourage and support the development of emergency, transitional and permanent supportive housing with appropriate on-site services for people with special needs and the homeless throughout the City and county. Moving people into permanent housing as quickly as possible should be a priority. | Housing Chapter Policy H-50, Bellingham Comprehensive Plan, 2016 |
| Develop or amend and support codes and ordinances that allow for a continuum of care and housing opportunities for special needs populations in the same manner as standard housing. | Housing Element Policy H-2.1, Yakima Horizon 2040, 2017 |
| Encourage opportunities for assisted housing for people with special needs by: a. Adopting land use policies and regulations that treat government-assisted housing and other low-income housing the same as housing of a similar size and density; b. Permitting group living situations, including those where residents receive such supportive services as counseling, foster care or medical supervision in accordance with State and Federal Laws; and, c. Encouraging developers and owners of assisted housing units to undertake activities to establish and maintain positive relationships with neighbors. | Housing Element Policy 5.1.1, Mount Vernon Comprehensive Plan, 2016 |
| Through building and site plan codes, encourage the development, rehabilitation and adaptation of housing that responds to the physical needs of special populations. | Housing Element Policy H-2.2, Yakima Horizon 2040, 2017 |
| Encourage and consider incentives for the dedication of a portion of housing in new projects to special needs housing. | Housing Chapter Policy H-48, Bellingham Comprehensive Plan, 2016 |

NOTE: "Treatment of residential structures occupied by persons with handicaps" is not a policy choice; it is a state law (RCW 36.70A.410). Housing needs assessment could pay attention to needs of specific groups, such as elderly and disabled residents, and support housing for those groups.

## Special-needs housing

| Policy text quote | Source |
|---|---|
| Include units that are affordable for low-income special need families in all housing developments. | Housing Element Policy H 1.23, Spokane Comprehensive Plan, 2017 |
| Ensure that facilities and services to meet the health care, treatment, social service, and transit needs of households with special needs are part of housing development plans. | Housing Element Policy 5.1.6, Mount Vernon Comprehensive Plan, 2016 |
| Support actions to secure grants and loans tied to the provision of special needs housing by agencies, private developers and nonprofit organizations. | Housing Policy HO-23, Redmond Comprehensive Plan, 2011 |
| Work with agencies, private developers and nonprofit organizations to locate housing in University Place intended to serve the community's special needs populations, particularly those with challenges related to age, health or disability. | Housing Element Policy HS4A, University Place Comprehensive Plan, 2015 |
| Facilitate housing for special needs populations dispersed throughout Vancouver and the region. Such housing may consist of residential-care facilities, shelters, group homes, or low-income housing, and should be located near transportation and other services such as health care, schools, and stores. | Housing Policy H-6, Vancouver Comprehensive Plan, 2011 |
| Encourage, assist, and support social and health service organizations that offer housing programs for targeted populations. | Housing Element Policy H25, Shoreline Comprehensive Plan, 2012 |

## Homeless focus

| Policy text quote | Source |
|---|---|
| Coordinate with the homeless housing task force to implement short and long-term activities as identified in the Plan to End Homeless in Chelan & Douglas Counties. | Housing Element – Coordination: Policy 3, Wenatchee Urban Area Comprehensive Plan, 2014 |
| Work with other jurisdictions and health and social service organizations to develop a coordinated, regional approach to homelessness. | Housing Element Policy HS4I, University Place Comprehensive Plan, 2015 |
| Support development of programs that offer assistance to persons identified as being homeless. | Housing Element Policy YKH 2.1, Yakima Horizon 2040, 2017 |
| Foster and support partnerships that have proven to be successful in reducing homelessness, preventing homelessness and assisting the chronically homeless with needed care. | Housing Chapter Policy H-52, Bellingham Comprehensive Plan, 2016 |
| Support the development of public and private, short-term and long-term housing and services for Shoreline's population of people who are homeless. | Housing Element Policy H29, Shoreline Comprehensive Plan, 2012 |

| Policy text quote | Source |
|---|---|
| Encourage a strong network of emergency shelter resources for homeless and at-risk families with children, childless adults, unaccompanied youth, and victims of sexual and domestic violence. | Public Service Policy PS7.1, Olympia Comprehensive Plan, 2019 (other shelter/housing policies in Olympia's plan) |

## Aging adults focus

| Policy text quote | Source |
|---|---|
| Provide for a variety of residential options for older adults in the community including aging in place, assisted living facilities, and age-restricted senior communities. Strategies include:<br>• Promote Universal Design and visitability standards to create new housing stock that allows aging in place.<br>• Review development regulations to address types of housing options allowed and permitting requirements for new construction and accessibility modifications to existing development.<br>• Recruit developers and offer incentives for creation of new senior-oriented residential options. | Housing Policy HO-7, Ridgefield Comprehensive Plan, 2016 |
| Support ways for older adults and people with disabilities to remain in the community as their housing needs change by encouraging universal design or retrofitting homes for lifetime use. | Housing Element Policy H-4.4, Anacortes Comprehensive Plan, 2016 |
| Encourage the development of senior-friendly housing opportunities, particularly in areas near services and amenities. | Housing Element Policy H-4.2, Anacortes Comprehensive Plan, 2016 |
| Encourage a range of housing types for seniors affordable at a variety of incomes, such as independent living, various degrees of assisted living and skilled nursing care facilities. Strive to increase opportunities for seniors to live in specialized housing. | Housing Element Policy HS4F, University Place Comprehensive Plan, 2015 |
| Promote a range of housing types for seniors; e.g., adult family homes, skilled nursing facilities, assisted living, and independent living communities. | Housing Element Policy H-4.3, Anacortes Comprehensive Plan, 2016 |
| Promote the use of universal design principles for new development or redevelopment housing projects. | Housing Element - Goal H-3, Policy A, Program 3, City of Ellensburg Comprehensive Plan, 2019 |

## Surplus land and nonprofit housing

| Policy text quote | Source |
|---|---|
| Identify and catalogue real property owned by the City that is no longer required for its purposes and is suitable for the development of affordable housing for very-low to moderate income households. | Housing Element Policy 4.1.8, Mount Vernon Comprehensive Plan, 2016 |

| Policy text quote | Source |
|---|---|
| Give priority to the use of surplus, publicly owned land for housing that provides for a range of household incomes, with an emphasis on encouraging housing for low-income families. | Housing Policy HO-54, Redmond Comprehensive Plan, 2011 |
| Explore and identify opportunities for non-profit developers to build affordable housing. | Housing Element Policy Implementation 4.5, Fife Comprehensive Plan, 2005 |
| Support non-profit agencies and public/private partnerships to preserve or develop additional housing for very low, low and moderate income households. | Housing Element Policy H-3.3, Anacortes Comprehensive Plan, 2016 |
| Evaluate land owned by the City and other public entities for use for affordable housing utilizing a community land trust or similar type model. | Housing Element Policy H-3.9, Anacortes Comprehensive Plan, 2016 |
| Encourage establishment and funding of a Community Affordable Land Trust to acquire land and build affordable housing within the urban area. | Housing Element – Coordination: Policy 1, Wenatchee Urban Area Comprehensive Plan, 2014 |
| Explore and identify opportunities to reduce land costs for non-profit and for-profit developers to build affordable housing – consistent with CPP AH7. | … Housing Element Policy HS3K (sub-policies excluded), University Place Comprehensive Plan, 2015 |
| Cooperate with nonprofit housing organizations and regional efforts to develop a long-term management strategy for creating and preserving existing subsidized affordable housing. | Housing Policy HO-42, Redmond Comprehensive Plan, 2011 |
| Support organizations that construct, manage and provide services for affordable housing, including permanently affordable housing. | Housing Chapter Policy H-26, Bellingham Comprehensive Plan, 2016 |
| Encourage self-help housing efforts in which people earn home equity in exchange for renovation or construction work, such as "sweat equity" volunteer programs. | Public Service Policy PS5.5, Olympia Comprehensive Plan, 2019 |
| Pursue creative methods within existing programs, such as the City's transfer of development rights (TDR) program, impact fee waivers, ARCH Housing Trust Fund, and state enabling legislation for property tax relief, as a means to provide direct assistance to builders and leverage funds for construction of affordable housing. | Housing Policy HO-46, Redmond Comprehensive Plan, 2011 |

# EQUITY, DISPLACEMENT AND INTEGRATION

| Policy text quote | Source |
|---|---|
| Prevent discrimination and encourage fair and equitable access to housing for all persons in accordance with state and federal law. | Housing Element Policy HS2H, University Place Comprehensive Plan, 2015 |
| Support fair and equal access to housing for all persons, regardless of race, religion, ethnic origin, age, household composition or size, disability, marital status, sexual orientation or economic circumstances. | Housing Chapter Policy H-15, Bellingham Comprehensive Plan, 2016 |

| Policy text quote | Source |
|---|---|
| Participate in relocation assistance to low- and moderate-income households whose housing may be displaced by condemnation or City-initiated code enforcement. | Housing Policy HO-50, Redmond Comprehensive Plan, 2011 |
| Enforce policies[138] that provide financial and relocation help to people who are displaced from their homes as a result of construction and development projects using federal funds. | Public Service Policy PS8.5, Olympia Comprehensive Plan, 2019 |
| Initiate and encourage equitable and inclusive community involvement that fosters civic pride and positive neighborhood image. | Housing Element Policy H21, Shoreline Comprehensive Plan, 2012 |
| Strive to increase class, race, and age integration by equitably dispersing affordable housing opportunities. Discourage neighborhood segregation and the isolation of special needs populations. | Housing Element – Housing Equity: Policy 1, Wenatchee Urban Area Comprehensive Plan, 2014 |
| When Community Development Block Grant or Housing and Urban Development-funded buildings are at risk of being converted to market-rate status, inform the tenants of any purchase and relocation options available. When possible, help the Housing Authority of Thurston County and non-profit organizations buy such housing. | Public Service Policy PS8.5, Olympia Comprehensive Plan, 2019 |
| Encourage relocation assistance and replacement housing to be developed, where feasible, to help low-income households when displacement is unavoidable. | Housing Element Policy 4.2.2, Mount Vernon Comprehensive Plan, 2016 |

# REGIONAL COORDINATION AND FAIR SHARE

| Policy text quote | Source |
|---|---|
| Support the Fair Share Housing allocation process and work with other jurisdictions to monitor progress toward achieving agreed upon goals. | Public Service Policy PS5.2, Olympia Comprehensive Plan, 2019 |
| Actively coordinate with public and private partners in efforts to meet regional housing needs. | Housing Chapter Policy H-14, Bellingham Comprehensive Plan, 2016 |
| Partner with private and not-for-profit developers, social and health service agencies, funding institutions, and all levels of government to identify and address regional housing needs. | Housing Element Policy H31, Shoreline Comprehensive Plan, 2012 |
| Coordinate with regional jurisdictions to develop a regional assessment and report to share in the responsibility for achieving a reasonable and equitable distribution of affordable housing to meet the needs of middle and lower income persons. | Housing Element – Coordination: Policy 4, Wenatchee Urban Area Comprehensive Plan, 2014 |
| Work regionally and with other jurisdictions to jointly fund affordable housing. | Housing Element Policy 4.3.3, Mount Vernon Comprehensive Plan, 2016 |

[138] Per section 104(d) of the Housing and Community Development Act of 1974 as amended, requiring the replacement of low- and moderate-income housing units that are demolished or converted to another use, in connection with a Community Development Block Grant project.

| Policy text quote | Source |
|---|---|
| Cooperate with King County, A Regional Coalition for Housing (ARCH), and other Eastside jurisdictions and housing agencies to assess housing needs, create affordable housing opportunities, and coordinate a regional approach to funding and meeting the housing needs of Eastside Communities. | Housing Policy HO-4, Redmond Comprehensive Plan, 2011 |
| Improve coordination among the County and other jurisdictions, housing and service providers, and funders to identify, promote, and implement local and regional strategies that increase housing opportunities. | Housing Element Policy H28, Shoreline Comprehensive Plan, 2012 |
| Strive to implement the City's "fair share" of affordable housing units as outlined in the cooperative effort among Pierce County jurisdictions. | Housing Element Policy Implementation 5.1, Fife Comprehensive Plan, 2005 |
| Encourage local and regional affiliations and alliances to provide affordable housing. | Housing Element Policy H-2.1, Anacortes Comprehensive Plan, 2016 |

# DESIGN AND DEVELOPMENT STANDARDS

| Policy text quote | Source |
|---|---|
| Require effective, but not unreasonably expensive, building designs and landscaping to blend multi-family housing into neighborhoods. | Housing Policy PL16.10, Olympia Comprehensive Plan, 2019 |
| Develop design guidelines, standards or other measures to achieve the following benefits:<br><br>A. Allow growth without sacrificing Anacortes's unique small town character.<br><br>B. Facilitate compatibility between existing and new housing.<br><br>C. Integrate and connect multifamily developments with surrounding development to enhance a sense of community in neighborhoods.<br><br>D. Allow for compatible integration of attached and detached accessory dwelling units in residential neighborhoods. | Housing Element Policy H-2.2, Anacortes Comprehensive Plan, 2016 |
| Develop design guidelines to ensure that all new housing, including that for lower and middle income owners and renters, adheres to good standards of planning, design, and construction. | Housing Element Policy 2.3, Walla Walla Comprehensive Plan, 2018 |
| Promote high quality design that is compatible with the overall style and character of established neighborhoods. | Housing Element - Goal H-1, Policy D, Program 1, City of Ellensburg Comprehensive Plan, 2019 |
| Integrate new development, with consideration to design and scale that complements existing neighborhoods, and provides effective transitions between different uses and intensities. | Housing Element - Goal H-1, Policy A, Program 1, City of Ellensburg Comprehensive Plan, 2019 |

| Policy text quote | Source |
|---|---|
| Allow "clustering" of housing compatible with the adjacent neighborhood to preserve and protect environmentally sensitive areas. | Housing Policy PL16.3, Olympia Comprehensive Plan, 2019 |
| Encourage housing types and design that reinforce and enhance the character and scale of established neighborhood development patterns. | Housing Element Policy H-2.1, Anacortes Comprehensive Plan, 2016 |
| Increase open space requirements for multi-family, high-density development. Locate required open space either on site or in public park space. | Housing Chapter Policy H-38, Bellingham Comprehensive Plan, 2016 |
| Enhance the appearance of and maintain public spaces in residential areas. | Housing Policy H-5.2, Prosser Comprehensive Plan, 2018 |

## Sustainable housing

| Policy text quote | Source |
|---|---|
| Plan for energy efficient housing that is designed to maximize use of renewable resources such as solar and wind power. | Housing Element Policy 2.5, Walla Walla Comprehensive Plan, 2018 |
| Foster innovative housing and mixtures of housing types that preserve natural resources and consolidate open space (e.g., context-sensitive residential clustering). | Housing Chapter Policy H-40, Bellingham Comprehensive Plan, 2016 |
| Encourage housing retrofits that make them more resilient to natural disasters and climate change, are more energy efficient, and provide healthier indoor environments, including good air quality. | Housing Chapter Policy H-37, Bellingham Comprehensive Plan, 2016 |
| Encourage the use of long-lived, low-maintenance building materials; high-efficiency energy systems; and low impact development techniques that reduce housing lifecycle costs and provide better environmental performance consistent with the City's Climate Protection Action Plan. | Housing Chapter Policy H-41, Bellingham Comprehensive Plan, 2016 |
| Encourage health-related improvements to older homes, including the removal of lead-based paint, asbestos, and other potentially harmful materials. | Housing Chapter Policy H-36, Bellingham Comprehensive Plan, 2016 |
| Encourage adapting non-residential buildings for housing. | Housing Policy PL16.13, Olympia Comprehensive Plan, 2019 |

## Historic preservation

| Policy text quote | Source |
|---|---|
| Support the preservation of Ellensburg's historically-significant housing through the City's historic preservation program, which maintains a list of historic properties and districts, and provides education and incentives. | Housing Element - Goal H-1, Policy D, Program 2, City of Ellensburg Comprehensive Plan, 2019 |

| Policy text quote | Source |
|---|---|
| Encourage neighborhoods and property owners to identify high-integrity historic areas that should be protected through the local historic district program. | Housing Chapter Policy H-33, Bellingham Comprehensive Plan, 2016 |

## TRACKING AND MONITORING

| Policy text quote | Source |
|---|---|
| Track the provision of affordable housing units to assess whether an adequate supply of housing affordable to the county's lower income and special needs residents, as defined in the Housing Characteristics and Needs report for Snohomish County, is being provided. | Snohomish County HO Policy 4.B Objective HO 4.B |
| In support of countywide housing policies, the county shall seek partnerships with other jurisdictions, through the Alliance for Housing Affordability, the Housing Consortium of Everett and Snohomish County, Snohomish County Tomorrow and similar forums, to track the provision of housing by type and affordability. This effort will include an assessment of progress toward meeting the county's housing goals, including housing that addresses the needs of households within the Under 30% AMI, 30-50% AMI and 51-80% AMI segments, as projected in the current Housing Characteristics and Needs Report for Snohomish County. | Snohomish County HO Policy 4.B Policy 4.B.1 |
| Based upon the monitoring and evaluation results from Policy 4.B.1, the county shall evaluate the effectiveness of its zoning regulations to produce housing developments that meet the diverse housing needs identified in the Housing Characteristics and Needs Report for Snohomish County. | Snohomish County HO Policy 4.B Policy 4.B.2 |
| Provide a report annually to the City Plan Commission that monitors progress toward achieving the housing goals and includes recommended policy change if positive direction toward achieving the housing goals is not occurring. | Housing Element Policy H 2.5, Spokane Comprehensive Plan, 2017 |
| Maintain a housing database to inform city officials and the public on the status of the City's housing market and effectiveness of Redmond housing policies and regulations. | Housing Policy HO-9, Redmond Comprehensive Plan, 2011 |
| Monitor the City's housing affordability market, including housing demand by housing type across all income levels and in all neighborhoods, and report on the effectiveness of the City's housing affordability policies. | Housing Chapter Policy H-25, Bellingham Comprehensive Plan, 2016 |
| Monitor housing supply, type and affordability, including progress toward meeting a proportionate share of the countywide need for affordable housing for very low-, low-, and moderate-income households. | Housing Element Policy H-6.2, Anacortes Comprehensive Plan, 2016 |
| Assess the effectiveness in meeting housing demands and monitor the achievement of the housing policies not less than once every 5 years. | Housing Element Policy Implementation 3.1, Fife Comprehensive Plan, 2005 |
| Monitor local data and routinely reassess and adjust policies, strategies and regulations to improve effectiveness of programs to meet local housing needs. | Housing Element Policy H-6.3, Anacortes Comprehensive Plan, 2016 |
| Monitor the number, type, and affordability of housing units being built annually to ensure consistency with the number of planned housing units, particularly in Mixed-Use zones. | Housing Policy HO-10, Redmond Comprehensive Plan, 2011 |

| Policy text quote | Source |
| --- | --- |
| Provide annual information on affordable homeownership and rentals in the City, including the operative definitions of affordable housing, criteria to qualify for local, state, and federal housing assistance, data on current levels of market-rate and affordable housing, demand for market-rate and affordable housing, and progress toward meeting market-rate and affordable housing goals. | Housing Policy PL16.14, Olympia Comprehensive Plan, 2019 |

Jurisdictions examined for Appendix C:

| | | | |
| --- | --- | --- | --- |
| Anacortes | Mount Vernon | Ridgefield | Vancouver |
| Bellingham | Olympia | Shoreline | Walla Walla |
| Ellensburg | Prosser | Spokane | Wenatchee |
| Fife | Redmond | University Place | Yakima |

# Appendix D: Resources for funding affordable housing in Washington state

| Agency | Program | Description | Eligibility and link to more information |
|---|---|---|---|
| **Washington State Department of Commerce (Commerce)** | Housing Trust Fund | Provides state and federal funds for affordable housing construction and preservation. HOME Investment and Partnership Program funds are also awarded through the Housing Trust Fund Process. | Low-income and special needs populations. Open to local governments, tribes and non-profits. www.commerce.wa.gov/building-infrastructure/housing/housing-trust-fund/<br><br>www.commerce.wa.gov/building-infrastructure/housing/housing-trust-fund/home-program/ |
| **Commerce** | Connecting Housing to Infrastructure Program (CHIP) | Funds utility improvements for affordable housing projects. | Low-income households. The applicant must be a city, county or public utility district in partnership with an affordable housing project. Additional eligibility requirements are on the grant webpage. https://www.commerce.wa.gov/serving-communities/growth-management/growth-management-topics/planning-for-housing/chip/ |
| **Commerce** | Weatherization | Commerce contracts with local agencies that weatherize low-income homes and apartments. | Qualified low-income homes and apartments. www.commerce.wa.gov/growing-the-economy/energy/weatherization-and-energy-efficiency/rural-rehab/ |
| **Commerce** | Washington (WA) Foreclosure Fairness Program | Provides homeowner foreclosure assistance for offering free housing counseling, civic legal aid and foreclosure mediation. | Washington state homeowners. www.commerce.wa.gov/ building-infrastructure/housing/foreclosure-fairness/<br><br>Low and moderate-income homeowners can also contact statewide civil legal aid at www.nwjustice.org/get-legal-help. |
| **Commerce** | Mobile/ Manufactured Home Relocation Assistance Program | Reimburses costs of mobile and manufactured home relocation up to $7,500 for a single-section home and $12,000 for a multi-section home. Also reimburses for demolition, removal and down payment for another manufactured home. | Mobile and manufactured home owners with incomes of 80% area median income (AMI). Priority is given to parks closed due to health and safety concerns or park owner fraud. www.commerce.wa.gov/building-infrastructure/housing/mobile-home-relocation-assistance/ |
| **Commerce** | Consolidated Homeless Grant (CHG) | The CHG provides resources to fund homeless crisis response systems to support communities in ending homelessness. Grants are made to local governments and nonprofits. Funding is from document recording fees authorized through the Homeless Housing and Assistance Act. | Ch. 43.185C Revised Code of Washington (RCW)<br><br>www.commerce.wa.gov/wp-content/uploads/2017/01/hau-overview-homeless-housing-system-2017.pdf<br><br>www.commerce.wa.gov/serving-communities/homelessness/ |

| Agency | Program | Description | Eligibility and link to more information |
|---|---|---|---|
| **Commerce** | Brownfield Revolving Loan Fund (BRLF) | Provides technical assistance and low interest loans for cleanup activities on contaminated properties for redevelopment activities, including affordable housing development. | Local and regional governments, ports, tribes, non-profit agencies and private businesses. www.commerce.wa.gov/serving-communities/brownfields-revolving-loan-fund/ |
| **Washington State Department of Ecology** | Redevelopment Opportunity Zones, Brownfield Renewal Authorities, and BRTF Account | The Brownfield Redevelopment Trust Fund (BRTF) Account can be used within a specified redevelopment opportunity zone (ROZ) designated by local governments. The mechanism allows state and local public moneys, and private or non-profit moneys, to be set aside for cleaning up brownfields located within a ROZ. Moneys in the account may be spent only after appropriation by the Legislature and approval by Ecology. | Local governments must meet the eligibility and other requirements for remedial actions grants codified in Chapter 173-322A Washington Administrative Code (WAC).<br><br>Overview: https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Brownfields#Funding<br><br>See https://ecology.wa.gov/DOE/files/fe/fed0108e-520f-4158-8992-bd5078fae9f1.pdf for a complete list of brownfield funding opportunities in Washington state. |
| **WA Department of Archeology and Historic Preservation (DAHP)** | Federal historic tax credit program | A 20% Federal income tax credit on the qualified amount of private investment spent on certified rehabilitation of a National Register listed historic buildings. | Buildings must be listed on national register of historic places, the property must produce income after rehabilitation (no owner occupied) and projects must be substantial. Rehab must be done according to secretary of the interior standards. https://dahp.wa.gov/tax-credits<br><br>(Web site includes information on other historic tax credit programs including New Market Tax Credit, National Trust Small Deal Fund and Bank of America Historic Tax Credit Fund.) |
| **Washington State Housing Finance Commission (WSHFC)** | Low Income Housing Tax Credits (LIHTC) | The nine percent Low-Income Housing Tax Credit Program (LIHTC) allocates federal income tax credit to developers to encourage the construction and rehabilitation of affordable multifamily housing. Housing credit is allocated through an annual competitive process in which projects are evaluated and scored according to the Commission's established criteria. | Affordable housing developers serving very low, low, and moderate-income people. www.wshfc.org/mhcf/9percent/index.htm |
| **WSHFC** | Multifamily bond programs | Multifamily Housing Bonds with 4% Low Income Housing Tax Credit provides access to bond and tax credit financing for affordable housing developers. | Affordable housing developers serving very low, low and moderate-income households. www.wshfc.org/mhcf/4percent/index.htm |
| **WSHFC** | Bond financing for non-profit facilities | Helps 501(c)(3) nonprofits save money through lower-interest loans for construction, capital improvements and equipment. | Non Profits: www.wshfc.org/facilities/index.htm |

| Agency | Program | Description | Eligibility and link to more information |
|---|---|---|---|
| **WSHFC** | Manufactured home community investment program | The Commission helps preserve manufactured home communities by allowing them to purchase and manage their communities. | Very low, low and moderate-income manufactured home park residents. wshfc.org/mhcf/manufactured.htm |
| **WSHFC** | Land acquisition (for housing non-profits) | The Land Acquisition Program assists eligible nonprofit organizations in Washington state to purchase land suited for either multifamily or single family affordable housing development. | Eligible non-profits serving very low, low and moderate-income households. www.wshfc.org/mhcf/lap/index.htm |
| **WSHFC** | Home mortgage loan programs | The Commission currently operates two mortgage loan programs: Home Advantage and House Key Opportunity and eleven down payment assistance programs. The Commission works through a network of participating lenders who originate and close the loans. | Low and moderate-income homebuyers. www.wshfc.org/buyers/HomeAdvantage.htm and www.wshfc.org/buyers/key.htm<br><br>The Commission also provides training to lenders, real estate professionals and nonprofit partners on how to originate WSHFC loans and how to teach a WSHFC-sponsored homebuyer education seminar. |
| **WSHFC** | Down payment assistance | Programs vary, but the Commission offers down payment assistance loans for homebuyers who use the Commission's programs. | Low and moderate-income homebuyers. www.wshfc.org/buyers/downpayment.htm |
| **WSHFC** | Homeowner-ship education programs | Through local partnerships, WSHFC helps homebuyers learn how to purchase and maintain a home. Commission-sponsored homebuyer education seminars are free; open to the public; and include information about the Commission's first mortgage programs, down payment assistance, and other loan programs. Seminars are accepted by all affordable housing loan programs as meeting or exceeding educational requirements. | Low and moderate-income homebuyers. www.wshfc.org/buyers/education.htm |
| **WSHFC** | Sustainable Energy Programs | The Commission offers several ways to affordably develop energy-efficient buildings, upgrade existing buildings and create or conserve energy. Smaller loans are available through the Energy Spark home loan program. The Sustainable Energy Trust (SET) provides low-interest loans for energy-efficiency or renewable energy projects and a tax-exempt or tax-credit bond for larger projects (over $1 Million). | Homeowners, developers, multifamily property owners and non-profit facilities. www.wshfc.org/energy/index.htm |

| Agency | Program | Description | Eligibility and link to more information |
|---|---|---|---|
| **US Department of Housing and Urban Development (HUD)** | Section 8, Public Housing | The "Section 8" housing choice voucher program is the federal government's major program for assisting very low-income families, the elderly and the disabled to afford decent, safe and sanitary housing in the private market. Since housing assistance is provided on behalf of the family or individual, participants are able to find their own housing, including single-family homes, townhouses and apartments.<br><br>Public (site-based) housing provides decent and safe rental housing for eligible low-income families, the elderly and persons with disabilities. Public housing comes in all sizes and types, from scattered single-family houses to high-rise apartments for elderly families. | Section 8 ad Public Housing programs are administered through Washington's pubic-chartered housing authorities. Contact your local housing authority for information on eligibility, population priorities and wait lists. https://www.awha.org/find-a-housing-authority.html |
| **HUD** | Home Rehabilitation Loan Program (HRLP) (2018) | Provides deferred loans to rural, low-income households that need repairs and improvements on their primary residence for health, safety or durability. Funding for the loan program comes from the Washington Capital Budget. | Low-income households in specific rural areas. www.commerce.wa.gov/growing-the-economy/energy/weatherization-and-energy-efficiency/rural-rehab/ |
| **HUD** | Continuum of Care (CoC) Program | The CoC program provide funding for efforts by nonprofit providers, and State and local governments to quickly rehouse homeless individuals and families. | Adults and families with children experiencing or at risk of homelessness. https://www.commerce.wa.gov/serving-communities/homelessness/continuum-of-care/ |
| **HUD** | Emergency Solutions Grants (ESG) | Grants of federal funds to provide street outreach, emergency shelter, rental assistance and related services. | Adults and families with children experiencing or at risk of homelessness. www.commerce.wa.gov/serving-communities/homelessness/emergency-solutions-grant/ |
| **HUD** | Section 811 Project Rental Assistance (PRA) demonstration | Federal funds provide project-based rental assistance. The program creates collaboration between Commerce and Department of Social and Health Services (DSHS) that will increase rental housing units for persons with disabilities by integrating Section 811 PRA assisted units within existing, new or rehabilitated multifamily properties. | Extremely low-income, non-elderly disabled households. www.commerce.wa.gov/serving communities /homelessness/hud-section-811-rental-assistance/ |
| **HUD** | Tenant-Based Rental Assistance (TBRA) | Uses federal funds to support communities providing utility, deposit and ongoing rental assistance. Eligible households are referred to | Very low-income households (at or below 50 percent AMI). Find a list of providers at |

| Agency | Program | Description | Eligibility and link to more information |
|---|---|---|---|
| | | TBRA through local coordinated entry systems. | www.commerce.wa.gov/serving-communities/homelessness/tenant-based-rental-assistance-tbra/ |
| **HUD** | Community Development Block Grant (CDBG) | Provides federal funds for the following activities: housing rehabilitation, homeownership assistance, local connections to sewers and affordable housing plans. Can NOT fund new housing construction, but can fund infrastructure in support of new affordable housing. | Eligible rural cities and counties serving low- and moderate-income households in CDBG non-entitlement communities. www.commerce.wa.gov/serving-communities/current-opportunities-2/community-development-block-grants<br><br>For urban CDBG entitlement programs, contact the local CDBG program manager. www.hud.gov/states/washington/community/cdbg |
| **HUD** | Indian Community Development Block Grant (ICDBG) Program | Provides direct grants for use in developing viable Indian Communities, including decent housing, a suitable living environment and economic opportunities, primarily for low and moderate-income persons. | Low and moderate-income persons in any Indian tribe, band, group or nation (including Alaska Indians, Aleut and Eskimos).<br><br>www.hud.gov/program_offices/public_indian_housing/ih/grants/icdbg |
| **US Department of Agriculture (USDA) Rural Development** | Single Family Housing Guaranteed Loan Program | Assists approved lenders in providing loans to low- and moderate-income households for adequate, modest, decent, safe and sanitary dwellings as their primary residence in eligible rural areas. The program provides a 90% loan note guarantee to approved lenders in order to reduce the risk of extending 100% loans to eligible rural homebuyers. | Low- or moderate-income households living in a rural area should apply through an approved lender. Eligible applicants may build, rehabilitate, improve or relocate a dwelling in an eligible rural area. www.rd.usda.gov/programs-services/single-family-housing-guaranteed-loan-program |
| **USDA Rural Development** | Single Family Housing Direct Home Loans (Section 502 Direct Loan Program) | This program, also known as the Section 502 Direct Loan Program, assists low- and very-low-income applicants to obtain decent, safe and sanitary housing in eligible rural areas by providing payment assistance to increase an applicant's repayment ability. Payment assistance is a type of subsidy that reduces the mortgage payment for a short time. The amount of assistance is determined by the adjusted family income. | Low-income individuals in rural area with population of less than 35,000. www.rd.usda.gov/programs-services/single-family-housing-direct-home-loans<br><br>https://www.rcac.org/housing/502direct-packaging-program/ |
| **USDA Rural Development** | Single Family Housing Repair (Section 504 Home Repair) loans and grants | This program provides loans to very-low-income homeowners to repair, improve or modernize their homes, or grants to elderly very-low-income homeowners to remove health and safety hazards. | Households with a family income below 50% AMI. Homeowner max loan is $20,000, max grant is $7,500, loans and grants can be combined. www.rd.usda.gov/programs-services/single-family-housing-repair-loans-grants |

| Agency | Program | Description | Eligibility and link to more information |
|---|---|---|---|
| **USDA Rural Development** | Rural Community Development Initiative (RCDI) Grants | RCDI grants are awarded to help support housing, community facilities, and community and economic development projects in rural areas. Can be used to provide training, such as homeownership education, or technical assistance, such as strategic plan development. | Non-profit housing and community development organizations, low-income rural communities and federally recognized tribes. Must be in a rural area, any area other than a city or town with greater than 50,000 population, and urbanized adjacent area to such town/city. 100% match required. www.rd.usda.gov/programs-services/rural-community-development-initiative-grants |
| **Community Development Financial Institution** | New Market Tax Credit Program | Permits taxpayers to receive a credit against federal income taxes for making qualified equity investments in designated Community Development Entities (CDEs) in low-income communities. Substantially all of the qualified equity investment must in turn be used by the CDE to provide investments in low-income communities. Investors may not redeem their investments in CDEs prior to the conclusion of the seven-year period. | The credit provided to the investor totals 39% of the cost of the investment and is claimed over a seven-year credit allowance period. In each of the first three years, the investor receives a credit equal to five percent of the total amount paid for the stock or capital interest at the time of purchase. For the final four years, the value of the credit is six percent annually. For more information contact:<br>- New Market Tax Credit Program, Phone: (202) 622-8662. https://www.cdfifund.gov/programs-training/Programs/new-markets-tax-credit/Pages/default.aspx |
| **Rural Community Assistance Cooperation (RCAC)** | Housing Development (Non-profits) | RCAC provides support to develop rental or for sale affordable housing and community facilities in the rural west. Support includes technical assistance in LIHTC, USDA Rural Development 515, 514/516, HOME, CDBG, AHP, tax-exempt bonds, state housing trust funds, project-based Section 8, local and state resources, and conventional financing. | Non-profit organizations in rural areas, on tribal lands and within colonias. www.rcac.org/housing/housing-development/ |
| **RCAC** | Section 523 Mutual Self Help Housing | Low-income borrowers work together under the guidance of a non-profit public housing entity (self-help grantee) to build each other's homes. With a construction supervisor on site, building groups perform at least 65% of the construction work required (known as "sweat equity"). In most cases, the grantee also manages the construction loans, develops the building site, provides homeownership training, offers building plans, qualifies the borrower for his/her mortgage and markets the program in the service area. | Under the USDA contract, RCAC assists grantees in the western United States to successfully complete the production of single-family financed housing under the Mutual Self-Help Housing program. (See the Self-Help Western Region Grantee Guide.)<br><br>www.rcac.org/housing/mutual-self-help-housing/ |
| **Local** | Sales and use tax for affordable housing | A local vote, or council approval (as of 2020), would authorize a local sales and use tax of up to 0.1 percent per dollar spent. Funds must be used for construction of affordable | Counties (or if not used, a city) may pass a local vote or councilmanically authorize the tax. This sales tax previously required voter approval. Counties have the "right of first refusal"; if a county has not imposed this sales tax by September 30, |

| Agency | Program | Description | Eligibility and link to more information |
|---|---|---|---|
| | | housing or behavioral health–related facilities for named groups with incomes of 60% or less of county median income. | then any city in that county may impose this tax. RCW 82.14.530 (2015), HB 1590 (laws of 2020) |
| **Local** | Free or discounted public land | Public agencies (local government or utility) can discount or gift land they own for "public benefit," defined as affordable housing for households up to 80% AMI. | Must adopt rules to regulate transfer. RCW 39.33.015 (2018) |
| **Local** | Affordable housing property tax levy | A local vote may authorize a levy of up to $0.50 per $1,000 assessed value for up to ten years to finance affordable housing for very low-income households (equal to or under 50 % AMI). Must declare an affordable housing emergency and have an affordable housing financing plan. Program was expanded in 2020 to allow the use of revenues to include affordable homeownership, owner-occupied home repair, and foreclosure prevention programs for "low-income" households up to 80% of median income. | A county, city or town must pass a local vote to authorize the levy. RCW 84.52.105 (1993), Senate Bill (SB) 6212 |
| **Local** | Affordable and Supportive Housing Sales and Use Tax | RCW 82.14.540 created a revenue-sharing partnership between the state and counties and cities for affordable and supportive housing investments. It authorized a local sales tax option that is a credit against the state sales tax rate of 6.5%. Housing and services may be provided only to persons whose income is at or below 60% of the median income of the city or county imposing the tax. | A "participating" city or county is one that imposed the affordable housing sales tax credit and completed the two required steps for adoption.<br>1. Passed a resolution of intent by Jan. 28, 2020<br>2. Adopted legislation to authorize the maximum capacity of the tax by July 28, 2020 |
| **Local** | Sales and Use Tax for Chemical Dependency, Mental Health Services or Therapeutic Courts | RCW 82.14.460 authorized counties to levy a one-tenth of one percent sales and use tax to fund new mental health, chemical dependency, or therapeutic court service. Any county may impose a mental health and chemical dependency sales tax up to 0.1% for mental health and drug treatment purposes. | Counties only, except for a few cities in Pierce County. |
| **Local** | Real Estate Excise Tax 2 (REET 2) | A 0.25% REET that may be imposed by any city, town or county fully planning under the Growth Management Act (GMA), to be used for "capital projects" specified in the | For jurisdictions required to fully plan under the GMA, the legislative body may impose REET 2. Any jurisdiction voluntarily planning under the GMA must have voter approval. |

| Agency | Program | Description | Eligibility and link to more information |
|---|---|---|---|
| | | capital facilities plan element of the jurisdiction's comprehensive land use plan, including affordable housing projects through January 1, 2026. Jurisdictions may only use a portion of REET funds on affordable housing. | RCW 82.46.035 |
| **Local** | Impact fee waivers | Impact fee waiver for up to 100% of fees for permanently restricted affordable housing (for rental or purchase) for households earning less than or equal to 80% AMI. 80% may be waived; but if 100% of fees are waived, 20% must be paid with other public moneys. A school district receiving impact fees must approve any exemption. | Counties, cities, or towns charging impact fees. RCW 82.02.060 |
| **Local** | Multifamily tax exemption program | 12-year property tax exemption on the value of improvements for 4+ new or rehabilitated, rental or ownership housing units if at least 20% of units are affordable to households earning 115% AMI or less. Must define a "residential targeted area" within an urban center within which the exemption would apply. | Community with a population of at least 15,000; a city or town with a population of at least 5,000 if in Clark, Thurston, Pierce, King, Snohomish, Kitsap or Whatcom Counties; or the largest city or town in a county if there is no city or town with a population of at least 15,000. RCW 84.14 |
| **Local** | Fee waivers for water or sewer connection | Waiver or delay of tap-in charges, connection or hook-up fees for low-income persons for water, sanitary or storm sewer, electricity, gas or other utility. | No specific income level is detailed (may assume less than 80% AMI). RCW 35.92.380 (1980) |
| **Local** | Sewage and solid waste fees | Assistance for sewer and solid waste fees. | RCW 35.92.020 (5) allows a city or town to provide assistance to aid-low income persons. |
| **Local** | Affordable Housing Incentive Programs | Any GMA city or county may enact or expand affordable housing incentive programs through development regulations or conditions on rezoning or permit decisions, or both, on residential, commercial, industrial, or mixed-use development. The program may include mandatory or optional elements, such as density bonuses within the urban growth area, height and bulk bonuses, fee waivers or exemptions, parking reductions, expedited permitting, or mandatory amount of affordable | Incentive or bonuses housing units are for low-income rental (50% or less of county median family income) or for purchase (80% of county median family income), or other income levels as needed to address local housing market conditions. Housing must remain affordable for 50 years or jurisdiction may accept payments in lieu of continuing affordability. Payment or property in lieu of housing is acceptable. RCW 36.70A.540 (2006) |

| Agency | Program | Description | Eligibility and link to more information |
|---|---|---|---|
| | | housing provided by each development. | |
| **Local** | Community Revitalization Financing (CRF) | The CRF authorizes creation of tax increment areas where community revitalization projects and programs are financed by diverting a portion of the regular property taxes imposed by local governments within the tax increment area. | Counties, cities, towns and port districts. Chapter 39.89 RCW<br>HB 2497 (laws of 2020) added creating or preserving permanently affordable housing to the list of eligible public improvements for this funding, required for at least 40 years for rental housing and 25 years for ownership housing. |
| **Local** | Local Infrastructure Financing Tool Program (LIFT) | Provides funding for local infrastructure using sales tax, property tax and selected other excise tax increases generated by an economic development project as part of a revenue development area designated by the sponsoring local government. | Ch. 39.102 RCW<br>See HB 2497 (laws of 2020) amendments. Must apply to the Community Economic Revitalization Board at Commerce. Not presently authorized. |
| **Local** | Local Revitalization Tool (LRF) | Authorizes cities and counties to create "revitalization areas" and allows certain revenues to be used for payment of bonds issued for financing local public improvements within the revitalization area. | RCW 39.104<br>See HB 2497 (laws of 2020) amendments. Must apply to the Community Economic Revitalization Board at Commerce. Not presently authorized. |
| **Local** | Deferral of property tax | A claimant may apply to defer payment of 50% of special assessments or real property taxes, or both, provided the household's combined disposable income is $57,000 or less and the claimant must have paid one-half of the total assessments and taxes for the year. | Very-low and low-income households.<br>RCW 84.37 |
| **Local** | Tax deferral for retired persons | Allows eligible agencies to provide tax relief to eligible households (less than 75% AMI). | RCW 84.38 |
| **Local** | Tax deferral for certain people | Property tax exemption for seniors or veterans with certain qualifications. | RCW 84.36.381 |

# Appendix E: Housing law and case law

## Washington state housing requirements through 2020[139]

| Requirement | GMA | Code cities | Cities & towns | Counties | General provisions |
|---|---|---|---|---|---|
| Accessory dwelling units: New GMA definitions and limits to parking limits within ¼ mile of a major transit stop. ESSB 6617 (2020) | RCW 36.70A.696 – 699. | | | | |
| A local government is limited in the amount of parking it may require for certain types of development occurring within ¼ mile of a transit stop. SHB 2343 (2020) | RCW 36.70A.620 | | | | |
| A city may regulate religious organizations that host temporary encampments for the homeless. ESHB 1754 (2020) | | RCW 35A.21.360 | | RCW 36.01.290 | RCW 35.21.915 |
| Group homes and inpatient facilities may not be precluded by local zoning. GMA jurisdictions should review list of essential public facilities. Updated in HB 2640 (2020) | RCW 36.70A.200<br><br>WAC 365-196-550 | | RCW 35.64.140 | | |
| Permanent supportive housing must not be prohibited in areas zoned for multifamily housing. Definition in RCW 36.70A.030 (16), E2SHB 1923 (2019), and SHB 2343 (2020) | SHB 2343 (2020) | RCW 35A.21.305 | | | RCW 35.21.689 |
| Manufactured homes must be allowed on all lots. A city or town may not discriminate against consumers' choices in the placement or use of a home. This statute sets out design requirements, but this was revised in 2019 to state that a city may not use setbacks on an existing lot to prohibit a manufactured home. It also sets standards around recreational vehicles and tiny homes. Updates by ESSB 5183 (2019) | | RCW 35A.21.312<br><br>RCW 35A.63.146 For non-conforming use protections | RCW 35.63-161 | RCW 36.01.225<br><br>RCW 36.70.493 | RCW 35.21.684 |
| A city or town may adopt an ordinance to regulate the creation of tiny home communities. ESSB 5383 (2019) | | | | | RCW 35.21.686 |

[139] For housing laws and requirements between 2020 and 2023, see Commerce's 2019 through 2023 Housing Laws for Planners.

| Requirement | GMA | Code cities | Cities & towns | Counties | General provisions |
|---|---|---|---|---|---|
| Communities must allow density bonuses for affordable housing located on property owned by a religious organization. SHB 1377 (2019) | RCW 36.70A.545 | RCW 35A.63.300 | RCW 35.63.280 | | |
| GMA updates to definitions for “affordable housing,” “low-,” “very low-” and “extremely low-income households.” E2SHB 1923 (2019) and permanent supportive housing | RCW 36.70A.030 | | | | |
| Parking near transit: A local government planning under the GMA is limited in the amount of parking it may require for certain types of development occurring within ¼ mile of a transit stop. E2SHB 1923 (2019) | RCW 36.70A.620 | | | | |
| Residential structures that are occupied by persons with handicaps must be regulated the same as a similar residential structures occupied by a family or other unrelated individuals. (1993) | RCW 36.70A.410<br><br>WAC 365-196-860 | RCW 35A.63.240 | RCW 35.63.220 | RCW 36.70.990 | |
| Family day-care facilities may not be prohibited. No county or city may prohibit the use of a residential dwelling, located in an area zoned for residential or commercial use, as a family day-care provider's home facility. | RCW 36.70A.450<br><br>WAC 365-196-865 | RCW 35A.63.215 | RCW 35.63.185 | RCW 36.70.757 | RCW 35.21.688 |
| Accessory dwelling units must be allowed by communities over 20,000 and counties over 125,000 in population. ***NOTE:** This was revised with HB 1337 (2023). See Washington State Housing Laws of 2019 through 2023 or HB 1337 (2023). | RCW 36.70A.400 | RCW 35A.63.230 | RCW 35.63.210 | RCW 36.70.677 | |
| Rent control is prohibited. May not regulate the amount of rent to be charged for single-family or multiple-unit residential rental structures or sites other than properties in public ownership, under public management or properties providing low-income rental housing. | | | | RCW 36.01.130 | |

| Requirement | GMA | Code cities | Cities & towns | Counties | General provisions |
|---|---|---|---|---|---|
| **OPTIONAL TOOLS** | | | | | |
| GMA cities may enact affordable housing incentive programs. (2009) | RCW 36.70A.540<br><br>WAC 365-196-870 | | | | |
| GMA cities may adopt provisions to increase residential capacity. Such provisions are protected from SEPA and GMHB appeal until April 2023. E2SHB 1923 (2019) and SSB 2343 (2020) | RCW 36.70A.600 | | | | |
| Disposal of surplus government property for housing. Property may be offered at low or no cost for a public benefit of affordable housing. 3SHB 2382 (2018), RCW 39.33.015 | | | | | |
| Exempting emergency housing from impact fees. SHB 2538 (2018) | See RCW 82.02.060 (2)-(3) | | | | |

## Legal cases to consider

**In some cases, case law sets the standard for what may or not be included in local policies.** A local government can only be held to the decisions of its regional Growth Management Hearings Board, so we recommend reviewing the digests and cases from the regional board, and any subsequent appeals, however, some general themes have emerged that can provide guidance to all jurisdictions.

**City responsibility to "set the table" for the development of affordable housing:** "Developing programs that will provide affordable housing opportunities and special needs housing opportunities for the low-income, very low-income, extremely low-income, and disabled and senior citizens of Lakewood is, as the City acknowledges, its responsibility." [LIHI II, 01-3-0023, FDO, at 14]

"The Board recognizes too that the County is not obligated to add to the stock of low income housing but instead to set the framework in which the market can provide housing for all segments of the population." [Campbell v. San Juan County, Case No. 09-2-0104, FDO at 14 (Jan. 27, 2010)]

**Local governments have choices in planning for housing:** "RCW 36.70A.020(4) does not require that each and every land use designation of a jurisdiction provide for affordable housing." [LMI/Chevron, 98-3-0012, FDO, at 29.]

"The Act requires cities and counties to preserve existing housing while promoting affordable housing and a variety of residential densities and housing types. No jurisdiction is required to reconcile these seemingly inconsistent requirements by totally focusing on one requirement, for instance preserving existing housing, to the exclusion of other requirements, such as encouraging more affordable housing. Instead, jurisdictions must

reconcile the Act's seemingly contradictory requirements by applying and necessarily balancing them." [WSDF I, 94-3-0016, FDO, at 30.]

**"…each housing element must be considered on its own merits** under a fact-specific analysis, and each city or county necessarily plans and words its housing element differently in order to address local needs." Each jurisdiction "has the discretion to determine the zoning required – whether small lot, duplex, multi-family, or mixed use – so long as the plan includes sufficient land for housing all economic segments of its community..." [Futurewise V, 07-3- 0014, FDO, at 8.]

**"A comprehensive plan policy regarding affordable housing must be specific and must be implemented by development regulations** to comply with the GMA." [Friday Harbor v. San Juan County 99-2-0010 (FDO, 7-21-99)]

**Local housing elements must be consistent with countywide planning policies and must plan for all economic segments:** "The City's Housing Element must "make adequate provision" for existing and projected housing needs of this economic segment of the community" The challenged Comprehensive Plan Housing Element was inconsistent with the Countywide Planning Policies for King County because Ordinance O2015-396 failed to establish any numeric or percentage goals for the City's "share" of countywide housing needs in the moderate, low, and very low income housing categories, contrary to RCW 36.70A.100 and RCW 36.70A.210(1). [Paul Stickney and Richard Birgh v. City of Sammamish, Case No. 15-3-0017, affirmed by Court of Appeals of Washington, Division 1, in Stickney v. Cent. Puget Sound Growth Mgmt. Hearings Bd., 11 Wash. App. 2d 228, 453 P.3d 25 (2019)].

**More diverse residential landscape:** "In the GMA, there are a number of specific references that address housing and residential land uses, some of them more explicit and directive than others. There are at least five sections of the Act that are on point. When these sections are read together, they describe a legislatively preferred residential landscape that, compared with the past, will be less homogeneous, more diverse, more compact and better furnished with facilities and services to support the needs of the changing residential population." [Children's I, 95-3-0011, FDO, at 5.]

**Preserving neighborhood character:** "The GMA clearly encourages the preservation of existing housing stock (See RCW 36.70A.020(4)) and provides for ensuring the vitality and character of established residential neighborhoods (See RCW 36.70A.070(4)). However, as the Board stated, supra, "any opportunity to perpetuate an "historic low-density residential" development pattern, [in the subarea], ended in 1994 when the County included the area within the UGA." It is clear that existing housing stock and neighborhoods may be maintained and preserved, however existing low-density patterns of development cannot be perpetuated." [MBA/Brink, 02-3-0010, FDO, at 14-15.]

"The requirement to "ensure neighborhood vitality and character" is neither a mandate, nor an excuse, to freeze neighborhood densities at their pre-GMA levels. The Act clearly contemplates that infill development and increased residential densities are desirable in areas where service capacity already exists, i.e., in urban areas – while also requiring that such growth be accommodated in such a way as to "ensure neighborhood vitality and character." [Benaroya I, 95-3-0072c, FDO, at 21.]

**Rural ADUs:** "All three Hearings Boards have discouraged detached accessory dwelling unit provisions without specific criteria to curtail indiscriminate increased density." [Loon Lake, et al. v. Stevens County, EWGMHB Case No. 01-1-0002c, Order on Motions, at 10 (Oct. 25, 2007)].

**Monitoring progress:** "The Board observes that the affordable housing percentages for income levels are targets to be adjusted and/or met over the 20-year life of the Plan. One should not expect them to be achieved halfway into the Plan's time horizons. Peaks and valleys in progress will obviously occur over time depending upon numerous factors. But monitoring progress toward the targets is essential – which the County clearly does as reflected in the Housing Appendix and Benchmarks Reports." [S/K Realtors, 04-3- 0028, FDO, at 36.]

**Homelessness:** There has been significant work on addressing homelessness. MRSC has a number of blog articles on this topic. The fundamental point is that a local government cannot render homelessness a crime if there is not sufficient housing/shelter options available. From MRSC:

- Is Your Camping Ordinance Constitutional?
- What Are Local Governments Doing in Response to *Martin v. City of Boise*?
- New Legislation on Temporary Homeless Encampments
- Homelessness and the Limits of Enforcement
- Living in Vehicles: How Homestead Rights Affect Municipal Impounds

# Appendix F: Federal and state housing policy history

## Federal housing policy timeline

**1867:** In New York City, the first tenement-law regulation in America is enacted to ban the construction of rooms without ventilators and apartments without fire escapes, while also requiring one toilet per 20 people. However, these regulations were not often enforced until 1901 when the city passed the Tenement House Law, which mandated improved sanitary conditions, fire escapes and access to light.[140]

**1923:** The first U.S. public-housing project is constructed in Milwaukee.[141]

**1926:** The first significant effort in the country to offer any kind of subsidy for affordable housing when New York State passed the Limited Dividend Housing Companies Act.[142]

> "The federal government has been involved in providing housing assistance to lower-income households since the 1930s. In the beginning, the federal government played a role in supporting the mortgage market (through establishment of the Federal Housing Administration [FHA] and the government-sponsored enterprises) and in promoting construction of low-rent public housing for lower-income families through local public housing authorities (PHAs). Over time, the federal government has shifted away from providing construction-based subsidies toward providing rental subsidies, and private developers and property owners have been playing a larger role."
>
> ~Congressional Research Services, "Overview of Federal Assistance Programs and Policy," Overview section

**1934:** In response to the Great Depression, the National Housing Act established the Federal Housing Administration (FHA), which was created to guarantee loans and insure mortgages for single-family homes as well as private multi-family housing. At this time, America was primarily renters, with only four in 10 households owning homes. Mortgage loan terms were limited to 50% of the property's market value, with short three- to five-year repayment schedules that ended with a balloon payment.[143]

**1937:** The Wagner-Steagall Housing Act established the U.S. Housing Authority, the first federal agency devoted solely to housing, and a new Low-Rent Public Housing program. Originally intended to create public housing for families with low incomes, it required partnerships between federal, state and local governments.[144] The U.S. Housing Authority gradually expanded from low-income housing projects to middle-class development in suburban areas during World War II.[145]

---

[140] History.com Editors, "Tenements," (updated October 10, 2019; original April 22, 2010), https://www.history.com/topics/immigration/tenements.
[141] Milwaukee County Historical Society, "Daniel Hoan Collection," https://milwaukeehistory.net/unlocking-the-vault/daniel-hoan-collection-text/.
[142] The Nation, "151 Years of America's Housing History," (May 24, 2018), https://www.thenation.com/article/archive/americas-housing-history/.
[143] U.S. Department of Housing and Urban Development (HUD), "The Federal Housing Administration (FHA)," https://www.hud.gov/program_offices/housing/fhahistory.
[144] Congressional Research Service (CRS), "Overview of Federal Housing Assistance Programs and Policy," (Updated 2019), p.2, https://crsreports.congress.gov/product/pdf/RL/RL34591.
[145] National History Center, "Housing Policy in the United States," p. 3, https://nationalhistorycenter.org/wp-content/uploads/2018/08/Housing-Policy.pdf.

**1942:** "The Emergency Price Control Act establish[ed] federal rent control for the first time. By January 1945, Scranton, Pennsylvania, [was] the only city of more than 100,000 residents with unregulated rents."[146]

**1944:** The GI Bill provided mortgage-loan guarantees for home purchases by veterans.[147]

**1949:** Following a post-war housing shortage, the Housing Act under Truman's Fair Deal bolstered the Housing Authority's budget and capabilities, allowing the federal government to undertake larger urban renewal projects (replacing slum properties with sites for redevelopment). The Housing Act of 1949 also reactivated the public housing program for families with low incomes (which was on hold during WWII), authorizing subsidies to low-income housing authorities to build housing.[148]

**1955:** New York state began subsidizing the construction of moderate- and middle-income housing with the introduction of the Mitchell-Lama program that was created by the Limited Profit Housing Act. Under this program, over 105,000 apartments were generated after clearing formerly rundown parts of the city; today, about 45,000 apartments are left.[149]

**1959**: "The Housing Act of 1959 (P.L. 86-372) was the first significant instance where government incentives were used to persuade private developers to build housing that would be affordable to low- and moderate-income households. As part of P.L. 86-372, Congress created the Section 202 Housing for the Elderly program. Through the Section 202 program, the federal government extended low-interest loans to private nonprofit organizations for the development of affordable housing for moderate-income residents age 62 and older." [150]

**1960s:** Various other housing acts (1961, 1965, 1968) further expanded the role of the private sector providing housing to multifamily housing of various income levels through the federal government insuring mortgages of private developers of multifamily housing and providing loans to developers at low interest rates (1961), providing rental assistance (1965) and subsidizing private developers' mortgage interest payments (1968).[151]

**1965:** "The Department of Housing and Urban Development (HUD) was created in a largely symbolic move to bring housing and slum-clearance programs to the cabinet level."[152] It was created to manage public housing and its affairs, as the size of public housing had grown tremendously. FHA was encompassed within this new department.

**1968:** Congress passed the Fair Housing Act, which outlawed discrimination in housing and in mortgage lending and gave HUD enforcement responsibility. Up to this point, there had been years of governmental and private discrimination in the provision of housing, which limited minority households' opportunities to achieve homeownership and contributed to patterns of racial segregation.[153]

---

[146] The Nation, "151 Years of America's Housing History," (May 24, 2018), https://www.thenation.com/article/archive/americas-housing-history/.
[147] Ibid. *(The Nation)*
[148] CRS, "Overview of Federal Housing Assistance Programs and Policy," (Updated 2019), p. 3, https://crsreports.congress.gov/product/pdf/RL/RL34591.
[149] Kamping-Carder, Leigh, "Hit the NYC jackpot: How to get an affordable Mitchell-Lama apartment to call your own," (March 15, 2018), https://www.brickunderground.com/blog/2014/10/mitchell_lama_affordable_housing_guide.
[150] CRS, "Overview of Federal Housing Assistance Programs and Policy," (Updated 2019), p.3, https://crsreports.congress.gov/product/pdf/RL/RL34591.
[151] Ibid, p. 4. *(CRS)*
[152] The Nation, "151 Years of America's Housing History," (May 24, 2018), https://www.thenation.com/article/archive/americas-housing-history/.
[153] CRS, "Overview of Federal Housing Assistance Programs and Policy," (Updated 2019), p. 5, https://crsreports.congress.gov/product/pdf/RL/RL34591.

**1969:** "The Brooke Amendment, which was included as part of the Housing and Urban Development Act of 1969 (P.L. 91-152), limited tenant contributions toward rent in all rent assisted units (including public housing and all project-based rental assistance units) to an amount equal to 25% of tenant income (this was later raised to 30%). The Brooke Amendment is considered to be responsible for codifying an income-based rent structure in federal housing programs."[154]

**1970:** The Housing and Urban Development Act of 1970 introduced the Federal Experimental Housing Allowance Program (EHAP). EHAP tested two different versions of housing allowances: the "demand experiment," between 1973 and 1976, and the "supply experiment," between 1974 and 1979. Before the research was complete, Congress moved ahead with legislation in 1974 to create the housing allowance program that we know today as the Housing Choice Voucher (HCV) program (see second 1974 entry on the Section 8 program below).[155]

**1973:** The Nixon administration issued a moratorium on almost all subsidized-housing programs due to a number of concerns.[156]

**1974:** The Community Development Block Grant (CDBG) Program was authorized under Title I of the Housing and Community Development Act of 1974, as amended. Prior to this time, numerous federal programs addressed community development issues. CDBG consolidated eight programs under which communities competed nationally for funds.[157]

**1974:** The Housing and Community Development Act of 1974 also established Section 8 housing programs as a replacement for public housing, creating a tenant-based certificates program to increase low-income tenants' choice of housing. "Although the 1960s had seen rental assistance programs like Rent Supplement and Section 23, the scale of the Section 8 program made it the first comprehensive rental assistance program."[158]

**1976:** "The Supreme Court rule[d], in Hills v. Gautreaux, that the Chicago Housing Authority contributed to racial segregation in Chicago through discriminatory practices. HUD [began] offering vouchers in the city to address poverty and segregation."[159]

**1977:** The Community Reinvestment Act (CRA) "affirm[ed] that federally insured [banks] have an obligation to meet the credit needs of the communities in which they are chartered and accept deposits … and require[d] federal banking regulators to assess the extent to which banks are meeting those needs. The enactment of the CRA grew out of concern that banking deposits were funding lending activities across the country at the expense of providing credit in certain areas where deposits were collected, thereby contributing to neighborhood disinvestment."[160]

---

[154] Ibid, p. 5. *(CRS)*
[155] HUD Edge, "Message from PD&R Leadership: Blast from the Past: How the Experimental Housing Allowance Program of the 1970s Can Inform the Moving to Work Expansion Today," https://www.huduser.gov/portal/pdredge/pdr-edge-frm-asst-sec-032017.html.
[156] CRS, "Overview of Federal Housing Assistance Programs and Policy," (Updated 2019), p. 6, https://crsreports.congress.gov/product/pdf/RL/RL34591.
[157] U.S. Department of Housing and Urban Development, "Basically CDBG," (2007), https://www.hud.gov/sites/documents/DOC_16470.PDF.
[158] CRS, "Overview of Federal Housing Assistance Programs and Policy," (Updated 2019), p. 6, https://crsreports.congress.gov/product/pdf/RL/RL34591.
[159] The Nation, "151 Years of America's Housing History," (May 24, 2018), https://www.thenation.com/article/archive/americas-housing-history/.
[160] CRS, "Overview of Federal Housing Assistance Programs and Policy," (Updated 2019), p. 5-6, https://crsreports.congress.gov/product/pdf/RL/RL34591.

**1982:** Under President Ronald Reagan, HUD's budget was slashed to under $40 billion, a decrease of more than 50% from 1976, when it was $83.6 billion.[161]

**1983:** The Housing and Urban-Rural Recovery Act of 1983 (P.L. 98-181) limited HUD's authority to issue new Section 8 contracts to existing properties only, as the use of Section 8 in new construction and rehabilitation was found too expensive. "The act also created a new demonstration program to test a modified use of Section 8, referred to as vouchers. Vouchers were similar to the use of Section 8 rent subsidies in existing housing, but they provided more flexibility to public housing authorities, particularly by permitting families to pay more than 30% of their incomes in rent. The demonstration was made permanent in 1985."[162]

**1986:** The Low Income Tax Credit (LIHTC) program was created as part of the Tax Reform Act of 1986, which remains the primary source of federal funding for low-cost housing today.[163] Giving a large level of control over to states for the first time, the tax credits are allocated to states based on population. While states must prioritize projects to serve low-income populations, states have discretion in setting priorities as to how the credits will be used.[164]

**1987:** Congress passed the Stewart B. McKinney Homeless Assistance Act, which included funding for several grants that states and localities could use to assist people experiencing homelessness. Grants were available for permanent and transitional housing, as well as supportive services.[165]

> **Mid-1980s:** "By the mid-1980s, federal housing programs had gone through a number of iterations. Some programs had been scrapped as inefficient, subject to fraud and abuse, or too expensive. Shifting federal priorities — toward reducing taxes and increasing military spending in response to the Cold War — reduced funding available for social programs, including housing assistance. Creation of assisted housing with federal funds was on the decline, with production slowing significantly between 1982 and 1988." In addition, existing affordable rental units were being lost as HUD contracts expired or owners chose to repay their low-interest mortgages and charge market rent.
>
> **Late 1980s through 1990s:** State and local governments and other organizations began taking the initiative to develop housing within their communities as a result of reduced federal support for housing. "From the late 1980s through the 1990s, Congress acknowledged the value of local control and gave more decision-making authority over housing policy to state and local governments through the creation of block grants and tax credits."
>
> ~Congressional Research Services, "Overview of Federal Assistance Programs and Policy," p. 6-7

**1990:** Congress authorized the HOME Investment Partnership program through the National Affordable Housing Act of 1990, creating another large, flexible block grant program to states and localities. Funds were apportioned based on a formula and were to be used to assist families at or below 80% of area median income. Use of the funds was broad (including both homeowners/buyers or rental construction or assistance),

---

[161] The Nation, "151 Years of America's Housing History," (May 24, 2018), https://www.thenation.com/article/archive/americas-housing-history/.
[162] CRS, "Overview of Federal Housing Assistance Programs and Policy," (Updated 2019), https://crsreports.congress.gov/product/pdf/RL/RL34591.
[163] The Nation, "151 Years of America's Housing History," (May 24, 2018), https://www.thenation.com/article/archive/americas-housing-history/.
[164] CRS, "Overview of Federal Housing Assistance Programs and Policy," (Updated 2019), p. 7, https://crsreports.congress.gov/product/pdf/RL/RL34591.
[165] Ibid, p. 7. *(CRS)*

and municipalities were required to establish plans for spending their funds, including matching requirements and partnerships with local nonprofits.[166]

**1992:** "Congress authorize[d] the HOPE VI urban-revitalization demonstration program to provide grants to support low-rise, mixed-income housing rather than high-rise public housing to address a severe lack of funding for repairs. Atlanta use[d] its funds to clear slums and construct mostly private housing, an approach copied by cities across the country."[167]

**1996:** President Clinton signed into law the Housing Opportunity Program Extension Act of 1996, which announced the "one strike and you're out" policy in public housing communities to ensure that tenants who partook in criminal or illegal drug use faced eviction. One year later, 75% of public housing authorities had One Strike policies in place.[168]

**1998:** As concern over the condition of public housing grew, proposals for public housing reform were considered. After several years of debate, Congress approved public housing reforms through the Quality Housing and Work Responsibility Act (QHWRA) "to reduce segregation by race and income, encourage and reward work, bring more working families into public housing, and increase the availability of subsidized housing for very poor families."[169] "QHWRA also featured the so-called 'Faircloth Amendment,' which prohibited the use of public housing funding for the development of any net new units of public housing."[170]

**2004:** America's homeownership rate reached a record-high of 69%.[171]

**2005:** HUD conducted its first official point-in-time count of homeless people in the country.[172]

**2007:** The housing market crashed and nearly 3 million homes were foreclosed on in both 2009 and 2010.[173] "During the 'Great Recession' of 2008-2013, FHA played an important countercyclical role, propping up the housing market to supply access to mortgage credit when other sources of financing were limited and the capital markets had seized up."[174]

**2008:** The Housing and Economic Recovery Act of 2008 was enacted in response to the subprime mortgage and national financial crisis. The act created the Federal Housing Finance Agency and improvements in federal regulation of mortgage lending institutions.

---

[166] Ibid, p. 7-8. *(CRS)*
[167] The Nation, "151 Years of America's Housing History," (May 24, 2018), https://www.thenation.com/article/archive/americas-housing-history/.
[168] HUD, "Meeting the Challenge: Public housing authorities respond to the 'One Strike and You're Out' initiative," (September 1997), https://www.ncjrs.gov/pdffiles1/Photocopy/183952NCJRS.pdf.
[169] HUD, "The Federal Housing Administration (FHA)," https://www.hud.gov/program_offices/housing/fhahistory.
[170] CRS, "Overview of Federal Housing Assistance Programs and Policy," (Updated 2019), p. 8, https://crsreports.congress.gov/product/pdf/RL/RL34591.
[171] HUD, "Timeline," https://www.huduser.gov/hud_timeline/.
[172] The Nation, "151 Years of America's Housing History," (May 24, 2018), https://www.thenation.com/article/archive/americas-housing-history/.
[173] Ibid. *(The Nation)*
[174] HUD, "The Federal Housing Administration (FHA)," https://www.hud.gov/program_offices/housing/fhahistory.

**2010:** "The Dodd-Frank Wall Street Reform and Consumer Protection Act (P.L. 111-203) instituted new rules related to mortgages intended to protect consumers and the financial system from some of the lending practices that preceded the financial crisis, among other reforms."[175]

**2012:** "The Obama administration create[d] the Rental Assistance Demonstration program, which authorize[d] the transformation of public housing into private-sector Section 8 housing."[176]

**2012:** "The Section 8 waiting lists stretch so long that nearly half of them are simply closed."[177]

**Today:** "Today's federal housing assistance programs fall into three main categories: rental housing assistance, assistance to state and local governments, and assistance for homeowners. Most of these programs are administered by the Department of Housing and Urban Development (HUD). Current housing assistance programs include Section 8 vouchers and project-based rental assistance, public housing, housing for the elderly (Section 202), housing for persons with disabilities (Section 811), rural rental assistance (the United States Department of Agriculture's Section 521 program), Community Development Block Grants (CDBG), HOME Investment Partnerships Block Grants, Low-Income Housing Tax Credits (LIHTC), homeless assistance programs, Federal Housing Authority (FHA) and Department of Veterans Affairs mortgage insurance, and the mortgage interest deduction in the tax code." [178]

"Most federal housing assistance programs are aimed at making housing affordable for low-income families. Affordability — defined as housing that costs no more than 30% of a family's income — is considered to be the largest housing problem today. Rental assistance programs, which are the largest source of direct housing assistance for low-income families, all allow families to pay affordable, income-based rents; however, different forms of assistance target different types of households including the elderly, persons with disabilities, and families with children."[179]

## Housing policy in Washington state

This section covers notable housing policy milestones in Washington state, with a focus on land-use policies or those policies that contribute extensively to affordable housing. Additional policies, including financial policies, can be found in the report titled "There's No Place Like Home… Because There's No Place Like Washington! Summary of Washington State Housing-Related Legislation" (2019) by the Washington State Housing Finance Commission.

---

[175] CRS, "Overview of Federal Housing Assistance Programs and Policy," (Updated 2019), p. 9, https://crsreports.congress.gov/product/pdf/RL/RL34591.
[176] The Nation, "151 Years of America's Housing History," (May 24, 2018), https://www.thenation.com/article/archive/americas-housing-history/.
[177] Ibid. *(The Nation)*
[178] CRS, "Overview of Federal Housing Assistance Programs and Policy," (Updated 2019), Overview, https://crsreports.congress.gov/product/pdf/RL/RL34591.
[179] CRS, "Overview of Federal Housing Assistance Programs and Policy," (Updated 2019), Overview, https://crsreports.congress.gov/product/pdf/RL/RL34591.

**1939: Public Housing Authorities (RCW 35.82) -** In the late 1930s and early 1940s, Washington authorized the creation of public housing authorities in response to an appeal from the federal government to give greater access to affordable housing to residents.[180]

**1981: Rent Control (RCW 36.01.130) -** Rent control is prohibited.

**1982: Creates and Supports Homeless Shelters (Operating Budget) -** The state committed a $1 million appropriation for operating support of homeless shelters, the first commitment of public funds for housing in Washington state by the Legislature. Today, the Legislature continues to support homeless shelters through funding sources including the Emergency Shelter Assistance Program (ESAP), Emergency Shelter Homeless Prevention (ESHP) and Overnight Youth Shelter (OYS) programs.[181]

**1982: Real Estate Excise Tax 1 (RCW 82.46.010) -** Cities and counties were given the option of levying a local 0.25% real estate excise tax (REET) to pay for capital projects. "If a county imposes this tax, it is applied within the unincorporated areas only. This tax may be imposed by the legislative body and does not require voter approval. Almost all cities, towns, and counties in the state have imposed REET 1, with the exception of a few very small jurisdictions. [These] REET 1 revenues are restricted and may only be used for certain purposes. However, the exact purposes depend on the jurisdiction's population and whether or not it is fully planning under the Growth Management Act (GMA)."[182]

**1983: Washington State Housing Finance Commission (RCW 43.180) -** Washington became one of the last states to establish a housing finance agency, amidst a recession that included high unemployment and mortgage interest rates exceeding 20%. Housing advocates, lenders and businesspeople worked together to establish the commission as a public-private partnership with the intention of helping the economy.[183]

**1986: Housing Trust Fund Created (E2SSB 4626; RCW 53.185 & 43.185A) -** The Housing Trust Fund and the Housing Assistance Program were "created 'to assist low and very low-income citizens in meeting their basic housing needs.' In 1991, the Housing Trust Fund was expanded to include the Affordable Housing Program, serving households at or below 80% of area median income and creating down payment assistance opportunities. Opened with a $1 million investment in 1986, the Washington Housing Trust Fund (HTF) has become the primary vehicle for the state's direct investment in affordable housing. The HTF supports the construction, acquisition or rehabilitation of more affordable housing every two years when fully funded; creates rental and homeownership opportunities in every region of the state for low-income people (more than 70% of units serve extremely low-income people); and supports special needs housing for clients of the Department of Social and Health Services and the Department of Health."[184]

**1990: Growth Management Act (SHB 2929; RCW 36.70A) -** The Growth Management Act (GMA) is a series of state statutes that required fast-growing cities and counties to develop a comprehensive plan to prepare for and manage their population growth. Comprehensive plans must address 13 goals, including affordable

---

[180] Washington State Housing Finance Commission (WSHFC), "There's No Place Like Home… Because There's No Place Like Washington!" (July 1, 2019), p. 54, http://wshfc.org/admin/LegislationSummary.pdf.
[181] Ibid, p. 54. *(WSHFC)*
[182] MRSC, "Real Estate Excise Tax" (last updated January 19, 2021), http://mrsc.org/Home/Explore-Topics/Finance/Revenues/Real-Estate-Excise-Tax.aspx.
[183] Washington State Housing Finance Commission (WSHFC), "There's No Place Like Home… Because There's No Place Like Washington!" (July 1, 2019), p. 54, http://wshfc.org/admin/LegislationSummary.pdf.
[184] Ibid, p. 53. *(WSHFC)*

housing.[185] Within the comprehensive plans, counties that are required to or have elected to plan must develop housing policies to ensure there is adequate housing for the future.

**1993: Authorizing Conversion of Surplus Public Property to Use for Affordable Housing (EHB 1824; Amending RCW 43.63A.510, 36.34.135, and 47.12.063)** - "With concern that local governments and school districts may have under-utilized land and buildings, the Legislature directed the Department of Community Development to work on an inventory of state-owned land and buildings for possible lease as sites for affordable housing. In doing so, this act provides a centrally located inventory of state and publicly owned land and buildings that may be suitable to be marketed, sold, leased, or exchanged for the development of affordable housing; and encourages an effective use of publicly owned surplus property."[186]

**1993: Housing Policy Act and the Affordable Housing Advisory Board (SB 5584; RCW 43.185B.020, RCW 43.63A) -** The Housing Policy Act established "the policy base for the state's involvement in housing" and created the Affordable Housing Advisory Board (AHAB) to advise the Department of Commerce on housing policy issues. With a broad board of 19 representing various public and private housing interests, the group studies housing issues and recommends solutions. "Their recommendations have become the basis for countless pieces of successful housing legislation."[187] This act also established that local governments shall allow accessory apartments or accessory dwelling units in cities over 20,000 and counties over 125,000 in population.

**1993: Mobile Home Landlord Tenant Act (SB 5482) -** Allowed a qualified mobile home park tenant organization consisting of 60% of tenants to have the opportunity to purchase the park should the park be put up for sale. The tenant organization must provide a fully executed purchase sale agreement to the owner with 1% of the purchase price within 90 days.[188]

**1995: Property Tax Exemption Supports Urban Housing Projects (2SSB 5387; RCW 84.14.020) -** "The Legislature granted a 10-year property tax exemption for urban housing preservation and renewal projects in locally designated areas. The exemption created an incentive for housing developers to acquire and rehabilitate abandoned buildings or construct new apartments in dilapidated urban centers, bringing residents back downtown. The exemption is an economic development tool for local governments to attract multifamily rental and ownership housing in neighborhoods targeted for growth. The program was for cities with populations above 50,000."[189] This law has had multiple modifications over the years (1997 through SB 6094; 2000 through HB 2505; 2002 through SHB 2466; key changes in 2007 through E2SHB 1910 to create the current eligibility for cities and the current eight- and 12-year tax exemptions; 2012 through SB 6277) and has become what today is often referred to as the Multi-Family Tax Exemption (MFTE) program.

**1997: Growth Management Modifications, including Review and Evaluation or Buildable Lands Program (**ESB 6094**, RCW 36.70A.215) -** A number of modifications to the Growth Management Act (GMA) were enacted in 1997, including the Review and Evaluation Program under RCW 36.70A.215, which is often referred to as the Buildable Lands Program. The Buildable Lands Program "require[d] that Clark, King, Kitsap, Pierce, Snohomish, Thurston and Whatcom (as of 2017) Counties and the cities within them complete a Buildable Lands report

---

[185] MRSC, "Growth Management Act" (last updated January 15, 2020), http://mrsc.org/Home/Explore-Topics/Planning/General-Planning-and-Growth-Management/Comprehensive-Planning-Growth-Management.aspx.
[186] Washington State Housing Finance Commission (WSHFC), "There's No Place Like Home… Because There's No Place Like Washington!" (July 1, 2019), p. 51, http://wshfc.org/admin/LegislationSummary.pdf.
[187] Ibid, p. 52. *(WSHFC)*
[188] Ibid, p. 52. *(WSHFC)*
[189] Ibid, p. 50. *(WSHFC)*

every eight years. The Buildable Lands reports are a look back at actual development to determine if cities and counties have designated adequate amounts of residential, commercial and industrial lands to meet the growth needs incorporated in their comprehensive plans. … Guidelines for local governments were adopted in 2000 and technical summaries were prepared and issued in 2003 and 2007. In 2017 a number of changes were made to the Review and Evaluation Program through E2SSB 5254."[190]

**1998: Public Housing Authorities (HB 2175; Amending RCW 35.82) -** This law gave the Housing Finance Commission "compliance and enforcement abilities by allowing it to impose covenants running with the land."[191]

**1999: Nonprofit Multifamily Low-income Rental Properties Exempt from Property Taxes (HB 1345; RCW 84.36.560)**

**2002: Real Estate Excise Tax for Affordable Housing (SB 5965; Adding a new section to 82.46 RCW)** - "An additional real estate excise tax [was] authorized for counties equal to 0.5 percent of the selling price to be used exclusively for the development of affordable housing, including the acquisition, building, rehabilitation, maintenance and operation of housing for very low, low- and moderate income persons and those with special needs."[192]

**2002: Low Income Housing $10 Surcharge - The Affordable Housing for All Surcharge (HB 2060; RCW 36.22.178) -** "Recognizing the need for additional housing resources, and also understanding that affordable rents for extremely low-income people are not sufficient to cover the cost of building operations and maintenance, in 2002 the Legislature established a $10 document recording fee to support both the development and operation of affordable housing. At the county level, this funding supports a variety of affordable housing needs for households at or below 50% of area median income. At the state level, fees are used to provide Operating and Maintenance (O&M) grants to subsidize the cost of serving households at or below 30% of area median income."[193] This surcharge was renamed in 2007 (E2SHB 1359) as the Affordable Housing for All Surcharge.

**2004: Manufactured Homes Regulation (SB 6593) -** "This law require[d] that cities and counties must regulate manufactured homes built to federal manufactured housing construction standards no differently than they regulate other types of homes."[194] See RCW 35.21.684, RCW 35A.21.312 and RCW 36.01.225.

**2005: Homeless Housing Task Force (SSB 5787; adding a new Chapter to section 43 RCW) -** "Created a homeless housing task force in each county to develop a ten-year plan addressing short- and long-term housing solutions for the homeless; provided guidelines and other conditions for participation or opting out."[195]

**2005: Homeless Housing and Assistance Act (E2SHB 2163; RCW 43.185C) -** Created with a goal to reduce homelessness, this act created a requirement for a statewide homeless housing strategic plan with performance measures and goals to reduce homelessness. Thirty-seven counties also participate and create

---

[190] Washington State Department of Commerce, "Buildable Lands Program Overview." https://www.commerce.wa.gov/serving-communities/growth-management/growth-management-topics/buildable-lands/.
[191] Washington State Housing Finance Commission (WSHFC), "There's No Place Like Home… Because There's No Place Like Washington!" (July 1, 2019), p. 48, http://wshfc.org/admin/LegislationSummary.pdf.
[192] Ibid, p. 44-45. *(WSHFC)*
[193] Ibid, p. 43. *(WSHFC)*
[194] MRSC, "Local Land Use Regulation of Manufactured Housing," (last modified July 2, 2018), http://mrsc.org/Home/Explore-Topics/Planning/Development-Regulations/Local-Land-Use-Regulation-of-Manufactured-Housing.aspx.
[195] Washington State Housing Finance Commission (WSHFC), "There's No Place Like Home… Because There's No Place Like Washington!" (July 1, 2019), p. 42, http://wshfc.org/admin/LegislationSummary.pdf.

their own local homeless housing plans. "The Homeless Housing and Assistance Program is funded by a $10 surcharge for certain documents recorded by the county auditor. The Homeless surcharge generates around $16 million each year to support programs. Of that $10 surcharge roughly 60% remains at the county level and 40% are deposited into the state Home Security Fund. The Department of Commerce uses these funds to create the statewide homeless housing strategic plan, administer the Homeless Housing and Assistance program, measure program performance, provide technical assistance to local governments, and manage the homeless housing grant program."[196]

**2006: Inclusionary Zoning Bill (ESHB 2984; Amending RCW 82.02 and adding a section to 36.70A RCW) -** "Jurisdictions fully planning under the Growth Management Act may enact or expand affordable housing incentive programs providing for the development of low-income housing units through development regulations under certain income guidelines and other conditions (commonly referred to as the "inclusionary zoning bill").[197]

**2007: Affordable Housing Land Acquisition Program (2SHB 1401; RCW 43.185A.110) -** The Affordable Housing Land Acquisition Program (LAP) was created as a revolving loan fund to meet the challenge of low-income housing developers obtaining funds quickly enough to purchase and hold land for affordable housing development.[198]

**2007: Affordable Housing for All Surcharges (ESHB 1359; RCW 36.22.1791) -** "This bill added an additional $8 document recording fee surcharge to support low-income housing projects. Counties must use their funds (90% of the total funds collected) for housing activities which directly accomplish the goals of the county's local homeless housing plan. The portion of revenue due to the state (10%) is remitted to the Home Security Fund and the Department of Commerce uses these funds to provide housing and shelter for extremely low-income households and for program administration, housing and shelter assistance for homeless persons, and the Homeless Housing Grant Program."[199]

**2008: The Rapid Response Loan Program (EHB 3142; RCW 43.185A.210) -** Similar to the Affordable Housing for All program (2007), this local program was created "to quickly assist Washington nonprofit organizations purchase real property (including land, buildings or mobile home parks) for the preservation or development of affordable housing and community facilities. … Applicant properties must be located in rapidly gentrifying or redeveloping areas, or in communities with a significant low-income population that is threatened with displacement."[200]

**2008: Protecting Apartment Dwellers in the Event of "Condominium Conversions" (SHB 2014; RCW 64.34.440) -** This program gave existing apartment tenants 120-day notice in the event of a condominium conversion. With this program, the Legislature recognized the right of property owners to convert properties, but sought a balance with renters' well-being.[201]

**2008: Protecting Manufactured/Mobile Home Communities (E2SHB 1621; RCW 59.20.300) -** "E2SHB 1621 require[d] landlords [of manufactured housing communities] to alert the Department of Commerce and the community's tenants if their community is for sale. The bill also require[d] that landlords negotiate in good

---

[196] Ibid, p. 41. *(WSHFC)*
[197] Ibid, p. 40. *(WSHFC)*
[198] Ibid, p. 38. *(WSHFC)*
[199] Ibid, p. 37. *(WSHFC)*
[200] Ibid, p. 36. *(WSHFC)*
[201] Ibid, p. 35. *(WSHFC)*

faith either with a tenant organization, a nonprofit organization, local government or Indian tribe interested in preserving the property for manufactured housing. The Legislature went further to incentivize landlords to consider such a sale by exempting sales to these groups from the state and local Real Estate Excise Tax (REET)."[202]

**2009: Concerning Affordable Housing Incentive programs (EHB 1464; RCW 36.70A.540) -** "Within the GMA, incentive programs were encouraged, in order to facilitate the construction of affordable housing within the larger context of urban planning and zoning. The key language in EHB 1464 is that it changed 'construction' to 'development.' In so doing, the bill changed the law to allow for incentives to be granted even where no new construction was occurring, but where low-income units were being developed (i.e., acquisition/rehab or converting market rate units to affordable units). It also allowed for greater flexibility regarding location of the units (in the general area, as opposed to in adjacent buildings) as well as the type of development within which the units are located. The bill also allowed for a mechanism by which individual jurisdictions could accept money or property from developers who chose not to build affordable housing within the areas designated for the incentive programs, so long as the jurisdiction deemed said payments to achieve a result equal to or better than providing the affordable housing itself."[203]

**2010: Homeless Camps on Church Properties (ESHB 1956; RCW 35A.21.360, RCW 36.01.290, RCW 35.21.915) -** "ESHB 1956 authorized religious organizations to host temporary encampments for the homeless on any property owned or controlled by such organizations. It went further by precluding counties, cities and towns from enacting regulations that impose any conditions, other than those for health and safety concerns, upon religious institutions; imposing excessive fees for permitting the encampments; or requiring the religious institutions to obtain liability insurance for the encampments or from indemnifying the municipalities against such liability."[204] In 2020, this act was amended with ESHB 1754 to institute additional limitations, public noticing requirements and safety precautions for these temporary encampments.

**2012: Creating an exemption from impact fees for low-income housing (EHB 1398; RCW Amend RCW 82.02.060) -** Twenty-eight of Washington's 39 counties, and the cities within those counties, are planning jurisdictions defined under the Growth Management Act. "Planning jurisdictions may impose impact fees on development activity as part of the financing of public facilities needed to serve new growth and development. These jurisdictions may provide an exemption for low-income housing and other development activities with a broad public purpose. These exemptions are not required to be paid from public funds other than impact fee accounts. The legislation stipulate[d] that a covenant must be recorded by the developer prohibiting the use of the property for anything other than low income housing."[205]

**2016: Disposing tax foreclosed property to cities for affordable housing purposes (SSB 6337) -** "Prior to disposing of tax-foreclosed property, the county legislative authority gives notice to any city in which any tax foreclosed property is located within 60 days of acquiring the property. This notice must offer the city the opportunity to purchase property for the original minimum bid under RCW 84.64.080 plus any direct costs incurred by the county in the sale."[206]

---

[202] Ibid, p. 34. *(WSHFC)*
[203] Ibid, p. 32. *(WSHFC)*
[204] Ibid, p. 30. *(WSHFC)*
[205] Ibid, p. 24. *(WSHFC)*
[206] Ibid, p. 18. *(WSHFC)*

**2017: Clarifying the type of land eligible for purchase under the affordable housing land acquisition revolving loan program (HB 1616) -** "The type of allowable land that loans may be made for, under the Affordable Housing Land Acquisition Revolving Loan Fund Program, is expanded to include vacant or improved land."207

**2018: Expanding access to homeless housing and assistance (HB 1570) -** An additional increase in real estate document recording fees helped an additional 11,500 people who are experiencing homelessness or at risk of homelessness access housing assistance and services. This surcharge for local homeless housing and assistance in RCW 36.22.179 "is the state's primary source for funding homelessness services and is split between the state and counties so local communities can quickly address their most pressing needs. The increase will generate approximately $26 million each year to fight homelessness. Additionally, this bill remove[d] the expiration date on the fee so that communities have a permanent and reliable source of funding to reduce homelessness."[208]

**2018: Tiny homes (HB 1085) -** Gave "local governments the authority to modify minimum floor-space requirements to accommodate innovative forms of affordable housing."[209]

**2019: Tiny home communities (ESSB 5383) -** "Provide[d] that cities and counties may adopt ordinances regulating the creation of tiny house communities, including using the binding site plan method. They may not adopt ordinances that prevent entry or require removal of a tiny house with wheels used as a primary residence in a manufactured/mobile home community if the house contains at least one internal toilet and one internal shower unless these are provided by the community. The owner of the land must make reasonable accommodations for utility hookups in compliance with MHLTA. Tiny houses and tiny house communities are defined in the act and may be subject to certain standards and the State Building Code Council must adopt tiny house standards by the end of 2019."[210]

**2019: An act relating to increasing urban residential building capacity (E2SHB 1923) -** This act removed barriers to building affordable homes by providing incentives to local jurisdictions to increase housing supply and reduce barriers to developing housing. The act authorized grants to support cities developing and adopting action plan; "exempt[ed] from appeal under state SEPA and GMA certain non-project actions taken by cities to increase residential capacity; authorize[d] grants for certain cities that take certain actions to increase residential building capacity; direct[ed] the WA Center for Real Estate Research at University of Washington to prepare a biennial report on housing supply and affordability; establish[ed] minimum residential parking requirements in certain cities; and, create[d] a document recording fee to be deposited into the GMA Planning and Environmental Review Fund."[211] This act also updated definitions for affordable housing and mandated that cities may not prohibit permanent supportive housing in areas where multifamily housing is permitted.

**2019: An act relating to encouraging investments in affordable housing and supportive housing (SHB 1406) -** "This act authorize[d] the governing body of a county or city to impose a local sales tax, credited against the state sales tax, for affordable and supportive housing."[212]

---

[207] Ibid, p. 14. *(WSHFC)*
[208] Ibid, p. 11. *(WSHFC)*
[209] Ibid, p. 10. *(WSHFC)*
[210] Ibid, p. 8. *(WSHFC)*
[211] Ibid, p. 5. *(WSHFC)*
[212] Ibid, p. 3. *(WSHFC)*

**2019: Concerning affordable housing development on religious property (HB 1377) -** "Require[d] certain cities and counties engaged in comprehensive planning to allow an increased density bonus for certain affordable housing development on property owned or controlled by a religious organization."[213]

**2019: An act relating to providing cities and counties authority to use real estate excise taxes to support affordable housing and homeless projects (EHB 1219) -** "Authorize[d] counties and cities required to plan or who are planning under the Growth Management Act to use real estate excise tax (REET 2) revenue for the planning, acquisition, construction, reconstruction, repair, replacement, rehabilitation, or improvement of facilities for persons experiencing homelessness and affordable housing projects until January 1, 2026."[214]

See Commerce's Washington State Housing Laws of 2019 through 2023 for information on the latest housing policy updates.

[213] Ibid, p. 3. *(WSHFC)*
[214] Ibid, p. 3. *(WSHFC)*