VISION 2050

DRAFT

Supplemental Environmental Impact Statement

Puget Sound Regional Council

FEBRUARY 2019

Puget Sound Regional Council

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February 28, 2019

Dear Participants in the VISION 2050 Process:

The Puget Sound Regional Council (PSRC) has prepared this Draft Supplemental Environmental Impact Statement (SEIS) on VISION 2050 in accordance with the State Environmental Policy Act (SEPA). VISION 2040 is the central Puget Sound region's long-range growth management, environmental, economic, and transportation strategy. VISION 2050 is an update of VISION 2040, which was adopted in 2008. This SEIS supplements the VISION 2040 Final Environmental Impact Statement (2008), which is available at https://www.psrc.org/environmental-review-vision-2040.

Forecasts show the region needs to plan for 1.8 million additional people and 1.2 million new jobs by 2050. PSRC is developing VISION 2050 to guide growth to support thriving communities, a strong economy, and a healthy environment.

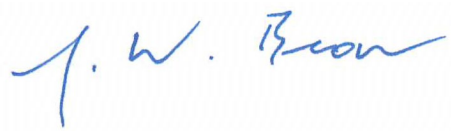
VISION 2050 will contain the region's multicounty planning policies, which are required by the Washington State Growth Management Act and a regional strategy for accommodating growth through 2050. The Draft SEIS presents and discusses the potential environmental impacts that may occur from three distinct growth patterns. Three regional growth alternatives were identified by PSRC's Growth Management Policy Board in November 2018. The three alternatives, Stay the Course (no action alternative), Transit Focused Growth, and Reset Urban Growth are described and evaluated for environmental impacts in the Draft SEIS. Potential measures to mitigate impacts are also described.

The Growth Management Policy Board will use information from this Draft SEIS, public comment, additional technical evaluation, and board priorities to develop a preferred growth alternative. A preferred growth alternative will be included in a Draft VISION 2050 plan, expected to be available this summer. PSRC's General Assembly is expected to take final action to adopt VISION 2050 in spring 2020.

The complete draft document and supporting materials are available at https://www.psrc.org/vision/seis. Paper copies are available for review at the offices of PSRC and at the libraries listed in the Distribution List (Appendix G). The public is encouraged to submit comments on the Draft SEIS. Information on how to comment is provided on the Fact Sheet and at https://www.psrc.org/vision/seis.

If you have any questions regarding the Draft SEIS, please contact Erika Harris, SEPA Responsible Official, at 206-464-6360 or eharris@psrc.org.

Sincerely,



Josh Brown, Executive Director

Puget Sound Regional Council

Erika Harris, SEPA Responsible Official

Puget Sound Regional Council

Fact Sheet

Draft Supplemental Environmental Impact Statement for VISION 2050

Proposed Action

The Puget Sound Regional Council (PSRC) is scheduled to adopt VISION 2050 in 2020. VISION 2050 is the long-range growth management, environmental, economic and transportation strategy for the central Puget Sound region. VISION 2050 is an update of VISION 2040, which was adopted in 2008.

VISION 2050 will contain the region's multicounty planning policies, which are required by the Washington State Growth Management Act (GMA), and a regional strategy for accommodating growth through 2050. VISION 2050 covers King, Kitsap, Pierce, and Snohomish counties and their respective cities and towns.

The VISION 2050 Draft Supplemental Environmental Impact Statement (Draft SEIS) has been prepared in accordance with the State Environmental Policy Act (SEPA), Revised Code of Washington (RCW) 43.21C and the adopted rules for EIS preparation under Washington Administrative Code (WAC) 197-11-400 to 460. VISION 2050 is a non-project action.

The Draft SEIS presents and discusses the potential environmental impacts that may occur upon implementation of a Regional Growth Strategy. Three Regional Growth Strategy alternatives are described—Stay the Course (no action alternative), Transit Focused Growth, and Reset Urban Growth. The Draft SEIS evaluates environmental impacts and describes potential mitigation measures.

The Draft SEIS also contains a series of appendices that include supporting technical materials.

Proponent and SEPA Lead Agency

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Permits and Approvals

No permits or approvals are required before PSRC adopts VISION 2050.

Principal Contributors

Please see List of Preparers in Appendix F.

Date of Issue of Draft SEIS

February 28, 2019

Comment Period

The public comment period on the Draft SEIS will last 61 days, ending at 5:00 pm on Monday April 29, 2019.

Draft SEIS comments must be submitted to PSRC in writing by 5:00 pm on April 29, 2019. The public is encouraged to submit comments along with a name and email or mailing address through one of the following options:

- Email: VISION2050SEIS@psrc.org
- Online SEIS Comment Portal: https://www.psrc.org/vision/seis
- Mail: ATTN: VISION 2050 Draft SEIS Comment, PSRC,
  1011 Western Avenue, Suite 500, Seattle, WA 98104-1035
- Fax: ATTN: VISION 2050 Draft SEIS Comment, 206-587-4825
- Hardcopy letter or comment form at Draft SEIS open houses (see below)
- Growth Management Policy Board Meeting on April 4, 2019 (10:00 am) at PSRC

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Written comments received during the public comment period will become part of the public record for this project and will help decision makers develop a preferred growth alternative. Comments and responses will be provided in the Final SEIS.

Public Open Houses

For more information, attend one of the five Draft SEIS open houses being held around the region during March 2019:

- March 12: Edmonds City Hall, 4-6 pm, 121 5th Avenue N, Edmonds
- March 13: South Tacoma Public Library, 4-6 pm, 3411 S 56th Street, Tacoma
- March 18: Bothell Police Community Room, 4-6 pm, 18410 101st Avenue NE, Bothell
- March 19: Bremerton Council Chambers, 4-6 pm, 345 6th St, Bremerton
- March 21: PSRC, 12-2 pm, 1011 Western Avenue, Suite 500, Seattle

Projected Date of Final SEIS Issuance

PSRC anticipates publishing the Final SEIS in early 2020.

Next Steps

Draft VISION 2050 Plan. Following public review of the Draft SEIS, the Growth Management Policy Board will work to incorporate changes, select a preferred growth alternative, and publish a Draft VISION 2050 plan containing draft multicounty planning policies and the preferred growth alternative in summer 2019.

Final SEIS and Final VISION 2050 Documents. After the draft plan review, PSRC's boards will work with staff and consultants to incorporate changes and publish a Final SEIS and Final VISION 2050 documents. The current schedule is to release the Final SEIS and revised VISION 2050 in early 2020.

Final Review and Action. PSRC policy boards and committees will review and take final action to recommend approval to the Executive Board. The Executive Board will, in turn, make its recommendation to PSRC's General Assembly. The General Assembly will take action on the updated VISION in 2020.

Related Documents and Draft SEIS Availability

A complete list of references for the Draft SEIS is provided in Chapter 7, and Appendix E contains background and information papers. The Draft SEIS is available in electronic format on PSRC's website, https://www.psrc.org/vision/seis. Paper copies are available for review at the offices of PSRC, 1011 Western Ave., Suite 500, Seattle, WA 98104-1035 and in the libraries listed in the Distribution List (Appendix G).

The VISION 2040 Final Environmental Impact Statement (FEIS) is incorporated by reference into this Draft SEIS under the provisions of WAC 197-11-600(4)(b). The VISION 2040 FEIS is available at https://www.psrc.org/environmental-review-vision-2040.

PSRC

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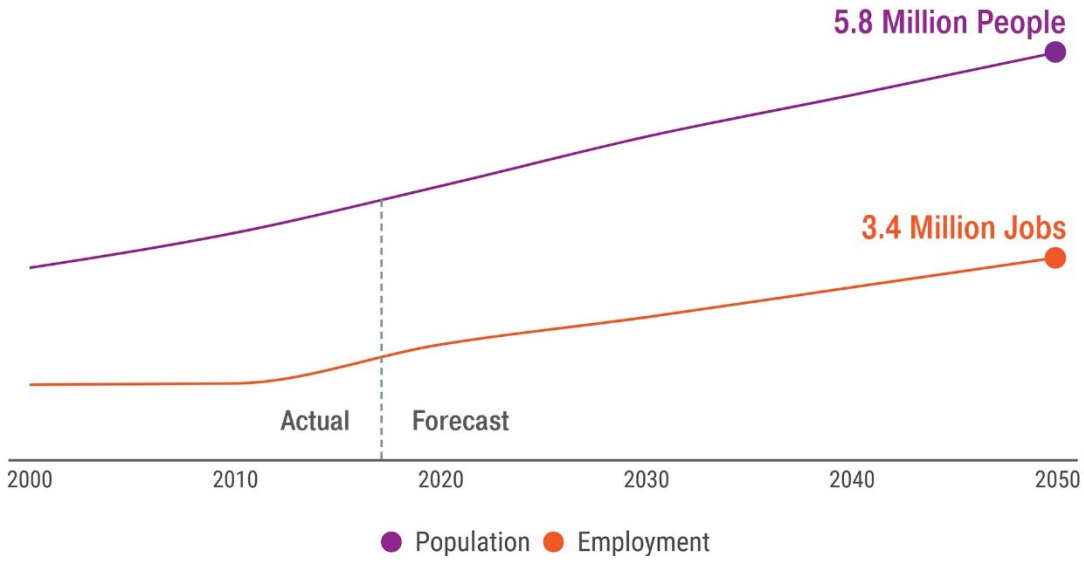
Source: PSRC

Executive Summary

VISION 2050 is a shared and integrated strategy for how and where the central Puget Sound region should grow. Population in the region has grown to 4.1 million, with more than 376,000 new residents added since 2010. More growth is coming. Forecasts show the region needs to plan for 1.8 million additional people and 1.2 million new jobs by 2050 (Figure ES-1).

Figure ES-1. Historical and Forecasted Regional Population and Employment



Source: PSRC

VISION 2040 is the region's current plan for managing growth forecasted through the year 2040. The plan includes overarching goals, an environmental framework, a strategy to sustainably guide growth in the region, and multicounty planning policies as required by the state Growth Management Act (GMA) (RCW 36A.70.210). The plan also includes implementation actions at the regional, county, and local levels. VISION 2040 policy chapters address the environment, development patterns, housing, the economy, transportation, and public services.

The region has had important successes implementing VISION 2040, which helps fulfill the goals of the GMA. Considerable economic gains in recent years have made the region among the fastest-growing in the country. The plan has helped coordinate state and regional initiatives and support local decisions. Regionally, growth is shifting toward more compact, sustainable development occurring within urban areas and cities, with cost-effective and efficient services, reduced impacts on the environment, and positive health outcomes.

At the same time, the region continues to face challenges, including the climbing cost of housing. Congestion from rapid growth is reducing access to jobs, services, and housing. While recent economic growth has been strong, prosperity has not benefited everyone or all parts of the region. Finally, pressing environmental issues such as climate change, the health of Puget Sound, and open space preservation require more collaborative, long-term action.

PSRC is updating the region's vision to reflect changes since it was adopted in 2008, and to consider new information and changes that have occurred in the growing region. Local governments have been implementing the region's growth strategy through population and employment targets and comprehensive land use planning. As the region plans for another decade of growth:

- How should it accommodate new population and employment through 2050?
- Should the region's long-term strategy for growth change?

VISION 2050 is an opportunity to refocus the region's long-range plan to address these concerns and prepare for future growth. This plan will guide anticipated growth in ways that support regional objectives for thriving communities, a strong economy, and a healthy environment.

What is the Regional Growth Strategy?

Under GMA, counties, in consultation with cities, are responsible for adopting 20-year growth targets. These population and employment growth targets are a key input to local comprehensive plans, ensuring that each county is accommodating population and employment growth. Jurisdictions use growth targets to inform land use, transportation, and capital facilities in their 20-year comprehensive plans.

The Regional Growth Strategy defines roles for different types of places in accommodating the region's population and employment growth, which inform the countywide growth target-setting process. The Regional Growth Strategy also serves an important role as a coordinated

regional statement of the long-range land use development assumptions that underlie the Regional Transportation Plan, required by both GMA and federal transportation planning regulations.

Counties, cities, and towns implemented VISION 2040's Regional Growth Strategy through their countywide growth targets and local comprehensive plans following the adoption of VISION 2040 in 2008. The Regional Growth Strategy Background Paper, which is included in Appendix E, outlines data trends since 2000 and the adoption of VISION 2040 in 2008 (PSRC 2018a).

This Draft Supplemental Environmental Impact Statement (Draft SEIS) reviews the environmental effects of three distinct regional growth alternatives that are being considered for VISION 2050:

- Stay the Course
- Transit Focused Growth
- Reset Urban Growth

Each of these three alternatives is intended to help preserve resource lands, protect rural lands from urban-type development, and promote infill and redevelopment within urban areas to create more compact, walkable, and transit-friendly communities. However, they distribute growth in unique patterns that have different trade-offs. This Draft SEIS shows a range of land use, transportation, environmental, and other impacts that would likely occur with each of these alternatives and identifies opportunities to mitigate them.

Source: Parametrix

PSRC is seeking feedback on these alternatives during the public comment period, which runs through April 29, 2019.

Why is PSRC doing an environmental review of the plan?

The Washington State Environmental Policy Act (SEPA) requires that public agencies identify environmental impacts likely to result from plans and projects. PSRC will use the environmental review process to analyze the effects of continued growth in the region, and alternative ways of responding to and accommodating that growth. Just as VISION 2050 will build upon VISION 2040, the VISION 2040 Final Environmental Impact Statement (FEIS) provides a foundation for the environmental review of VISION 2050. This Draft SEIS updates the VISION 2040 FEIS and provides additional information for consideration. The information presented in this Draft SEIS will help with the selection of a preferred growth alternative.

The scoping process for VISION 2050 in early 2018 provided an opportunity to have a conversation with the public about how the region should grow. PSRC staff had contact with many individuals, organizations, and local jurisdictions throughout the region during the comment period, and received more than 1,300 individual comments. The top five categories of comments included land use and development patterns, transportation, Regional Growth Strategy, environment, and housing. The engagement process and comments received during scoping are summarized in the VISION 2050 Scoping Report (PSRC 2018b) and are reflected in the following desired outcomes for the plan:

- Climate. Meaningful steps have been taken to reduce carbon emissions and minimize the region's contribution to climate change.
- Community and Culture. Distinct, unique communities are supported throughout the region, cultural diversity is maintained and increased, and displacement due to development pressure is mitigated.
- Economy. Economic opportunities are open to everyone, and the region competes globally and has sustained a high quality of life. Industrial and manufacturing opportunities are maintained.
- Environment. The natural environment is restored, protected, and sustained, preserving and enhancing natural functions and wildlife habitats.
- Equity. All people can attain the resources and opportunities to improve their quality of life and enable them to reach their full potential.
- Health. Communities promote physical, social, and mental well-being so that all people can live healthier and more active lives.
- Housing. Healthy, safe, and affordable housing for all people is available and accessible throughout the region.
- Innovation. The region has a culture of innovation and embraces and responds to change.

- Mobility and Connectivity. A safe, clean, integrated, affordable, and highly efficient multimodal transportation system reduces travel times, promotes economic and environmental vitality, connects people, and supports the Regional Growth Strategy.
- Natural Resources. Natural resources are permanently protected, supporting the continued viability of resource-based industries such as forestry, agriculture, and aquaculture.
- Public Facilities and Services. Public facilities and services support local and regional growth plans in a coordinated, efficient, and cost-effective manner.
- Resilience. The region's communities plan for and are prepared to respond to potential impacts from natural hazards and other adverse events.
- Rural Areas. Rural communities and character are strengthened, enhanced, and sustained.

This Draft SEIS will help inform how regional planning can best achieve these outcomes. Chapter 1 contains more information on the purpose and need for this SEIS.

How has the region changed since VISION 2040 was adopted?

The central Puget Sound region continues to be a desirable major metropolitan area, attracting new residents, employers, and visitors. It is known as a clean, healthy, safe, and diverse place with a vibrant economy and temperate climate. The region has a remarkably beautiful natural setting, including snowcapped peaks, abundant waterways and shorelines, and lush forests and greenery. The natural environment provides habitat for a wide variety of fish and wildlife, and at the same time creates economic opportunity through industries such as fishing and timber harvest, and provides numerous recreational and tourism opportunities. These features have all made the region a magnet for growth.

Source: Parametrix

Key changes in the last decade:

- Technology industry employment is experiencing rapid growth, particularly in Seattle and central King County
- Job growth has been strong in recent years but has been uneven across the region and by industry
- Population and housing growth continues at a rapid pace
- Regional demographics are changing as the population is becoming older and more ethnically and racially diverse
- Rent and home prices have been increasing dramatically, causing a crisis of housing affordability
- Transit infrastructure around the region is expanding, and transit ridership is increasing
- Climate change is of growing urgency, and intersects with many resources including air quality, ecosystems, and water

Chapter 2 details changes to the environmental baseline since the publication of the VISION 2040 FEIS in 2008. VISION 2050 will address these issues through the Regional Growth Strategy and regional policies and actions.

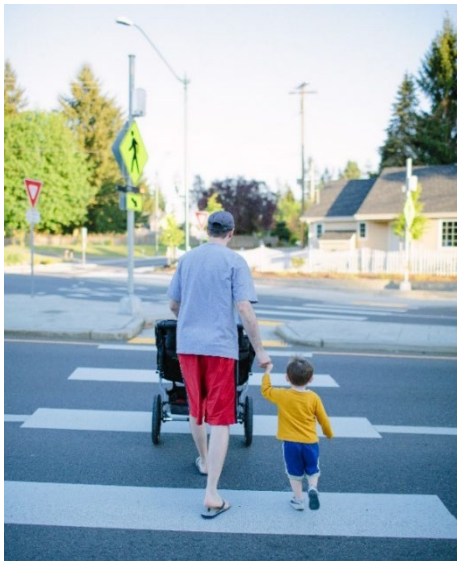
The current regional population is 4.1 million, an increase of 376,000 people—or 10 percent—from 2010 to 2017 (Figure ES-1). The VISION 2040 FEIS forecast a population of 5.0 million by 2040, whereas current forecasts have updated this to 5.3 million in 2040. By 2050, it is estimated the regional population will have grown to 5.8 million people.

Consistent with VISION 2040, the vast majority of the region's population, employment, and housing is contained inside the region's designated urban growth areas. From 2005 to 2017, the percentage of population within the urban growth area increased from 85 to 87 percent and the percentage of employment remained constant at 96 percent.

VISION 2040's Regional Growth Strategy focuses growth not only in urban areas, but more specifically in regionally designated urban centers. Between 2010 and 2017, 12 percent of the region's population growth occurred in centers. From 2010 to 2017, 37 percent of regional job growth was located in regional growth centers and 8 percent was located in manufacturing/industrial centers. Chapter 2 contains information on existing conditions for land use, population, employment, housing, and other resources.

Alternatives evaluated in this SEIS

At the heart of VISION 2040 is a shared vision of how and where the region should grow. The Regional Growth Strategy provides a description of a planned physical development pattern that the central Puget Sound region will evolve into over time. This environmental analysis includes three distinct alternative patterns of future growth that were developed after a public comment and scoping process, extensive review by PSRC's Growth Management Policy Board, and input from regional staff and other stakeholders. These three alternatives allow the environmental analysis to consider the effects of extending the current growth strategy to 2050 and the potential effects of changes to that strategy.



Source: Parametrix

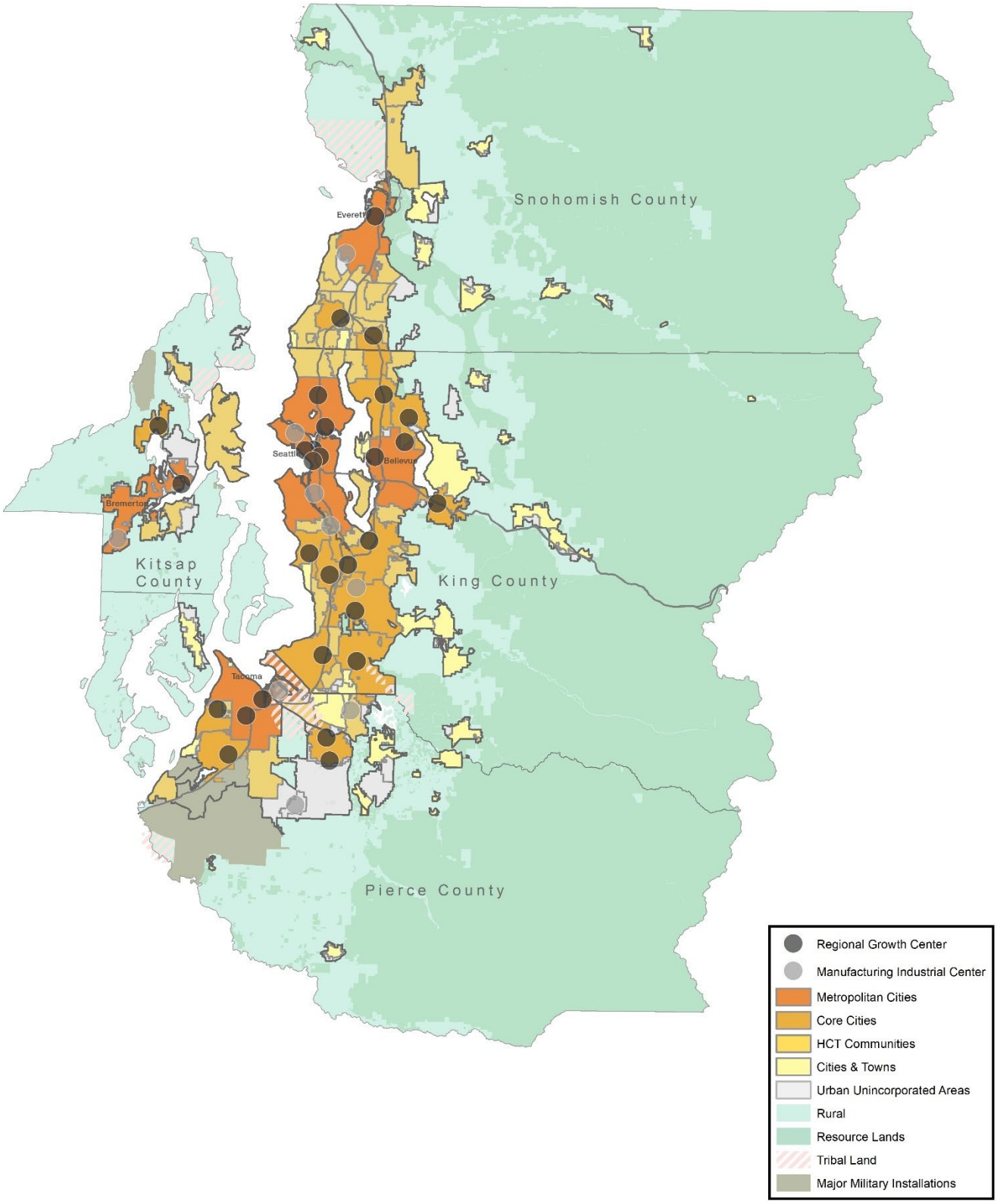
The strategy for accommodating growth asserts that the region will sustain and grow a variety of places such as active centers and central cities, small towns, and rural areas into the future. Other than in natural resource lands and military installations, all growth alternatives assume that all types of communities will grow and accommodate forecast growth (1.8 million additional people and 1.2 million additional jobs by 2050), though at different rates by geography and by county.

The Regional Growth Strategy uses "regional geographies" to classify cities and unincorporated areas by roles and types. Grouping cities and other place types provides flexibility to counties and cities to identify appropriate growth targets for individual cities in each category, while acknowledging differing roles for accommodating growth. Based on scoping comments and discussion with the board, PSRC identified changes to the VISION 2040 regional geographies and developed updated classifications for cities and unincorporated urban areas. The proposed updated regional geographies are:

- Metropolitan Cities
- Core Cities
- HCT (High-Capacity Transit) Communities
- Cities & Towns
- Urban Unincorporated Areas
- Rural
- Resource Lands
- Major Military Installations

Locations of regional geographies are depicted in Figure ES-2. Proposed regional geography changes are discussed in more detail in Chapter 3, in addition to the three alternatives summarized below.

Figure ES-2. Regional Geographies



Source: PSRC

Stay the Course (No Action) Alternative

The Stay the Course alternative is a direct extension of the VISION 2040 Regional Growth Strategy and assumes a compact growth pattern, focused in the largest and most transit-connected cities in the region within the region's 29 designated regional growth centers. This alternative serves as the required no action alternative that must be evaluated in accordance with SEPA.

This alternative continues to direct the largest share of future growth to the region's five major Metropolitan Cities: Seattle, Bellevue, Everett, Bremerton, and Tacoma. Growth is also focused in the region's Core Cities—those other cities with regional growth centers that are concentrations of growth and serve as economic and transportation hubs for the region.

Compared to historical trends, this alternative allocates less growth in urban unincorporated and rural areas and more growth in cities. Growth in urban unincorporated growth areas is envisioned as occurring in areas affiliated with cities for annexation, and growth in rural areas is minimized when compared to past trends.

This alternative maintains the current Regional Growth Strategy allocation of shares of growth. For this analysis, Stay the Course and subsequent data measures use the revised regional geographies. PSRC developed model inputs for Stay the Course using the existing VISION 2040 regional geographies and then calculated inputs and results based on the revised system of regional geographies.

Transit Focused Growth Alternative

The Transit Focused Growth alternative considers a compact growth pattern based on the VISION 2040 Regional Growth Strategy that assumes accelerated growth near the region's existing and planned transit investments.

The Transit Focused Growth alternative assumes an explicit goal for 75 percent of the region's population and employment growth to occur within a quarter- to a half-mile from current and planned high-capacity transit station areas, including light rail, bus rapid transit, commuter rail, ferries, and streetcar. This would result in the largest shares of growth to Metropolitan Cities, Core Cities, and HCT Communities.

The alternative also assumes a greater role in accommodating future growth for areas served by high-capacity transit outside of Metropolitan and Core Cities. Growth in unincorporated urban growth areas with existing or planned high-capacity transit and planned for annexation or incorporation would be similar to cities with high-capacity transit.

The remaining share of population and employment growth would be distributed largely within the urban growth area among areas not served by high-capacity transit based on the broad objectives for the Regional Growth Strategy. Growth in rural areas and unincorporated areas without access to high-capacity transit and unaffiliated unincorporated areas is the lowest in this alternative.

Reset Urban Growth Alternative

The Reset Urban Growth alternative shares similarities with actual growth patterns that occurred from 2000 to 2016 and assumes a more dispersed growth pattern throughout the urban area.

The Reset Urban Growth alternative assumes a more distributed pattern throughout the urban area. This alternative would continue to allocate the largest shares of growth to Metropolitan Cities and Core Cities, although the overall growth to these geographies and HCT Communities would be less compared to Stay the Course or Transit Focused Growth.

Growth allocations for Cities & Towns and Urban Unincorporated areas are based on land use capacities identified in currently adopted comprehensive plans. Growth in urban unincorporated areas without access to high-capacity transit and unaffiliated urban unincorporated areas is the highest in this alternative. Growth in rural areas would be slightly higher than Stay the Course.

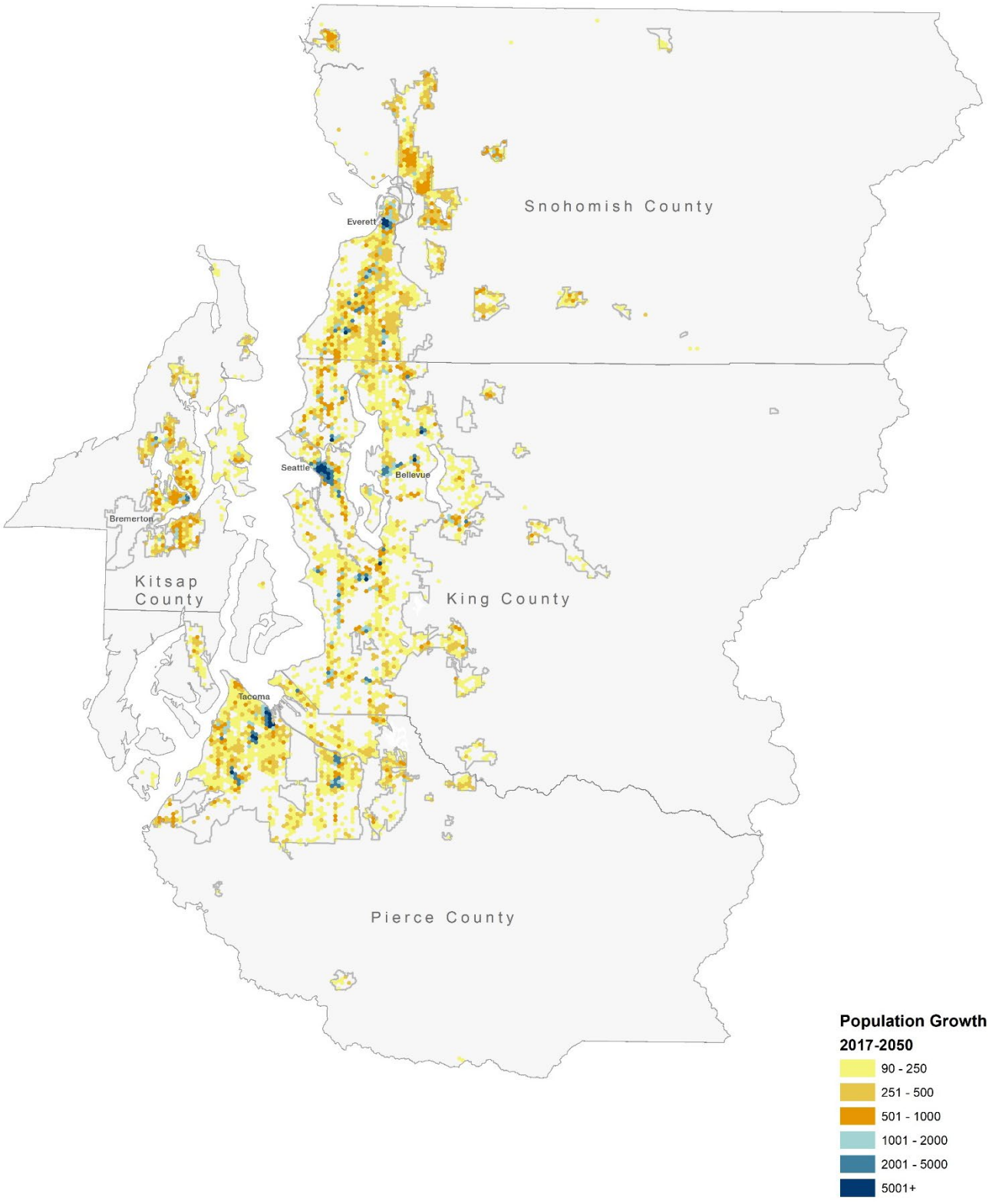
Comparison of Alternatives

A high-level summary comparing the distribution of growth between the alternatives is presented in Table ES-1. It describes the Stay the Course (no action) alternative, and then compares the Transit Focused Growth and Reset Urban Growth alternatives to Stay the Course. Following the table, maps of each alternative's distribution of population growth throughout the region are shown in Figures ES-3 through ES-5.

Table ES-1. Summary Comparison of Alternatives to Stay the Course

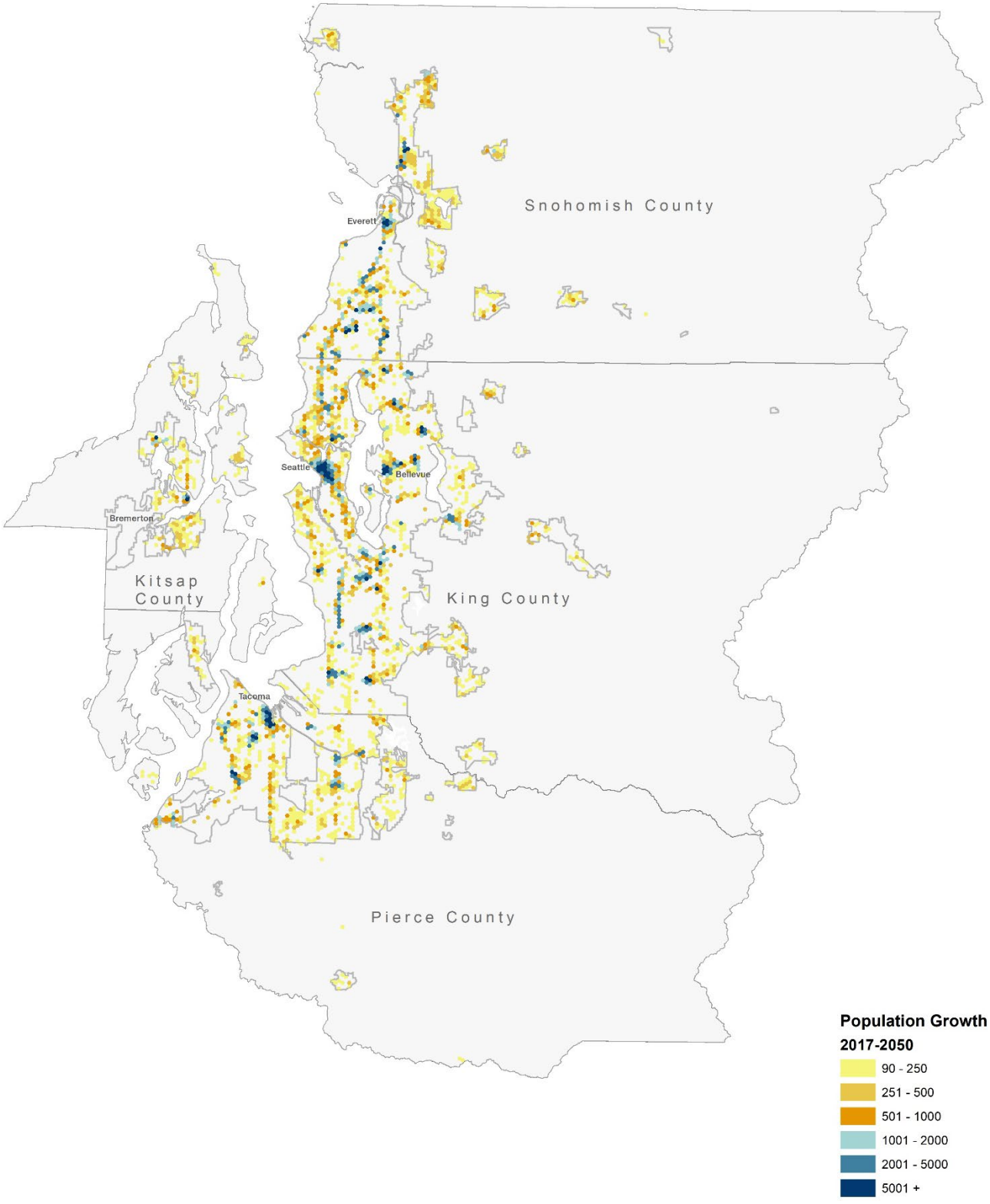
Topic	Stay the Course	Transit Focused Growth	Reset Urban Growth
What would the growth pattern look like?	Compact growth focused in Metropolitan and Core cities with regional growth centers. Extends current growth plan.	More compact growth focused in high-capacity transit areas in Metropolitan, Core and HCT Communities. Less growth in outlying areas.	Growth is more distributed throughout the urban growth area, while still assuming a large share of growth to Metropolitan and Core cities. More growth in outlying areas.
Where would population growth go?	**Metropolitan Cities:** 35% **Core Cities:** 28% **HCT Communities:** 18% **Cities & Towns:** 9% **Urban Unincorporated:** 5% **Rural:** 5%	**Metropolitan Cities:** 36% **Core Cities:** 29% **HCT Communities:** 23% **Cities & Towns:** 6% **Urban Unincorporated:** 4% **Rural:** 2%	**Metropolitan Cities:** 31% **Core Cities:** 25% **HCT Communities:** 18% **Cities & Towns:** 8% **Urban Unincorporated:** 12% **Rural:** 6%
Where would employment growth go?	**Metropolitan Cities:** 44% **Core Cities:** 36% **HCT Communities:** 12% **Cities & Towns:** 5% **Urban Unincorporated:** 3% **Rural:** 1%	**Metropolitan Cities:** 44% **Core Cities:** 35% **HCT Communities:** 13% **Cities & Towns:** 4% **Urban Unincorporated:** 2% **Rural:** 1%	**Metropolitan Cities:** 41% **Core Cities:** 32% **HCT Communities:** 12% **Cities & Towns:** 6% **Urban Unincorporated:** 6% **Rural:** 2%

Figure ES-3. Stay the Course: Population Growth Distribution 2017–2050



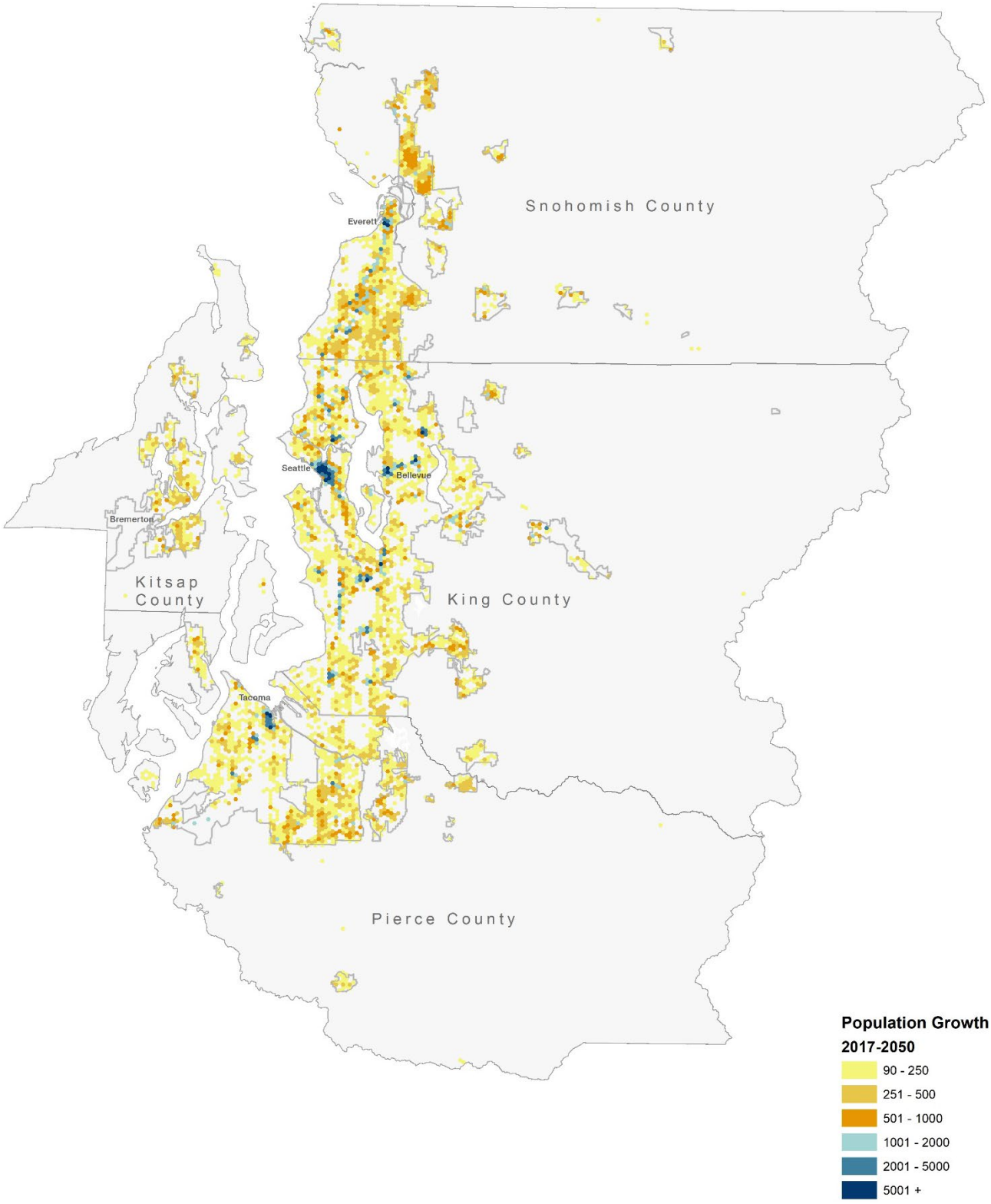
Source: PSRC

Figure ES-4. Transit Focused Growth: Population Growth Distribution 2017–2050



Source: PSRC

Figure ES-5. Reset Urban Growth: Population Growth Distribution 2017–2050



Source: PSRC

All alternatives assume the same amount of regional growth in population and employment from 2017 to 2050—1.8 million additional people and 1.2 million additional jobs. As described above, the difference between alternatives is how the growth is allocated among the regional geographies—Metropolitan Cities, Core Cities, HCT Communities, Cities & Towns, Urban Unincorporated, and Rural areas—and among the region's four counties. This distribution of additional growth throughout the region results in environmental impacts. Some impacts are similar across all alternatives, and some impacts show differences between alternatives. Key impacts common to all alternatives are summarized in Table ES-2. Key differences between alternatives are summarized in Table ES-3. Comprehensive discussion of all impacts can be found in Chapters 4 and 5. See Appendix C for discussion of the modeling process and results.

The results summarized here are the result of analysis of the growth distribution patterns for each alternative. Local plans that will be updated in accordance with GMA are not included. These results also do not include planning and improvements that may occur at transit station areas or the effects of other upcoming subarea plans.

Table ES-2. Impacts Common to All Alternatives

Resource	Impacts Common to All Alternatives
Population, Employment, Housing, and Land Use	• Population and employment growth directed toward built areas will increase density and encourage infill and redevelopment • Population and employment growth in less-developed and rural areas would result in lower-density land uses and potential development pressures on natural resource lands • There is potential for displacement unless affordable housing opportunities and/or other support is provided
Transportation	Compared to current conditions: • The average distance people drive and the amount of time spent in a vehicle each day would be reduced • The average time people spend in congestion each year is forecast to increase • Overall transit ridership is forecast to more than double • Generally, the percentage of trips made by driving alone would decrease, while walking, biking, and transit use would increase • Substantially more jobs would be accessible by transit, walking, or biking
Air Quality	• There would be a marked reduction in all pollutants, including CO_2e (a measure used for reporting greenhouse gases)
Ecosystems	• Activities associated with development, including clearing, grading, vegetation removal, and conversion of land to impervious surface would have adverse impacts to ecosystem resources such as fragmentation and degradation of habitat
Water Quality and Hydrology	• Amount of impervious surface would increase as a result of added development, which may alter stormwater hydrology, reduce aquatic habitat, and degrade water quality
Public Services and Utilities	• Demand for additional utilities including energy, solid waste, sanitary sewer, water, and stormwater would be anticipated • General service expansions of fire and police services, health and medical services, and schools would be anticipated

Table ES-2. Impacts Common to All Alternatives (continued)

Resource	Impacts Common to All Alternatives
Parks and Recreation	• For both local and regional parks, recreation, and open space resources, growth would lead to increased use, which could lead to degradation of the recreational experience, potential degradation of natural and open space resources, and increased conflicts between users
Environmental Health	• Development or redevelopment could occur in contaminated areas and expose construction workers or people living near construction activities to contamination or pollution; however, growth in contaminated areas would result in a beneficial impact through cleanup activities • Human health would experience beneficial impacts from increased walking, biking, and transit and increased access to open spaces • Increasing density of the urban environment could cause localized air quality and noise impacts if not properly planned for and mitigated
Historic, Cultural, and Archaeological Resources	• Development could alter landscapes and properties with archaeological, cultural, or historic resources through damage and destruction
Visual Quality	• Development in existing urban areas would result in an increase in density, height, and scale of new and redeveloped areas, which could impede viewsheds and increase shading but may provide beneficial impacts through redevelopment of aging infrastructure and poorly maintained properties • Development in existing outlying and rural areas would potentially convert undeveloped spaces to other uses and may not be consistent with community visual character
Earth	• Impacts from earthquakes, landslides, volcanic activities, and floods could result in damage to buildings and infrastructure, disruptions to utilities, economic losses, and injuries and loss of life
Noise	• Growth in urban areas would likely increase localized noise impacts through the replacement of vegetation with paved surfaces and buildings, an increase in the number of noise sources (e.g., vehicles, construction equipment, and emergency vehicles), and an increase in population density

Table ES-3. Summary Comparison of Alternatives Impacts

	2050 Growth Alternatives		
Topic	**Stay the Course**	**Transit Focused Growth**	**Reset Urban Growth**
POPULATION, EMPLOYMENT, HOUSING			
What would the balance of jobs and housing be? In 2014, King County subareas: 1.19 to 1.32. Kitsap, Pierce, and Snohomish counties: 0.71 to 0.78. (jobs-housing ratios indexed to the regional average)	Generally improves job-housing ratios compared to baseline (2014). In King County subareas: 1.12 to 1.37. Kitsap, Pierce, and Snohomish counties: 0.65 to 0.77.	 Improves jobs housing ratios compared to Stay the Course. King County subareas: 1.03 to 1.29. Kitsap, Pierce, and Snohomish counties: 0.80 to 0.81.	 Improves jobs housing ratios compared to Stay the Course. King County subareas: 1.02 to 1.27. Kitsap, Pierce, and Snohomish counties: 0.79 to 0.81.
How dense would housing be? Regional housing stock in 2017: 16% high-density 20% moderate-density 64% low-density (regional housing stock by density)	Less moderate-density housing compared to baseline (2017). Moderate-density housing tends to provide more affordable housing choices. Regional housing stock growth (2017-2050): 46% high-density 15% moderate-density 39% low-density	 More moderate density housing compared to Stay the Course. Regional housing stock growth (2017–2050): 57% high-density 19% moderate-density 24% low-density	 Less moderate density housing compared to Stay the Course. Regional housing stock growth (2017–2050): 44% high-density 13% moderate-density 43% low-density
LAND USE			
How close would growth be to rural and resource lands? Population and employment growth in proximity to urban growth boundary (2017–2050)	9% of growth (2017-2050) throughout region occurs in proximity to the urban growth boundary.	 6% of growth throughout the region occurs in proximity to urban growth boundary, a decrease compared to Stay the Course.	 10% of growth throughout the region would occur in proximity to urban growth boundary, an increase compared to Stay the Course.
How much land would be needed for development? Acres of developed land (2017-2050)	322,000 acres of land developed.	 285,000 acres of land developed, a decrease compared to Stay the Course.	 331,000 acres of land developed, an increase compared to Stay the Course.
How close would transit be? Population and employment growth in proximity to high-capacity transit service (2017-2050)	48% of population and employment growth (2017-2050) occurs near high-capacity transit.	 75% of population and employment growth occurs near high-capacity transit, an increase compared to Stay the Course.	 44% of population and employment growth occurs near high-capacity transit, a decrease compared to Stay the Course.

KEY:

 Increased impacts compared to Stay the Course

 Similar impacts to Stay the Course / Neutral

 Reduced impacts compared to Stay the Course

Table ES-3. Summary Comparison of Alternatives Impacts (continued)

Topic	2050 Growth Alternatives: Stay the Course	Transit Focused Growth	Reset Urban Growth
TRANSPORTATION			
How much would the average person drive? 38 minutes, 16.1 miles in 2014 (average daily drive time and drive distance, per person)	35 minutes, 13.4 miles, in 2050, a decrease compared to baseline (2014).	↓ 33 minutes, 12.8 miles, a slight decrease compared to Stay the Course.	→ 35 minutes, 13.6 miles, similar to Stay the Course.
How long would the average person be stuck in traffic each year? 21 hours in 2014 (average annual time spent in congestion, per person)	31 hours in congestion in 2050, an increase compared to baseline (2014).	↓ 29 hours, a decrease compared to Stay the Course.	↑ 32 hours, an increase compared to Stay the Course.
How many transit trips would be taken? 194 million trips in 2014 (annual transit boardings)	476 million trips in 2050, a substantial increase compared to baseline (2014).	↑ 502 million trips in 2050, an increase compared to Stay the Course.	↑ 490 million trips in 2050, an increase compared to Stay the Course.
How many jobs would be accessible by walking, biking, or transit? Job accessibility varies by county and mode (jobs accessible by walking, biking, or transit)	In 2050, substantial increase in number of jobs accessible by transit, walking, and biking across all four counties compared to baseline (2014).	↑ Increases number of jobs accessible by transit, walking, and biking compared to Stay the Course.	↓ Reduces number of jobs accessible by transit, walking, and biking compared to Stay the Course.
AIR QUALITY			
What would be the contribution to climate change and air pollution? Pollutant emissions: 47,200 tons per day CO_2e in 2014, see Section 4.4 for other pollutants. (Co_2e is a measure used for reporting greenhouse gas emissions)	Reduction in greenhouse gas emissions compared to baseline (41,000 tons per day CO_2e). Substantial reduction in emissions of other pollutants compared to baseline (2014).	↓ Slight reduction in greenhouse gas emissions compared to Stay the Course (39,600 tons per day CO_2e). Slight reduction in emissions of other pollutants compared to Stay the Course.	↑ Slight increase in greenhouse gas emissions compared to Stay the Course (41,400 tons per day CO_2e). Slight increase in emissions of other pollutants compared to Stay the Course.
ECOSYSTEMS			
How much land would be needed for development? Development and land cover (2017-2050)	322,000 acres would be needed for development. Some would occur on previously undeveloped lands where ecosystem impacts would be likely.	↓ 285,000 acres needed for development, a decrease compared to Stay the Course.	↑ 331,000 acres needed for development, an increase compared to Stay the Course.
Would important habitat be harmed? Development in areas of regionally-significant habitat	Growth would occur in areas with regionally significant habitat. Development to accommodate this growth would impact regionally significant habitat.	↓ Less growth to areas with regionally significant habitat, reduced impacts compared to Stay the Course.	↑ Increased growth to areas with regionally significant habitat, increased impacts compared to Stay the Course.

KEY:

- Increased impacts compared to Stay the Course
- Similar impacts to Stay the Course / Neutral
- Reduced impacts compared to Stay the Course

Table ES-3. Summary Comparison of Alternatives Impacts (continued)

Topic	2050 Growth Alternatives: Stay the Course	Transit Focused Growth	Reset Urban Growth
WATER			
How much hardened surface would be added by growth? New impervious surface added to undeveloped areas (2017–2050)	23,200 acres impervious surface added to region (2017–2050).	⇩ 19,600 acres, less impervious surface added to region compared to Stay the Course.	⇧ 24,300 acres, more impervious surface added to region compared to Stay the Course.
How much would redevelopment improve old stormwater systems? Redevelopment (2017–2050)	Redevelopment of 22,800 acres of impervious surface in areas with outdated stormwater controls by 2050, resulting in potential water quality benefit.	⇩ Redevelopment of 17,200 acres of impervious surface in areas with outdated stormwater controls.	⇧ Redevelopment of 26,000 acres of impervious surface in areas with outdated stormwater controls.
PUBLIC SERVICES, UTILITIES, AND ENERGY			
How much new infrastructure would be needed?	Strong growth focus in urban areas would require service expansion or new infrastructure. Additional growth in outlying and rural areas may require new infrastructure.	⇩ Less growth in outlying and rural areas may reduce the need to construct or expand facilities near open spaces, decreasing impacts compared to Stay the Course. Similar service expansion anticipated in urban areas as Stay the Course.	⇧ Greater growth in outlying and rural areas may increase the need to construct or expand infrastructure in areas not currently served, increasing impacts compared to Stay the Course. Similar service expansion anticipated in urban areas as Stay the Course.
PARKS AND RECREATION			
Would parks be nearby? 59% of population was located near parks providing local urban access in 2017 (urban population in proximity to parks providing local urban access)	55% of population would be near parks in 2050.	⇧ 59% of population would be near parks in 2050, an increase compared to Stay the Course.	⇨ 55% of population would be near parks in 2050, similar to Stay the Course.
VISUAL QUALITY			
How would areas change visually?	Some development in outlying and rural areas could result in negative visual impacts in these areas.	⇩ Less development in outlying and rural areas would slightly reduce negative impacts to these areas.	⇧ More development in outlying and rural areas would slightly increase negative impacts to these areas.

KEY: Increased impacts compared to Stay the Course; Similar impacts to Stay the Course / Neutral; Reduced impacts compared to Stay the Course

Table ES-3. Summary Comparison of Alternatives Impacts (continued)

Topic	2050 Growth Alternatives: Stay the Course	Transit Focused Growth	Reset Urban Growth
ENVIRONMENTAL JUSTICE [1]			
How would communities of color and low-income communities be affected by changes in jobs and housing?	Communities of color and low-income communities compared to the region as a whole: – Jobs-housing ratios indicate housing may become more unaffordable or unavailable – Moderate-density housing growth is reduced compared to the region as a whole which may reduce the availability of affordable housing stock	Compared to Stay the Course, for communities of color and low-income communities: – Improved balance of jobs and housing – Moderate-density housing growth is similar to Stay the Course and reduced compared to the region as a whole which may reduce the availability of affordable housing stock	Compared to Stay the Course: – Worsened balance of jobs and housing for low-income communities; improved balance for communities of color – Moderate-density housing growth is similar to Stay the Course and reduced compared to the region as a whole which may reduce the availability of affordable housing stock
Would communities of color and low-income communities benefit from changes to land use and transportation?	Greater proximity to high-capacity transit for communities of color and low-income communities compared to baseline.	⇧ Greater proximity to high-capacity transit for communities of color and low-income communities compared to Stay the Course.	⇩ Reduced proximity to high-capacity transit for communities of color and low-income communities compared to Stay the Course.
Would access to parks change for communities of color and low income communities?	Slightly greater access to local parks in communities of color and low-income communities compared to the region as a whole.	⇧ Greater access to local parks in communities of color and low-income communities compared to Stay the Course.	⇧ Greater access to local parks in low-income communities compared to Stay the Course. Similar access to local parks in communities of color compared to Stay the Course.
Would the risk of displacement increase? Displacement has been occurring in the region (2017-2050 growth in areas of higher displacement risk)	18% of population growth would occur in areas of higher displacement risk.	⇧ 23% of population growth would occur in areas of higher displacement risk, an elevated displacement risk compared to compared to Stay the Course.	⇩ 16% of population growth would occur in areas of higher displacement risk, a slightly reduced displacement risk compared to Stay the Course.

[1] Communities of color are census tracts that are greater than 50 percent people of color. Low-income communities are census tracts that are greater than 50 percent people with low incomes (households earn less than 200 percent of the federal poverty level).

KEY: Increased impacts compared to Stay the Course; Similar impacts to Stay the Course / Neutral; Reduced impacts compared to Stay the Course

Multicounty Planning Policies

VISION 2040 includes the multicounty planning policies for the four-county region. Multicounty planning policies provide a common, coordinated policy framework for local plans and other large-scale planning efforts in the region. They are designed to support implementation of the Regional Growth Strategy, including concentrating growth within the region's designated urban growth area and limiting development in resource and rural areas. The policies provide an integrated framework for addressing planning for the environment, land use, housing, the economy, transportation, and public services.

For each topic area, Chapter 7 of the VISION 2040 FEIS summarizes the multicounty planning policies and describes their purpose and environmental effects. Input to date indicates that VISION 2040's policies provide a strong foundation and should be largely retained, with select updates for emerging policy areas and changing conditions. Some changes are also proposed to strengthen or clarify policies. The multicounty planning policies will be revised to be consistent with the preferred Regional Growth Strategy alternative selected by the Growth Management Policy Board and will be included with the draft plan when it is released in summer 2019. Environmental effects of the multicounty planning policies will be included in the Final SEIS.


PSRC

1. Introduction

This chapter briefly describes the Puget Sound Regional Council (PSRC) and VISION 2040. It also describes the purpose of VISION 2050, the need for environmental review, and the process to develop VISION 2050 and the Supplemental Environmental Impact Statement (SEIS).

Why is an SEIS being prepared for VISION 2050?

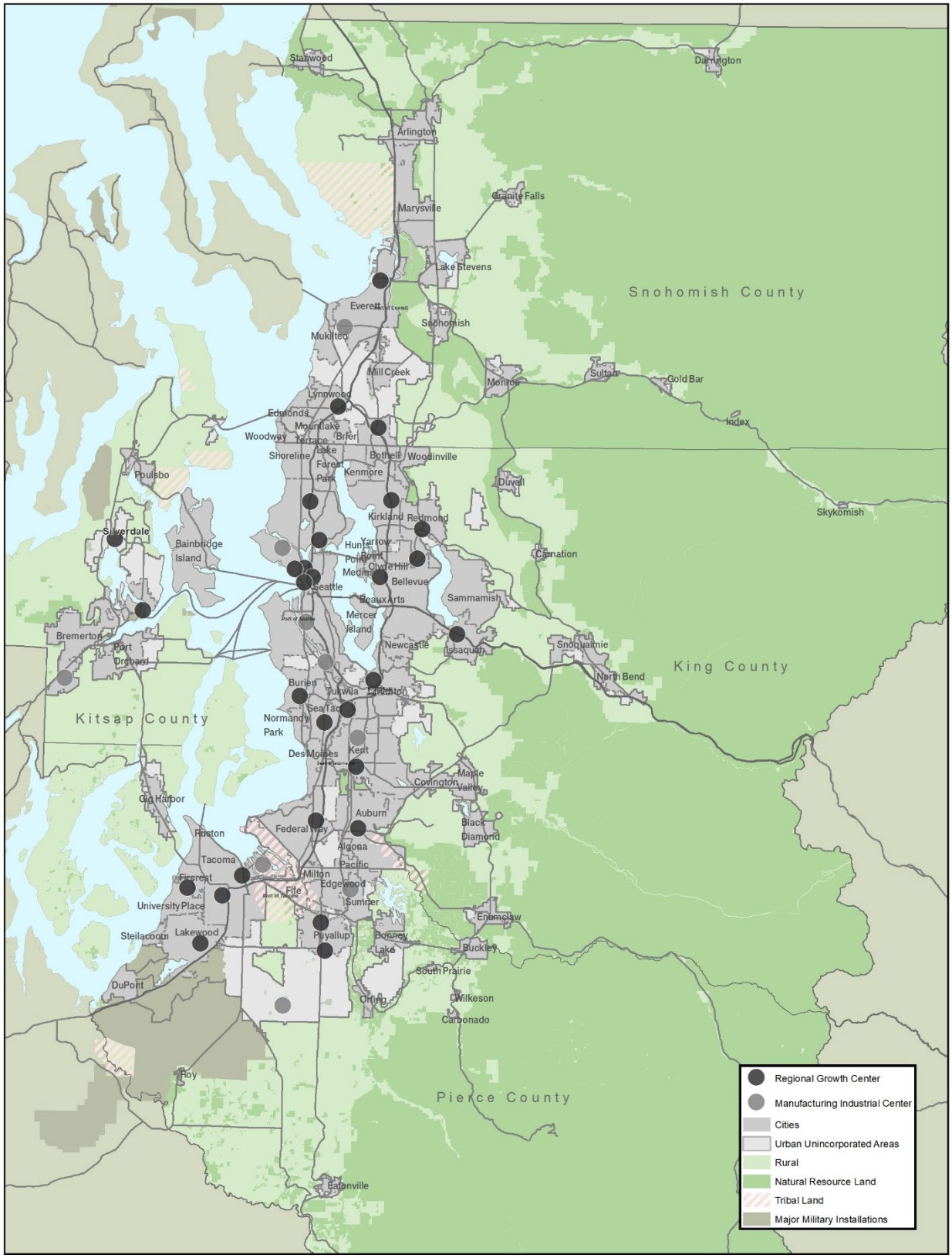
The region's plan to accommodate additional population and job growth to 2050 will likely have environmental impacts. PSRC will use the environmental review process to analyze the effects of continued growth in the region, and alternative ways of responding to and accommodating that growth. Because VISION 2050 will build upon VISION 2040, the VISION 2040 Final Environmental Impact Statement (FEIS) provides a foundation for the environmental review of VISION 2050. This Draft SEIS provides updates and additional information for consideration.

1.1 PSRC and VISION 2040

The central Puget Sound region is made up of King, Kitsap, Pierce, and Snohomish counties, and their 82 cities and towns (see Figure 1.1-1). The major metropolitan cites of the region are Seattle and Bellevue in King County, Bremerton in Kitsap County, Tacoma in Pierce County, and Everett in Snohomish County.

PSRC's mission is to ensure a thriving central Puget Sound now and into the future through planning for regional transportation, growth management, and economic development. It serves as a forum for cities, counties, ports, transit agencies, Tribes, and the state to work

Figure 1.1-1. Counties, Cities, and Towns in the Central Puget Sound Region



Source: PSRC

together on important regional issues. As the region's Metropolitan Planning Organization and Regional Transportation Planning Organization, key PSRC responsibilities include:

- Long-range growth, economic, and transportation planning
- Transportation funding
- Economic development coordination
- Regional data
- Technical assistance
- Certification of local comprehensive plans

A General Assembly and Executive Board govern PSRC. The Growth Management and Transportation Policy Boards advise the Executive Board. PSRC supports the work of the region's Economic Development District, which coordinates economic development planning in the region. PSRC's organizational structure is described in more detail in Chapter 3 of the VISION 2040 FEIS.

PSRC plans under Washington state's Growth Management Act (GMA), which establishes broad goals such as:

- Managing urban growth
- Protecting agricultural, forestry, and environmentally sensitive areas
- Reducing sprawl
- Encouraging efficient multimodal transportation systems

GMA and the state planning framework are described in more detail in Chapter 3 of the VISION 2040 FEIS.

PSRC adopted VISION 2040 in April 2008. VISION 2040 is a shared strategy for how and where the central Puget Sound region should grow by the year 2040. It was the result of a process undertaken by the region's elected officials, public agencies, interest groups, and individuals to establish a common vision for the future. VISION 2040 consists of:

- An environmental framework
- A regional growth strategy
- Multicounty planning policies to guide growth and development
- Actions to implement
- Measures to track progress

"People, prosperity and planet" is the central theme of VISION 2040 and conveys that the people of this region, its economic prosperity, and its relationship to the planet are tied together in mutually supportive and interdependent ways. VISION 2040 begins with a

Framework for a Sustainable Environment and a call to care for and sustain a healthy environment for generations to come. It asserts that more sustainable practices can enhance the natural environment and built environment, while ensuring that growth results in clean and vibrant communities. The sustainability principles in the framework figure prominently in VISION 2040. The Framework for a Sustainable Environment is grounded in the Regional Environmental Baseline in the VISION 2040 FEIS, which describes the region's environment. Both the environmental framework and the baseline continue to provide a foundation for future planning in the region.

The Regional Growth Strategy in VISION 2040 provides guidance to cities and counties for accommodating expected growth—up to 5 million people in the region by the year 2040. The strategy is designed to preserve resource lands and protect rural lands from urban-type development. The strategy promotes infill and redevelopment within urban areas to create more compact, walkable, and transit-friendly communities.

The multicounty planning policies provide guidance for implementing the Regional Growth Strategy and inform both countywide planning policies and local planning in the region. Required by GMA, VISION 2040's multicounty planning policies are organized under the topics of environment, development patterns, housing, economy, transportation, and public services.

VISION 2040 contains implementation actions that contribute to achieving the Regional Growth Strategy and multicounty planning policies. VISION 2040 also contains measures to monitor and evaluate growth to ensure that it continues to meet VISION 2040's goals and objectives.

1.2 Purpose and Need

1.2.1 Purpose of VISION 2050

VISION 2050 will build on VISION 2040 to keep the central Puget Sound region healthy and vibrant as it grows. As the region prepares to add more people and jobs in the coming decades—about 1.8 million more people by 2050—VISION 2050 will identify the challenges we should tackle together as a region and renew the VISION for the next 30 years. It will consider new information and perspectives about a changing region. Objectives for the Regional Growth Strategy identified by the Growth Management Policy Board include:

- Maintain stable urban growth areas
- Focus the great majority of new population and employment within urban growth areas
- Maintain a variety of community types, densities, and sizes
- Achieve a better balance of jobs and housing across the region
- Within urban growth areas, focus growth in cities
- Within cities, create and support centers to serve as concentrations of jobs, housing, services, and other activities

- Build transit-oriented development around planned infrastructure
- Use existing infrastructure and new investments efficiently

The Growth Management Policy Board also identified desired outcomes for VISION 2050.

- Climate. Meaningful steps have been taken to reduce carbon emissions and minimize the region's contribution to climate change.
- Community and Culture. Distinct, unique communities are supported throughout the region, cultural diversity is maintained and increased, and displacement due to development pressure is mitigated.
- Economy. Economic opportunities are open to everyone, the region competes globally and has sustained a high quality of life. Industrial and manufacturing opportunities are maintained.
- Environment. The natural environment is restored, protected, and sustained, preserving and enhancing natural functions and wildlife habitats.
- Equity. All people can attain resources and opportunities to improve their quality of life and enable them to reach their full potential.
- Health. Communities promote physical, social, and mental well-being so that all people can live healthier and more active lives.
- Housing. Healthy, safe, and affordable housing for all people is available and accessible throughout the region.
- Innovation. The region has a culture of innovation and embraces and responds to change.
- Mobility and Connectivity. A safe, clean, integrated, affordable, and highly efficient multimodal transportation system reduces travel times, promotes economic and environmental vitality, connects people, and supports the Regional Growth Strategy.
- Natural Resources. Natural resources are permanently protected, supporting the continued viability of resource-based industries, such as forestry, agriculture, and aquaculture.
- Public Facilities and Services. Public facilities and services support local and regional growth plans in a coordinated, efficient, and cost-effective manner.
- Resilience. The region's communities plan for and are prepared to respond to potential impacts from natural hazards and other adverse events.
- Rural Areas. Rural communities and character are strengthened, enhanced, and sustained.

1.2.2 Need for Environmental Review

PSRC, as lead agency for environmental review, has determined that the regional plan for 2050 will likely have significant impacts on the environment, and in February 2018 issued a Determination of Significance, pursuant to the State Environmental Policy Act (SEPA—Revised Code of Washington [RCW] 43.21C.030(2)(c)). In response to the Determination of Significance, PSRC has analyzed impacts to the natural and built environments in this Draft SEIS. The SEIS evaluates alternative ways that the region might grow and different strategies to mitigate negative impacts of growth.

The VISION update is considered a non-project action. SEPA defines non-project actions as governmental actions involving decisions on policies, plans, or programs that contain standards controlling use of or modifications to the environment, or that will govern a series of connected actions. This includes, but is not limited to, the adoption or amendment of comprehensive plans, transportation plans, ordinances, rules, and regulations (Washington Administrative Code [WAC] 197-11-704). SEPA review for non-project actions requires agencies to consider the "big picture" by:

- Conducting comprehensive analysis
- Addressing cumulative impacts
- Considering possible alternatives
- Outlining successful mitigation measures

An Environmental Impact Statement (EIS) for a non-project proposal does not require site-specific analyses. Therefore, the EIS provides qualitative and quantitative descriptions of the likely environmental effects that may occur with the alternatives.

1.2.3 Related Plans

PSRC adopted the Regional Transportation Plan in May 2018 (PSRC 2018c). It serves as the transportation plan for implementing transportation goals identified in VISION 2040 and is guided by the multicounty planning policies in VISION 2040. Amazing Place, the Regional Economic Strategy, was adopted by the Central Puget Sound Economic Development District in September 2017 (PSRC 2017a). It also serves to implement policies identified in VISION 2040.

1.3 How Does VISION 2050 Update VISION 2040?

Board discussions, VISION 2050 scoping comments, the Taking Stock assessment (PSRC 2017b), and other input from stakeholders have helped to identify challenges with growth and opportunities to update VISION 2040. The Growth Management Policy Board directed that

VISION 2050 should build on VISION 2040. Some key changes and challenges being addressed by VISION 2050 include:

- Updates to growth forecasts for the year 2050 and to the Regional Growth Strategy
- Updated regional geographies
- An updated framework to plan for centers and transit-oriented development
- A new Regional Open Space Conservation Plan
- Housing affordability
- Climate change
- Social equity

The alternatives being evaluated in this Draft SEIS are described in Chapter 3 and updates to the multicounty planning policies are discussed in Chapter 6.

1.4 SEIS Process and Public Outreach

The SEPA process for VISION 2050 follows procedures identified in Chapter 197-11 of the WAC, the SEPA Handbook (2017), PSRC procedures and policies for implementing SEPA adopted in Executive Board Resolution EB-2016-01, and PSRC's Public Participation Plan (PSRC 2018d).

PSRC's Determination of Significance, issued on February 2, 2018, marked the beginning of a public outreach and scoping process that extended to March 19, 2018. During the scoping comment period, PSRC staff had contact with many individuals, organizations, and local jurisdictions throughout the region, and received more than 1,300 individual comments. The top five categories of comments included land use and development patterns, transportation, Regional Growth Strategy, environment, and housing. The engagement process and comments received during scoping are summarized in the VISION 2050 Scoping Report (PSRC 2018b) and are reflected in the objectives and outcomes listed in Section 1.1.1 of that report.

The Determination of Significance indicated PSRC's intent to prepare an SEIS. SEPA allows an SEIS to be prepared when an existing EIS addresses some, but not all, of a new proposal's probable significant adverse environmental impacts. This Draft SEIS builds on and supplements the FEIS prepared for VISION 2040. Some environmental resources, conditions, and analysis methods have changed substantially, while others have not. Consequently, each element in this Draft SEIS has a varying level of existing conditions information and analysis. Elements in the SEIS reference the FEIS when information for a resource is relevant. In addition, Appendix B includes supporting data tables and figures and Appendix C describes the methodology and modeling tools used in preparation of this Draft SEIS.

This Draft SEIS focuses on the potential comparative impacts of the Regional Growth Strategy alternatives. More information on how the analysis of impacts was conducted is provided in Chapter 4.

A public comment period will follow the issuance of this Draft SEIS. PSRC encourages early and continuous engagement by the public in the plan update, and its work is organized to encourage public participation. Participants in the review process are asked to comment on the environmental review and the growth alternatives. For information on how to comment or stay involved, please see the Fact Sheet at the beginning of this Draft SEIS or refer to PSRC's VISION 2050 website.

The Draft SEIS, public comment, and board discussion will inform the development of a preferred Regional Growth Strategy alternative and updated multicounty planning policies, to be incorporated into a Draft VISION 2050 plan. The evaluation criteria and process for selecting a Preferred Growth Alternative are described in Appendix D. PSRC will hold a public comment period for the Draft VISION 2050 plan. Input and feedback received during this period will be reviewed and considered and the Regional Growth Strategy and multicounty planning policies will be revised accordingly. Revisions will then be reviewed and documented in a Final SEIS. Final action to adopt VISION 2050 will take place at a meeting of PSRC's General Assembly in 2020.

PSRC

2. Affected Environment

This chapter updates the affected environment discussion in the VISION 2040 FEIS that was issued in 2008. Comprehensive data supporting this chapter can be found in Appendix B.

How has the regional environment changed since VISION 2040?

In the past decade, the central Puget Sound region has experienced change, particularly from challenges during the last recession (approximately December 2007 to June 2009) and the tremendous population and economic growth that followed. Each of the environmental resources listed below was affected by these changes differently. Therefore, the affected environment for this Draft SEIS includes:

- **Resources that experienced substantial change in the last decade**, or where there is significant new information, including: population, employment, housing, land use, and transportation. These changes are described in Sections 2.1 through 2.5.
- **Resources that experienced less change**, including: air quality, ecosystems, water quality and hydrology, public services and utilities, parks and recreation, and environmental health. Additional detail on these resources can be found in Sections 2.6 through 2.11.
- **Resources that remain similar as described in the VISION 2040 FEIS**, including energy; historic, cultural, and archaeological resources; visual quality; earth; and noise. These resources are described in Sections 2.12 through 2.16.

In addition, changes to the regulatory setting, including federal and state legislation, are described in Section 2.17.

What are some of the key regional changes in the last decade?

- Tech industry employment is experiencing rapid growth, particularly in Seattle and central King County
- Job growth has been strong in recent years but has been uneven across the region and between industries
- Population and housing growth is continuing at a rapid pace
- Regional demographics are changing as the population is becoming older and more racially and ethnically diverse
- Rent and home prices have been increasing dramatically, causing a crisis of housing affordability
- Transit infrastructure around the region is expanding, and transit ridership is increasing
- Climate change is of growing urgency, and intersects with many resources including air quality, ecosystems, and water

2.1 Population

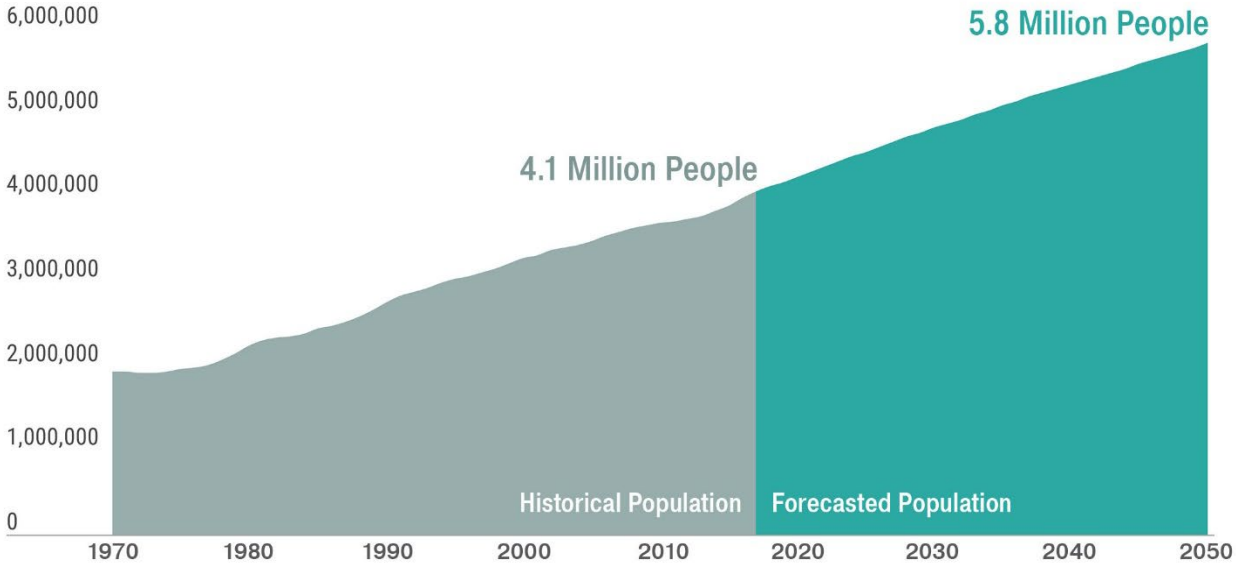
The central Puget Sound region continues to experience a surge in population growth. Along with this substantial growth, the region is experiencing shifts in demographics—most notably, an aging population and increasing racial and ethnic diversity. This section provides an overview of population growth since the VISION 2040 FEIS, describes the growth forecast through 2050, and summarizes key demographic shifts in the growing population.

The current regional population is 4,076,000, an increase of 376,000 people—or 10 percent—from 2010 to 2017 (Figure 2.1-1). The VISION 2040 FEIS forecast a population of 4,988,000 by 2040, whereas current forecasts have updated this to 5,328,000 in 2040. By 2050, it is estimated the regional population will have grown to 5,823,000 people.

Similarly, Washington State Office of Financial Management (OFM) 2017 Growth Management projections include higher growth projections for 2040 than previously anticipated. Compared to growth assumptions used to inform the VISION 2040 FEIS, OFM projects a higher amount of growth for King County in particular.

Figure 2.1-2 shows the distribution of population growth from 2000 to 2017 throughout the region. The densest areas of population growth are occurring within the urban growth area. All four counties have seen an increase in rural population as well, though at declining rates from the previous decade. Additional discussion on growth by land use type can be found in Section 2.4.

Figure 2.1-1. Historical and Forecasted Regional Population



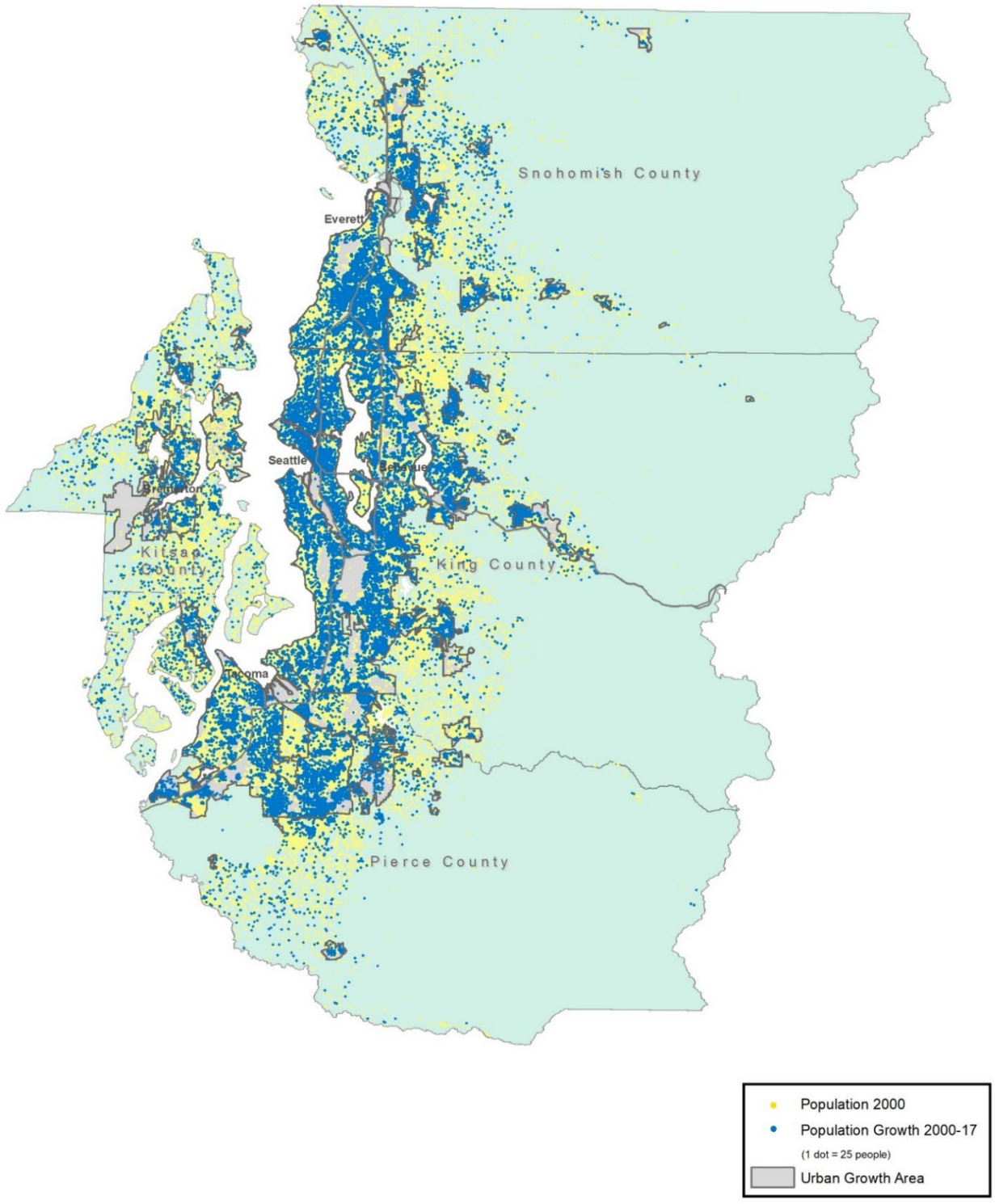
Source: U.S. Census Bureau, WA Office of Financial Management, PSRC

The percent population growth from 2010 to 2017 was largest in King and Snohomish counties at 12 and 11 percent, respectively. In the same time period, the Pierce County population grew 8 percent and Kitsap County 5 percent.

The major demographic shifts that have occurred as a result of the aging population are very similar in magnitude to those predicted in the VISION 2040 FEIS. As shown in Figure 2.1-3, between 1970 and 2010, the proportion of people 65 and over remained relatively constant at approximately 10 percent. Today, this age group comprises 14 percent of the population. From 2030 through 2050, people 65 and over will make up nearly 20 percent of the population.

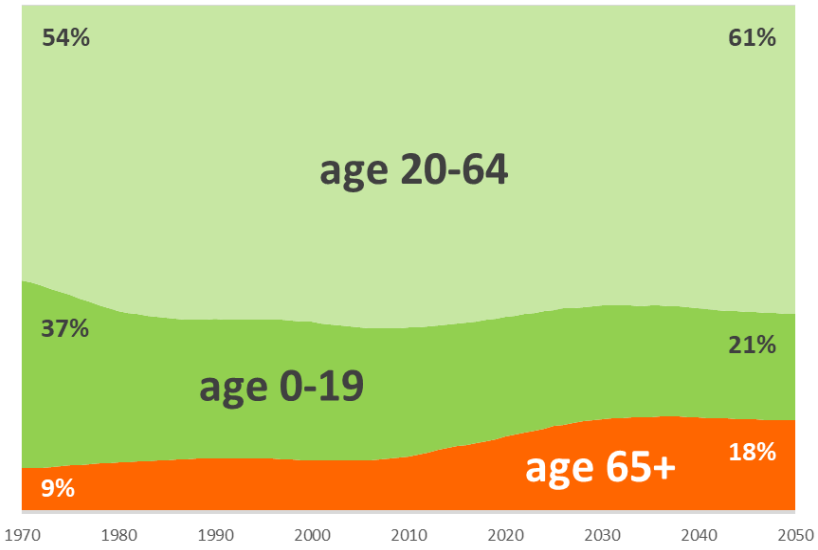
Since 2000, the regional population has become more racially and ethnically diverse. People of color currently represent 35 percent of the region—an 81 percent increase since 2000 (PSRC 2018e). The region's Hispanic/Latino population has grown by 130 percent since 2000 and now constitutes 10 percent of the region's population. The region's Asian/Pacific Islander population has grown 88 percent since 2000 and currently represents 13 percent of the region's population. In addition, people of color are more dispersed throughout the region as depicted in Figure 2.1-4. Additional discussion of people of color and people with low incomes can be found in Section 5.4, the Central Puget Sound Demographic Profile (PSRC 2018f), and Appendix H.

Figure 2.1-2. Spatial Distribution of Population Increase, 2000–2017



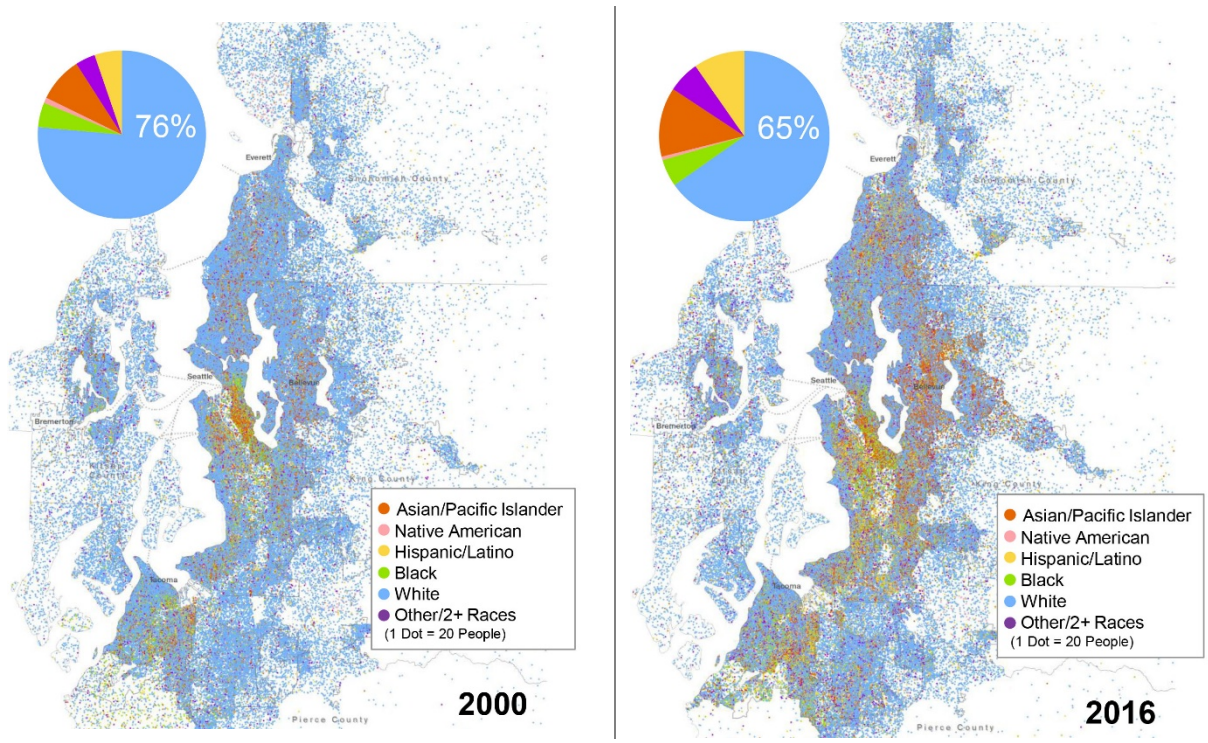
Source: PSRC

Figure 2.1-3. Historical and Forecasted Regional Age Demographics



Source: U.S. Census Bureau, PSRC

Figure 2.1-4. Comparison of Population Distribution by Race and Ethnicity, 2000 and 2016[1]



Source: PSRC, U.S. Census Bureau American Community Survey

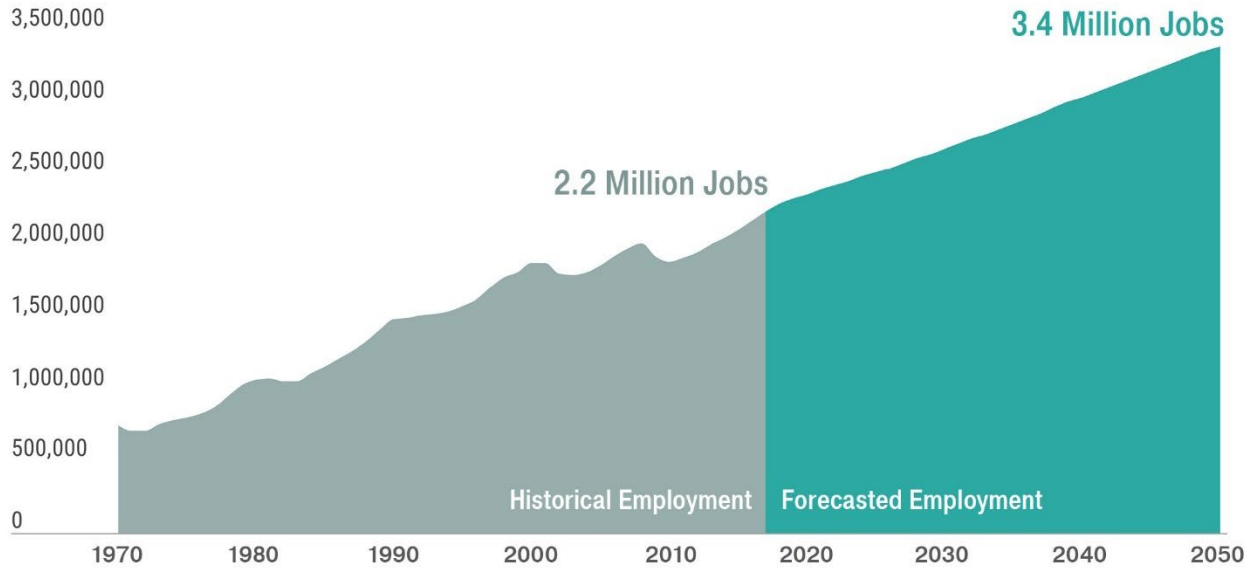
[1] 2016 refers to American Community Survey 2012-2016 5-year average estimates

2.2 Employment

This section describes overall employment throughout the region, including employment by economic sector and cluster. Additional detailed information on the region's economy and employment can be found in the region's economic strategy, Amazing Place: Growing Jobs and Opportunity in the Central Puget Sound Region (PSRC 2017a) and in the Economic Analysis of the Central Puget Sound Region (PSRC 2017c).

Between 2007 and 2010 the region lost an estimated 100,000 jobs during the last recession. Since 2010, job growth and the regional economy recovered and replaced all of the jobs lost during the recession (PSRC 2017a). From 2010 to 2017, 343,000 jobs have been added to the region, a nearly 20 percent increase. The total regional employment in 2017 was 2,233,000 jobs as shown in Figure 2.2-1.

Figure 2.2-1. Historical and Forecasted Regional Employment

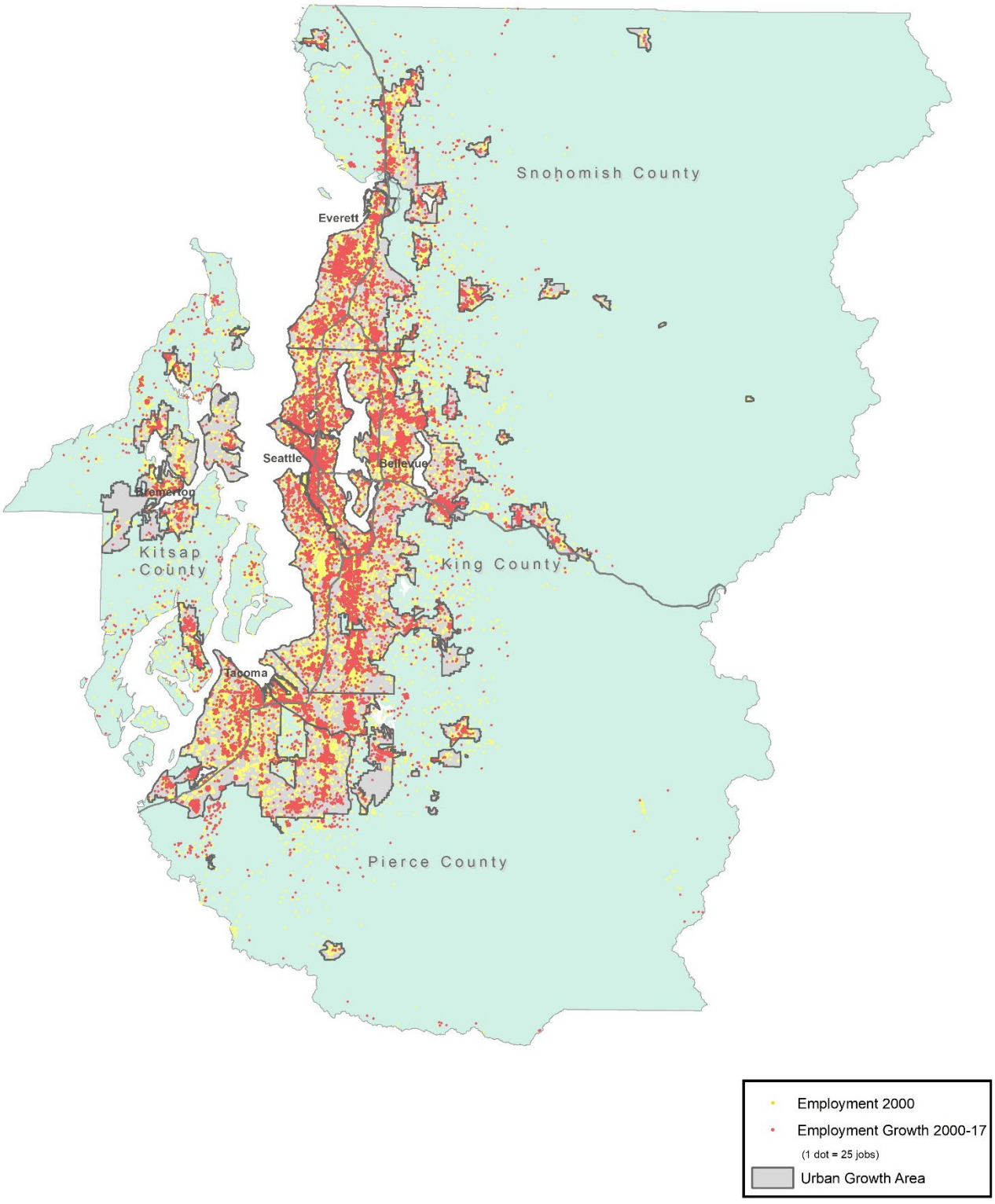


Source: PSRC

Figure 2.2-2 shows the distribution of jobs added to the region from 2000 to 2017. Job growth is focused primarily within the urban growth area and more concentrated than population growth during the same period. All four counties gained new jobs, but 86 percent of employment growth has occurred in King and Snohomish counties since 2010 (PSRC 2018e).

Due to effects from the last recession, employment growth through 2040 is now expected to be slightly less than anticipated in the VISION 2040 FEIS. The FEIS forecasted a total of 3,126,000 jobs by 2040; this forecast has been reduced slightly to 3,037,000. The updated forecast estimates 3,392,000 jobs in the region by 2050 (Figure 2-2.1).

Figure 2.2-2. Spatial Distribution of Employment Increase, 2000–2017



Source: PSRC

Each county's major employers are similar to those described in the VISION 2040 FEIS and are listed below in Table 2.2-1.

Table 2.2-1. Major Employers, Central Puget Sound Region

	King	Kitsap	Pierce	Snohomish
Basic	Amazon, Boeing Company*, Microsoft*, Nordstrom*, Starbucks, University of Washington*	Naval Base Kitsap*, Puget Sound Naval Shipyard*, Olympic College*, SAFE Boats International	Amazon Distribution, Boeing Company, Joint Base Lewis-McChord*, Milgard Windows & Doors*, State Farm	Boeing Company*, Fluke Corporation, Naval Station Everett*, Tulalip Tribes*
Health	Kaiser Permanente, Swedish Hospital/ Swedish Medical Center*	Harrison Medical Center*, Martha & Mary, Naval Hospital Bremerton, Port Madison Health Services (Suquamish Tribe)	CHI Franciscan Health, DaVita Medical Group, Kaiser Permanente, MultiCare Health System*	Philips Healthcare, Premera Blue Cross*, Providence Health & Services*, Swedish Hospital/Swedish Medical Center, The Everett Clinic
Retail	Costco*	Fred Meyer*, Safeway*	Fred Meyer, Safeway, Walmart	Fred Meyer, Safeway, Walmart
Government	City of Seattle*, King County*, school districts	Kitsap County, school districts*, state government	City of Tacoma*, Pierce County*, school districts*	Edmonds City College*, school districts*, Snohomish County*, state government*

Source: Economic Alliance Snohomish County, Economic Development Board Tacoma Pierce County, Economic Development Council of Seattle & King County, Kitsap Economic Development Alliance

* Denotes employers listed in VISION 2040 FEIS

The largest regional employment sector is the service sector, with a total of 1,038,000—or 46 percent—of all jobs in 2017. The service sector includes health services, accommodations/food services, professional/scientific/technical services, information, administrative services, and other services. It is anticipated that an additional 843,000 service jobs will be added from now to 2050. These trends are similar to those predicted in the VISION 2040 FEIS, though current forecasts project higher rates of growth in this sector.

Other key characteristics of the service sector include the following:

- In 2015, healthcare had the largest and fastest-growing share of employment in the region, making up 27 percent of service sector jobs and 13 percent of all jobs (PSRC 2017c).
- Also, in 2015, information sector jobs, which include employment related to software, media, internet, and telecommunication services, made up 12 percent of service sector

jobs and 5 percent of all jobs. This is more than double the national average of 2 percent (PSRC 2017c).

Economic sectors are large components of the economy defined by their place in the production chain, such as manufacturing and construction, services, education, and government. These sectors are usually defined consistently across most economies.

Economic clusters are geographic concentrations of interconnected businesses, suppliers, and institutions that share common markets, technologies, and worker skill needs. These clusters tend to be specialized to a geographic area and represent unique characteristics of the economy.

Other key overall economic sector trends include the following:

- Construction job growth was rapid during the housing boom of the early- to mid-2000s, followed by major job loss during the last recession, resulting in a net loss of 21,000 jobs. Construction is currently one of the fastest growing job sectors, adding nearly 40,000 jobs from 2010 to 2017. Similar to the VISION 2040 FEIS, forecasts indicate that growth will continue into the future, but at a slower rate.
- After a period of net decline from 2000 to 2010, manufacturing jobs have been increasing slightly since 2010, but the result is still a net decrease overall from 2000 to 2017. Consistent with the projection in the FEIS, this growth is expected to be short-lived, with manufacturing jobs estimated to decrease from 2020 to 2050.

The economic strategy for the region was recently updated in Amazing Place: Growing Jobs and Opportunity in the Central Puget Sound Region (PSRC 2017a), which identifies the key clusters of the regional economy that are driving the region's job growth.

The following clusters showed the strongest job growth from 2010 to 2017:

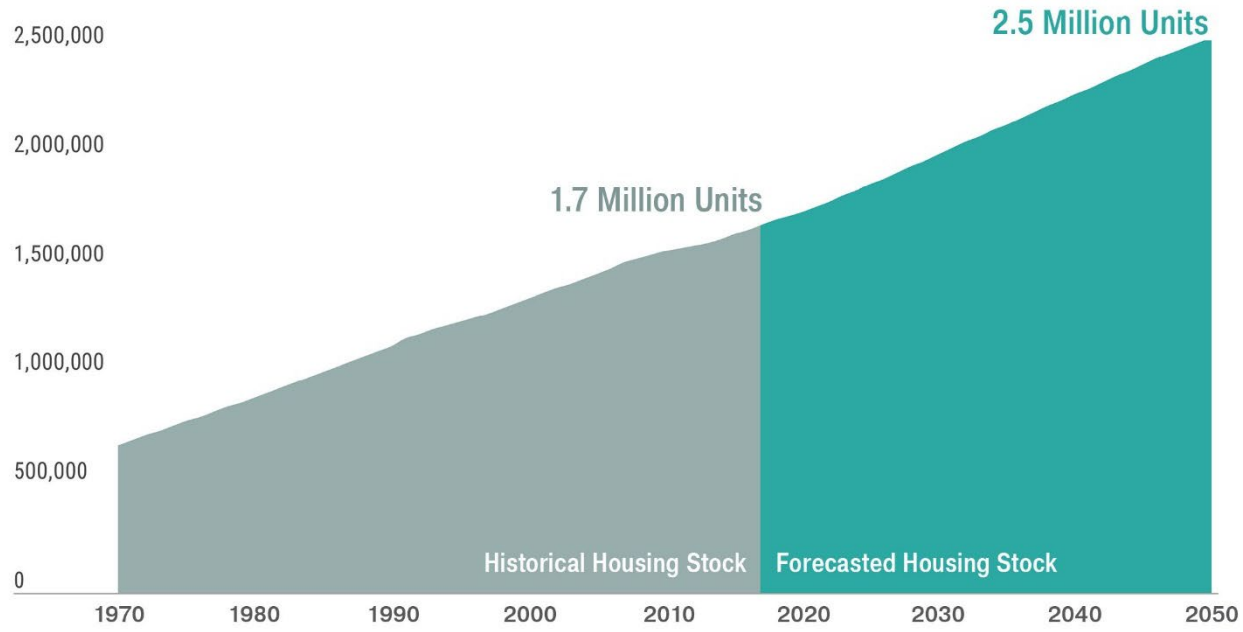
- Tourism: 88,000 jobs
- Information Technology: 75,000 jobs
- Transportation and Logistics: 11,000 jobs
- Business Services: 7,800 jobs
- Aerospace: 6,700 jobs
- Maritime: 6,600 jobs

2.3 Housing

Since VISION 2040 was adopted in 2008, the region's housing market has experienced highs and lows, from the precipitous drop in housing prices and foreclosures during the last recession to the recent economic upswing and job growth that has led to rapid increases in rents and home prices. This section provides an overview of housing stock, median home value, median rent, jobs-housing balance, and housing affordability. Detailed information on housing in the region can be found in the VISION 2050 Housing Background Paper (PSRC 2018g).

Figure 2.3-1 depicts historical and forecasted regional housing units from 1970 to 2050. The region's housing stock has increased from 1,571,000 units in 2010 to 1,687,000 units in 2017 and is forecast to reach 2,547,000 units by 2050. The current household size of 2.50 is forecast to continue to slowly decline through 2050 to approximately 2.36. This decline is slower than anticipated in the VISION 2040 FEIS.

Figure 2.3-1. Historical and Forecasted Regional Housing Stock, 1970–2050



Source: PSRC

As shown in Table 2.3-1, the majority of current housing stock is largely comprised of low-density housing in all four counties, with substantially lower percentages of moderate- and high-density housing. King County shows a greater proportion of high-density housing than the other counties. Kitsap, Pierce, and Snohomish counties show markedly higher amounts of low-density housing. Continuing the trend noted in the VISION 2040 FEIS, from 2000 to 2017 the percentage of single-family (low-density) housing units has decreased slightly and multifamily (moderate- to high-density) units have increased slightly across the region.

Table 2.3-1. Housing Units in Areas Zoned for Low-, Moderate-, and High-Density Development, 2017

	High Density (%)	Moderate Density (%)	Low Density (%)
King County	24	20	56
Kitsap County	1	11	87
Pierce County	6	20	74
Snohomish County	6	24	70
Region	**15**	**19**	**66**

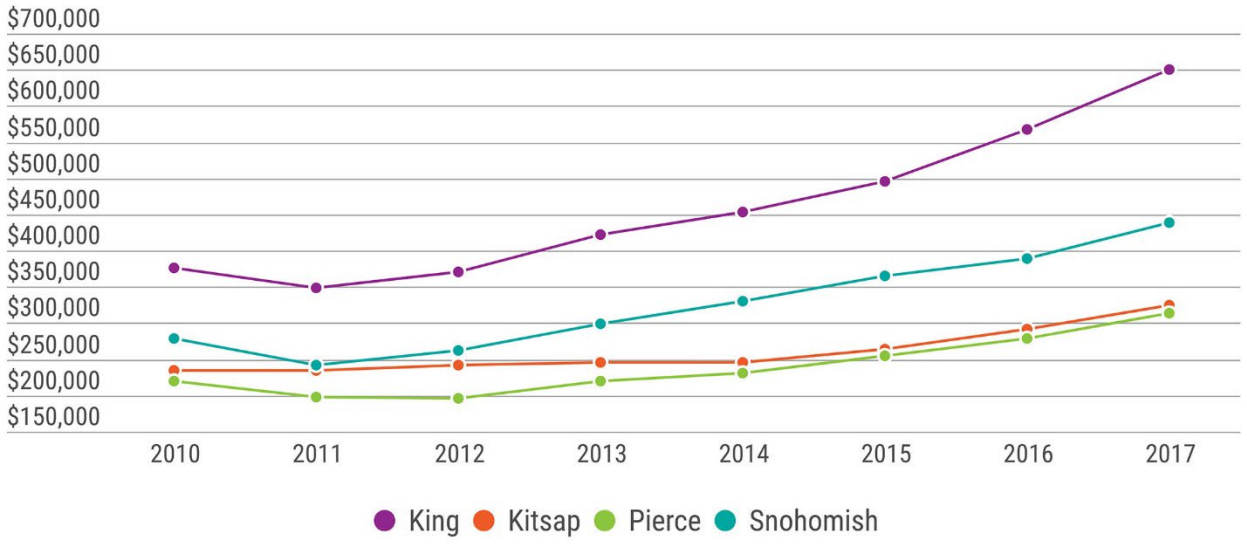
Source: PSRC

Note: Low density is defined as less than 12 units/acre, moderate density as 12 to 49 units/acre, and high density as 50+ units/acre. These groupings generally translate to single-family development; duplex, triplex, townhome, and low-rise apartment/condo buildings; and high-rise apartment/condo buildings.

Strong employment growth has contributed to a surge in population and demand for housing. Housing construction has accelerated substantially since its low point in 2011 and is now on par with pre-recession levels of production. These factors, in addition to increasing incomes and low interest rates, have resulted in increasing home values and rents throughout the region (PSRC 2018g).

While home prices have increased across the region, there is a widening price gap among the counties, with the median King County home price close to double the cost of homes in Kitsap and Pierce counties (Figure 2.3-2). Since 2010, the median single-family home price has increased by 73 percent in King County, 57 percent in Snohomish County, 42 percent in Pierce County, and 38 percent in Kitsap County.

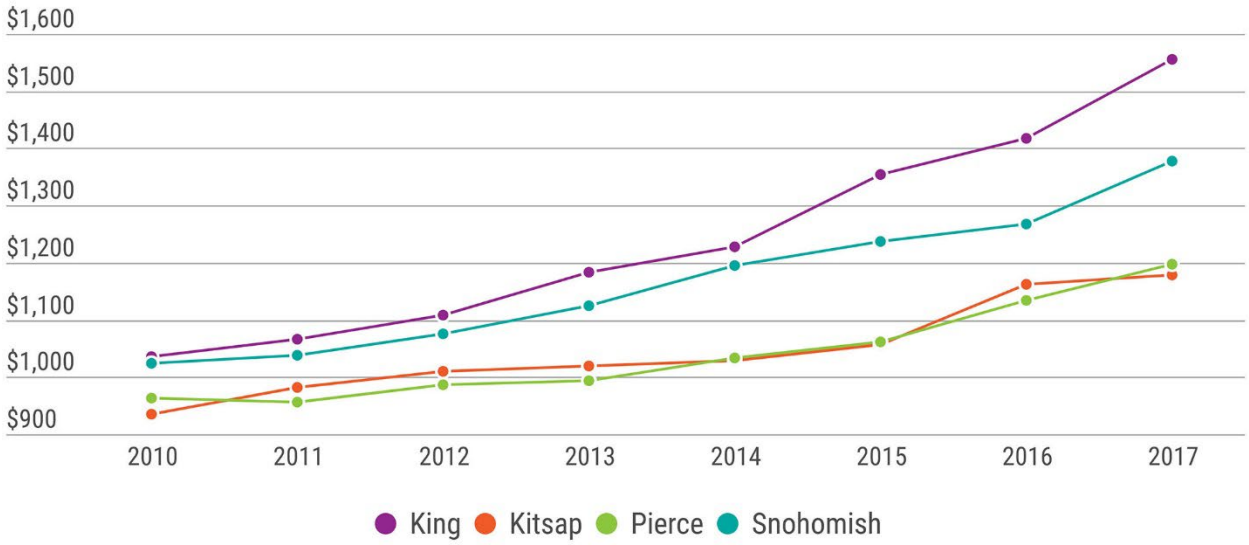
Figure 2.3-2. Median Home Value by County, 2010–2017



Source: Washington Center for Real Estate Research | UW Runstad Department of Real Estate

Similar to home prices, median rent has also risen significantly since 2010 (Figure 2.3-3). From 2010 to 2017, median rent increased by 50 percent in King County, 34 percent in Snohomish County, 26 percent in Kitsap County, and 24 percent in Pierce County. While median rents are increasing across the region, the counties also show a widening gap in rent.

Figure 2.3-3. Median Rent by County, 2010–2017

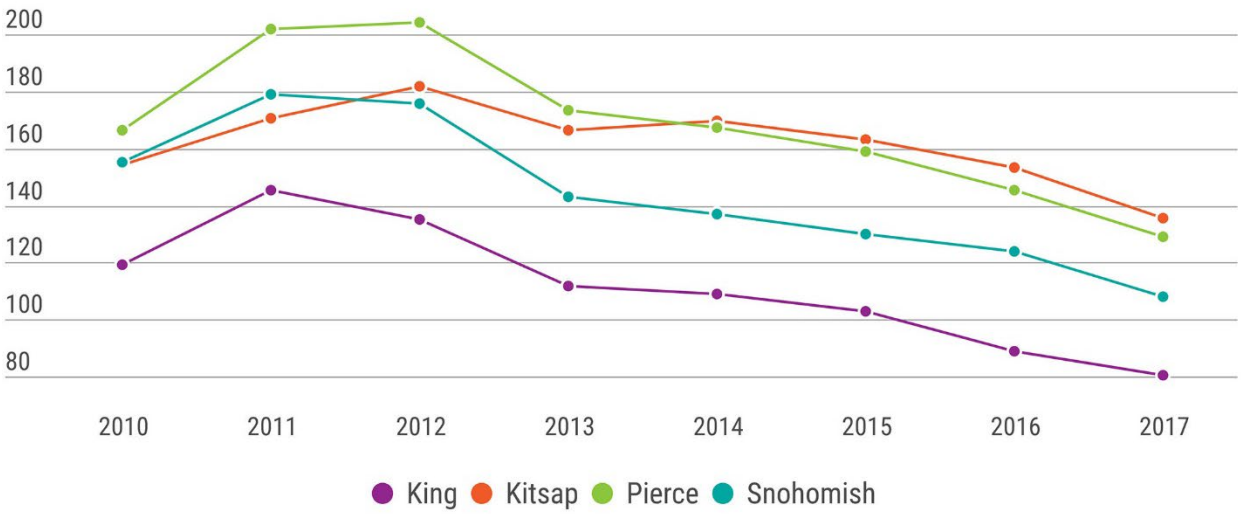


Source: U.S. Census Bureau American Community Survey 1-Year estimates

Homeownership opportunities are becoming less accessible to middle- and lower-income households. The Washington Center for Real Estate Research maintains a Housing Affordability Index to track, at the county level, the affordability of the median-priced detached single-family home for the typical family earning median family income. An index of 100 indicates balance between income and home prices; higher indices indicate greater affordability, and lower indices indicate less affordability. Quarterly indices indicate that affordability has been decreasing across all four counties since the early 2010s. King County has been below the 100 threshold over the last two years, while the other three counties have remained above (Figure 2.3-4).

A recent case study completed by PSRC indicates that moderate-density housing tends to offer more affordable ownership options than either low- or higher-density housing options; however, as depicted in Table 2.3-1, moderate density occurs in smaller quantities throughout the region (PSRC 2018h).

Figure 2.3-4. Housing Affordability Index by County, 2010–2017

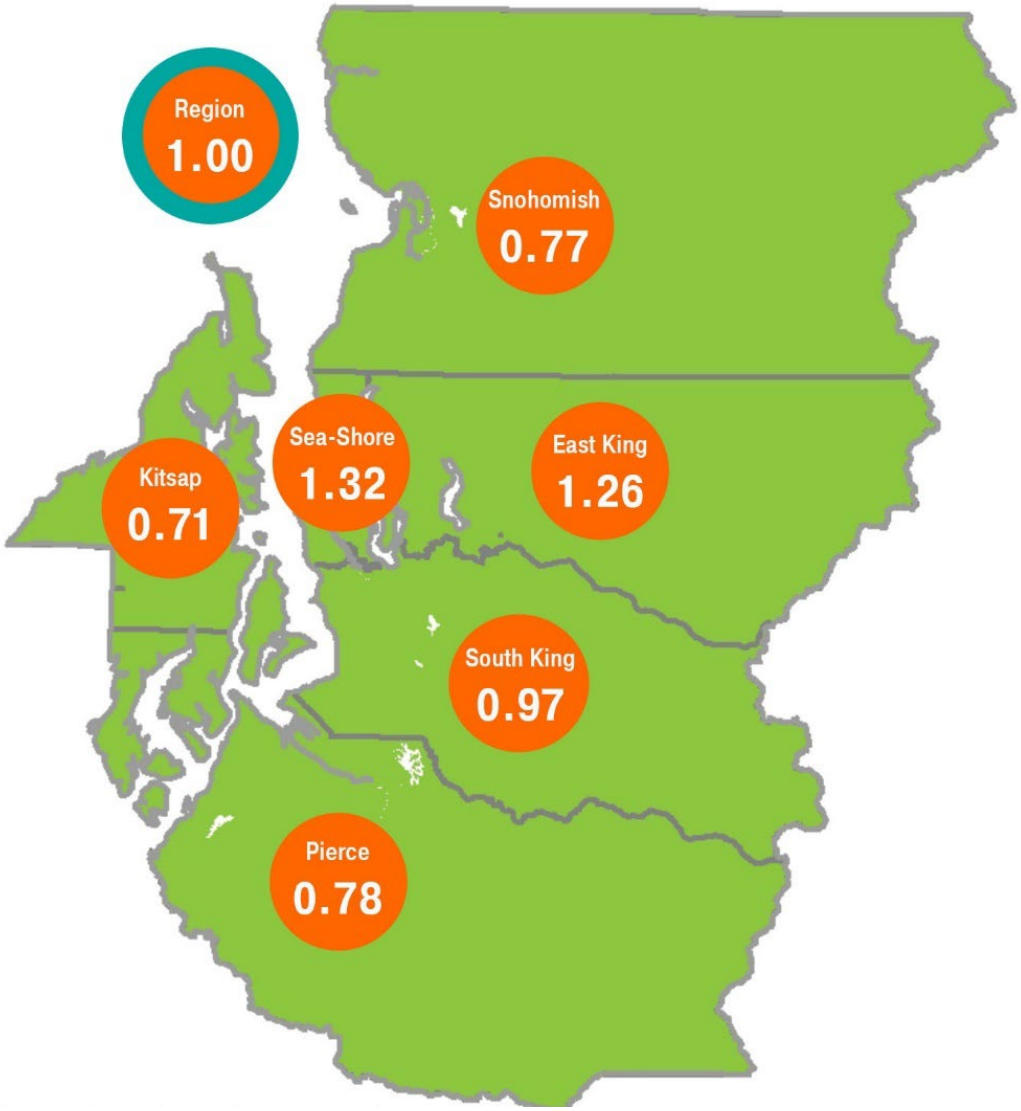


Source: Washington Center for Real Estate Research

Jobs-housing balance is a planning concept that advocates for housing and employment to be located close together. A jobs-housing ratio compares the number of jobs in relation to the number of housing units in a given area. A lack of housing, especially housing affordable to moderate- and low-income households close to job centers, will push demand for affordable homes to more distant areas, increasing commute times and development pressure outside of the urban growth area, which could lead to natural resource impacts and higher household transportation costs. A "balance" of jobs and housing is achieved when a community attains roughly the regional average ratio.

Figure 2.3-5 highlights variation in the jobs-housing index among major subareas and counties of the region. All ratios were indexed to the regional average. Subareas in King County include "Sea Shore" (Seattle, Shoreline), "East King" (Mercer Island, Newcastle, and all cities north to the county line, east of Lake Washington), and "South King" (Renton, Tukwila, Burien, and all cities south to the county line). Sea Shore (1.32) and East King (1.26) have the highest indices of the six subareas, indicating they are relatively employment-rich areas. Meanwhile, the indices for Kitsap (0.71), Snohomish (0.77), and Pierce (0.78) counties are lower, indicating that they are relatively housing rich. South King (0.97) is roughly equivalent to the regional average.

Figure 2.3-5. 2017 Subarea Jobs-Housing Index[1]



Source: PSRC, WA Office of Financial Management

[1] All jobs-housing ratios were indexed to the regional average.

2.4 Land Use

Land use policies drive urban and rural growth. With increased population, employment, and housing growth over the last decade, regional land use patterns have remained similar, with added population and employment focused in urban growth areas and additional dispersed growth outside of the urban growth area. This section updates regional land use, regional growth centers, and manufacturing/industrial centers, and provides new discussion of transit-oriented development.

2.4.1 Regional Land Use

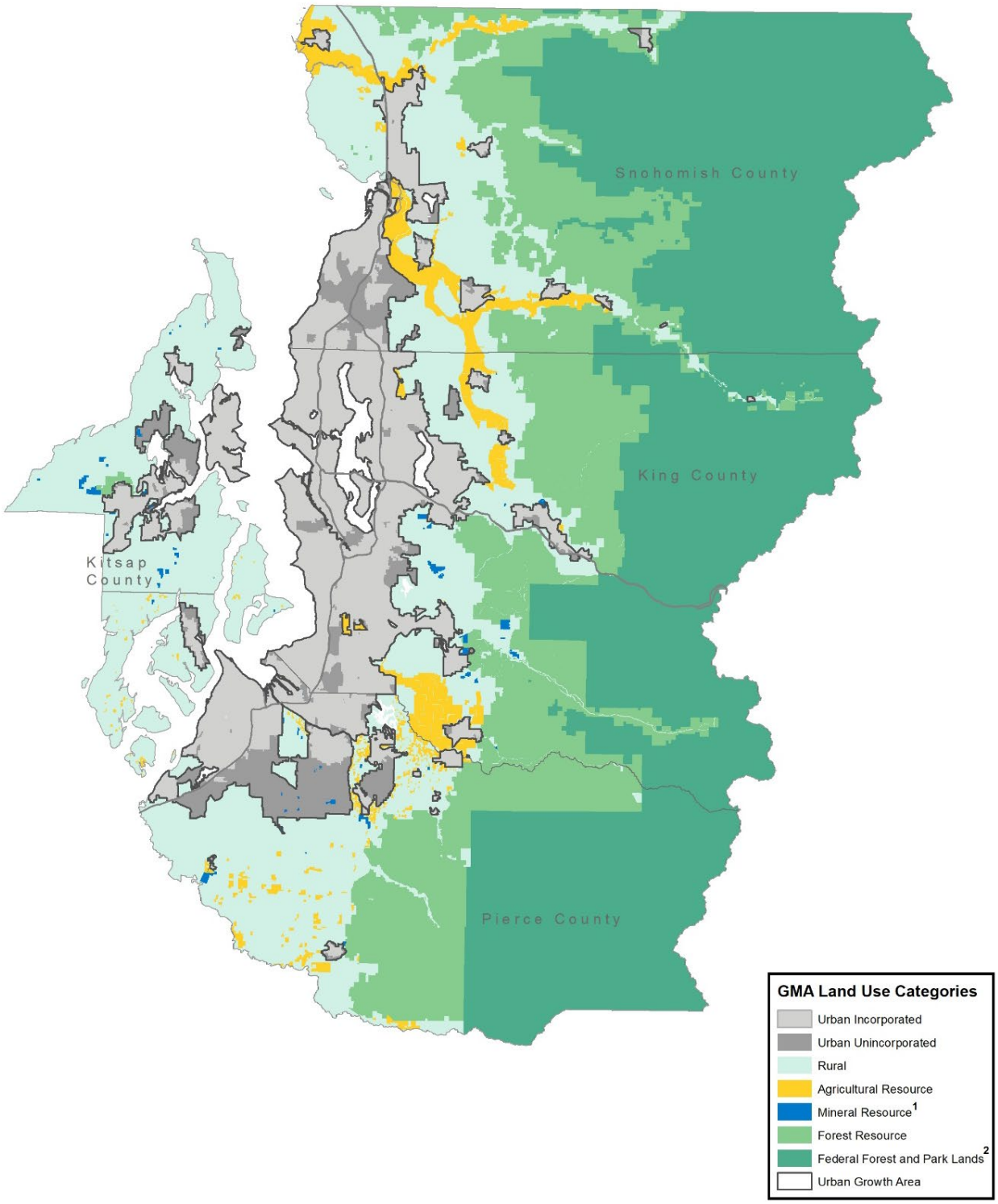
GMA defines three main land use types: urban, rural, and natural resource. Urban lands are divided into lands located within an incorporated municipality and urban unincorporated lands in counties. Natural resource lands are further defined as agricultural, forest, and mineral lands. The overall distribution of these land use types is depicted on Figure 2.4-1 and described in greater detail below. The total square miles by land use type as shown in Figure 2.4-2 is similar to that described in the VISION 2040 FEIS across the region and for each county.

The vast majority of the region's population, employment, and housing is contained inside the region's designated urban growth areas, as shown in Table 2.4-1. Throughout the region from 2005 to 2017, there was an increase in the percentage of population and housing within the urban growth area, from 85 to 87 percent for population and 86 to 88 percent for housing. The region's percentage of employment within the urban growth area has remained constant at 96 percent.

Growth Management Act (GMA): Establishes the underlying framework for local governments and state and regional agencies to establish comprehensive plans. Related to land use, these plans designate urban growth areas and describe how population and employment growth would be accommodated within each jurisdiction.

Urban Growth Areas: Areas where "urban growth shall be encouraged and outside of which growth can occur only if it is not urban in nature" (RCW 36.70A.110).

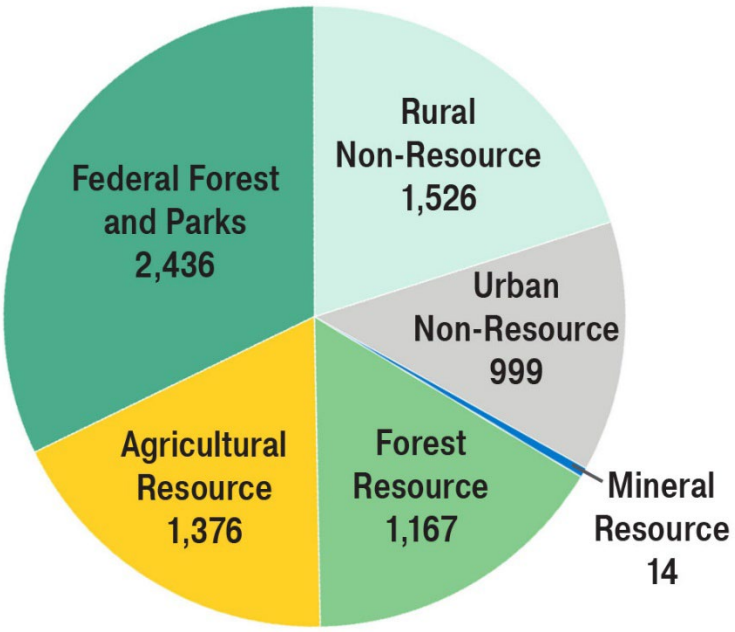
Figure 2.4-1. Regional Land Use



Source: PSRC, County Comprehensive Plans

Notes: [1] Based on the county's future land use map, Snohomish County's mineral zoning overlay is not accounted for in this figure.
[2] National park and forest lands are designated as resource lands by some counties but not others; for consistency, all national park and forest lands are reported separately from resource lands in this map.

Figure 2.4-2. Land Area by Type Under GMA, Square Miles, 2017



Source: PSRC, County Comprehensive Plan and Zoning Data

Urban Lands: Lands where growth is intended to be concentrated to reduce conversion of undeveloped land and encourage development where public facilities and services exist or can be provided efficiently. These lands occur within a designated urban growth area.

Rural Lands: Rural lands are those lands not designated for urban growth, agriculture, forest, or mineral resources. These lands may consist of a variety of uses and densities.

Natural Resource Lands: Lands not already characterized by urban growth and characterized as one of the following:

- Agricultural lands that have long-term significance for commercial production.
- Forest lands that have long-term significance for commercial production.
- Mineral resource lands that have long-term significance for extraction of minerals.

Table 2.4-1. Population, Employment, and Housing Inside Designated Urban Growth Area, 2017

	Population	Percent in UGA*	Employment	Percent in UGA	Housing Units	Percent in UGA
King County	2,154,000	94%	1,456,000	98%	922,000	95%
Kitsap County	264,000	60%	104,000	79%	111,000	62%
Pierce County	859,000	81%	358,000	94%	346,000	81%
Snohomish County	789,000	83%	316,000	92%	308,000	83%
Region	**4,067,000**	**87%**	**2,233,000**	**96%**	**1,687,000**	**88%**

Source: PSRC, WA Office of Financial Management

* UGA = urban growth area

Figure 2.4-3 shows parcel sizes in the region's rural areas. The distribution of parcel sizes is similar to that in the VISION 2040 FEIS, showing that parcels smaller than five acres are the dominant size and are located throughout the land designated as rural. Of the rural parcels that are less than 5 acres in size, about 60,000 are vacant, indicating the potential for substantial future rural development. Larger parcels (over five acres) tend to be located further from the urban growth areas, with larger tracts in southwestern Pierce County and western Kitsap County. Compared to 2004, the current distribution of rural parcel sizes remains similar:

- 84 percent of parcels were less than five acres in size
- 10 percent of parcels were between five and 10 acres in size
- 6 percent of parcels were greater than 10 acres in size

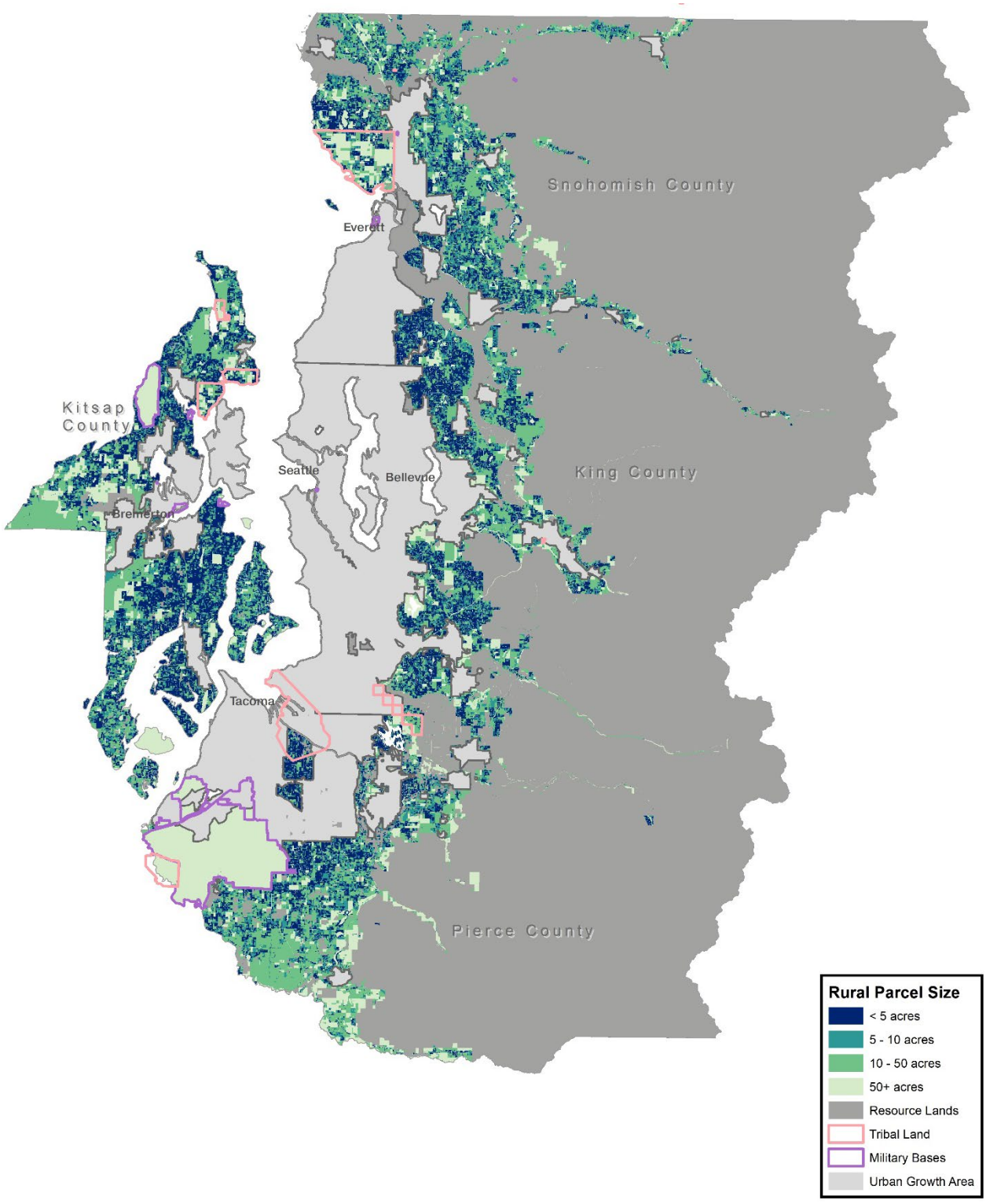
Total agriculture, forest, and mineral resource lands throughout the region are similar to those described in the VISION 2040 FEIS.

As described in the VISION 2040 FEIS, shorelines and critical areas are governed by the state of Washington's Shoreline Management Act and critical areas regulations.

The purpose of the Shoreline Management Act is to regulate development on the shoreline. The primary responsibility for administering shoreline regulations is assigned to local governments, with a significant oversight role by the Washington State Department of Ecology (Ecology).

Under GMA, cities and counties are directed to designate critical areas and adopt critical areas regulations. Critical areas include wetlands, critical aquifer recharge areas, fish and wildlife habitat conservation area, frequently flooded areas, and geologically hazardous areas. The purpose of critical areas regulation is to preserve natural resources and protect public health and safety by limiting development in ecologically important areas and areas prone to natural hazards such as floods and landslides.

Figure 2.4-3. Parcel Size in Rural Areas



Source: PSRC

2.4.2 Regional Growth Centers and Manufacturing/Industrial Centers

Centers play a central role in VISION 2040 and the Regional Growth Strategy. They guide regional growth allocations, advance local planning, inform transit service planning, and represent priority areas for PSRC's federal transportation funding. Growth in centers supports regional goals such as supporting multimodal transportation options, compact growth, jobs-housing balance, climate goals, and access to opportunity. There are two types of designated centers: regional growth centers and manufacturing/industrial centers.

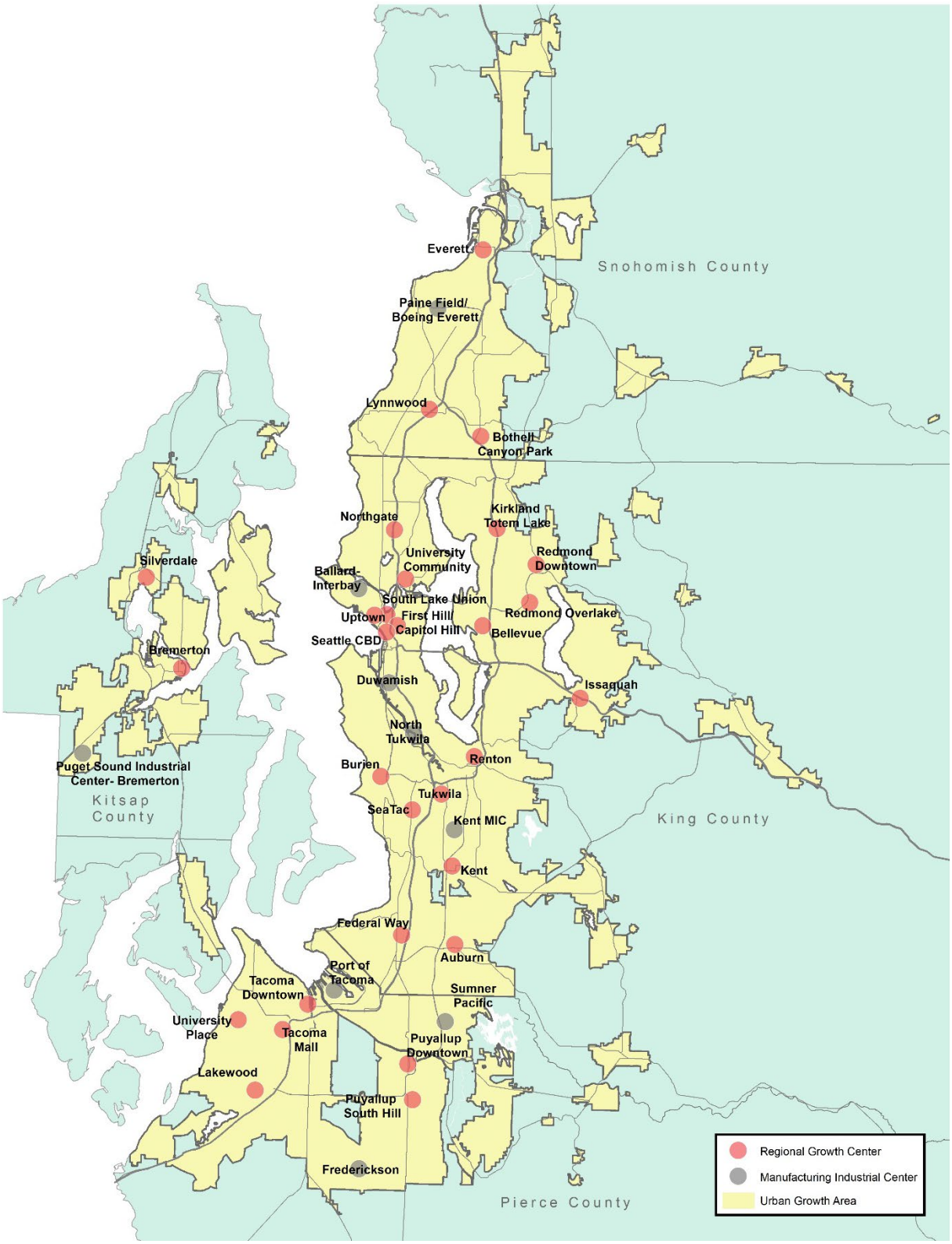
Regional growth centers are focal points of higher-density population and employment, with efficient multimodal transportation infrastructure and services.

Manufacturing/industrial centers are large blocks of urban manufacturing and industrial uses served by the region's transportation network.

Figure 2.4-4 shows the designated regional growth centers and manufacturing/industrial centers. Designated regional growth centers are as described in the VISION 2040 FEIS, with the addition of Issaquah in King County and University Place in Pierce County. The manufacturing/industrial centers are the same as described in the VISION 2040 FEIS, with the addition of Sumner-Pacific in Pierce County. The South Kitsap Industrial Center name has been changed to Puget Sound Industrial Center – Bremerton. PSRC will be considering the designation of a new regional manufacturing/industrial center in Arlington and Marysville in spring 2019. The 2013 Regional Centers Monitoring Report (PSRC 2014a) includes additional information on land uses, growth trends, and other existing conditions in regional centers. The 2018 Regional Centers Framework Update provides additional data updates on growth trends in regional centers (PSRC 2018i).

In 2017, approximately 6 percent of the region's population was located in centers, which is a 2 percent gain over the year 2000. In 2017, 31 percent of the region's jobs were located in regional growth centers, and 10 percent of the region's jobs were located in manufacturing/industrial centers (PSRC 2018i). Regional growth centers added about 121,000 jobs from 2010 to 2017. Manufacturing/industrial centers added about 28,000 jobs from 2010 to 2017. From 2010 to 2017, 37 percent of regional job growth was located in regional growth centers and 8 percent was located in manufacturing/industrial centers.

Figure 2.4-4. Map of Designated Regional Growth Centers and Manufacturing/Industrial Centers



Source: PSRC

2.4.3 Transit-Oriented Development

Transit stations can serve as a link between land use and transportation—connecting residents and workers to jobs and services in the rest of the region and offering access to nearby civic and public spaces. Well-designed transit-oriented communities can lead to a range of substantial social and environmental benefits. Transit-oriented communities have the potential to:

- Provide economic benefit to the region
- Promote health and safety by encouraging walking and biking, cutting air pollution, reducing motor vehicle collisions, and increasing access to healthy food
- Lower household expenses for transportation and support housing affordability
- Reduce municipal infrastructure costs
- Help meet the growing demand for "walkable communities"
- Reduce sprawl and thereby help conserve farms and natural ecosystems and protect water quality
- Cut energy consumption and greenhouse gas emissions associated with both transportation and the built environment

Since the VISION 2040 FEIS was published, transit-oriented development has occurred around existing light rail stations and other transit station areas. With Sound Transit's high-capacity transit expansion, the implementation of Kitsap County's Fast Ferries program, and the continued development of local transit investments around the region, these transportation investments have the potential to serve a large share of the region's growth.

To support this opportunity, a regional initiative—the Growing Transit Communities Partnership—has brought together a regional coalition of governments, non-profit organizations, business groups, and community stakeholders to promote the successful development of thriving and equitable communities within walking distance of current and planned public transportation services in the region (PSRC 2018c).

Table 2.4-2 shows the current population and employment in high-capacity transit station areas. High-capacity transit station areas are within a half-mile of light rail, commuter rail, ferry, and streetcar stops and a quarter-mile from bus rapid transit stops. King County has substantially higher percentages of population and employment located in high-capacity transit areas than the other counties, at 30 percent population and nearly 60 percent employment. Kitsap, Pierce, and Snohomish counties all have less than 10 percent of the population living near high-capacity transit. Pierce and Snohomish counties have approximately 25 percent of all employment located within high-capacity transit areas, and Kitsap County less than 20 percent.

Table 2.4-2. Percentage of Population and Employment in Proximity to High-Capacity Transit, 2017

	Percent Population and Employment in Proximity to High-Capacity Transit
King County	42%
Kitsap County	7%
Pierce County	14%
Snohomish County	11%
Region	29%

Source: PSRC

2.5 Transportation

Since the VISION 2040 FEIS, continued investment has been made throughout the region to add capacity to the transportation system—expanding transit service, improving roadways, and adding bicycle and pedestrian facilities. In addition to traditional capacity projects, over the last decade technology has been evolving and changing the transportation landscape. Established technologies such as transit signal priority, dynamic lane control, and mobile-based shared mobility services (Uber, Lyft) have been implemented throughout the region. Dockless bike share services are proliferating across the region, offering new transportation choices. Meanwhile, emerging technologies in the form of autonomous and connected vehicles are poised to potentially shift the transportation system in ways that are not completely understood.

This section describes the existing transportation system and planned investments that will contribute to changes in the affected environment compared to the VISION 2040 FEIS. The transportation system includes:

- Transit
- Active Transportation (bicycle and pedestrian network)
- Roadway Systems
- Ferry
- Regional Aviation System
- Intercity Passenger Rail and Passenger Bus
- Freight
- Transportation Technology

The affected environment for VISION 2050 includes the planned investments described in the Regional Transportation Plan, which PSRC adopted in May 2018. This plan describes how the region will meet transportation needs over the next two decades and keep pace with expected growth (PSRC 2018c). It implements the VISION 2040 Regional Growth Strategy by targeting transportation investments that ensure people can get to work and recreation, freight and goods movement can supply businesses and people, and ports can continue to function as regional and global gateways.

2.5.1 Transportation System Capacity Improvements

The Regional Transportation Plan contains a variety of planned investments to increase mobility, both at the local and regional scale. Of the larger scale projects included in the plan, approximately:

- 70 percent of all projects are multimodal, containing elements that support a variety of travel options
- 73 percent are within the designated urban growth area, 22 percent are partially within the urban growth area, and 5 percent are outside the urban growth area
- 41 percent of the projects directly access a regional growth or manufacturing/industrial center, and 69 percent are within a city that contains a regional center

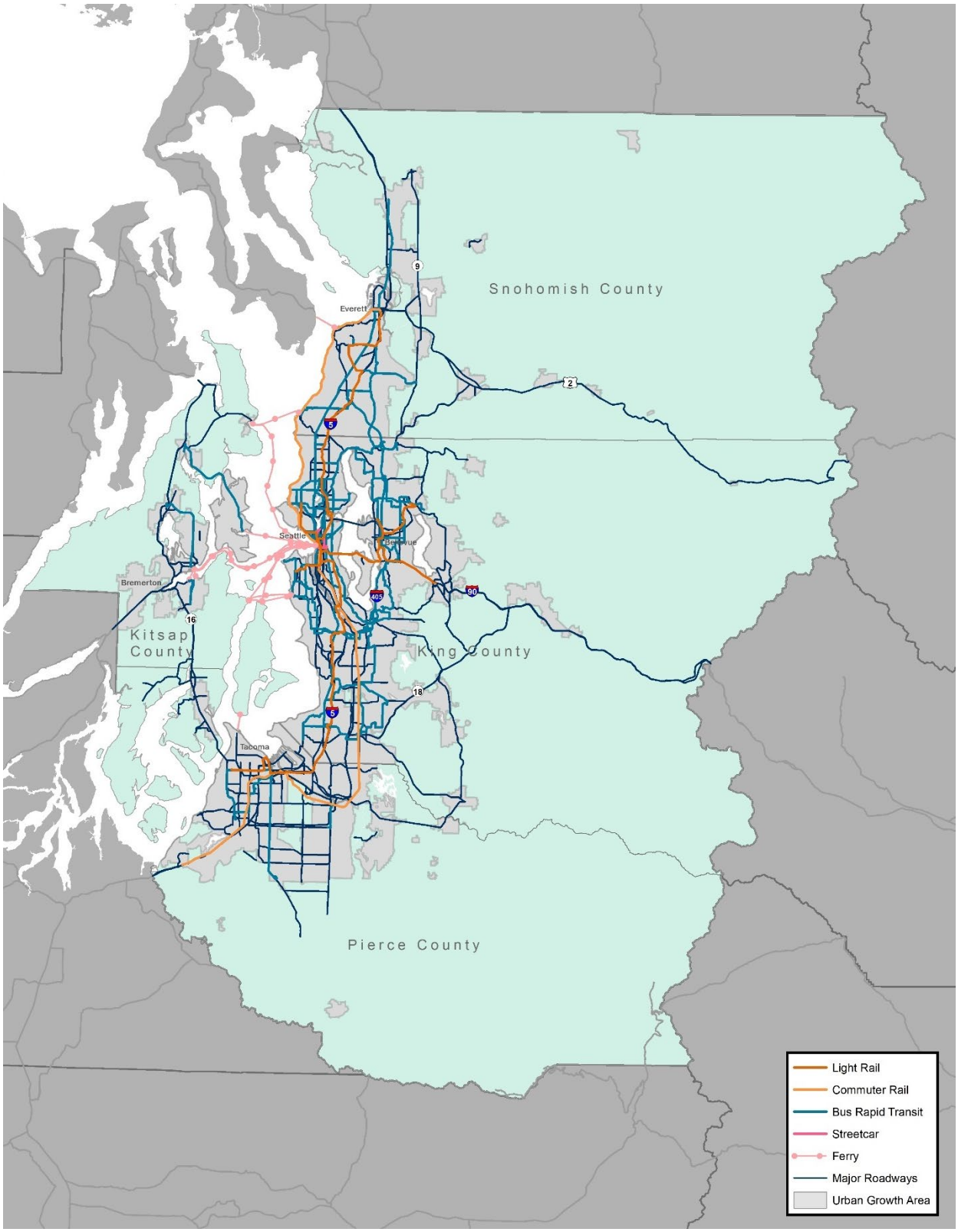
Examples of anticipated transit, ferry, and roadway investments are depicted in Figure 2.5-1 and described in further detail below.

Transit

Public transit supports the region's goals of providing transportation choices and access to opportunity, reducing air pollution, connecting to regional growth centers, and serving as a catalyst for economic and transit-oriented development. Since the VISION 2040 FEIS, substantial transit infrastructure expansion has been built and additional infrastructure is now planned. Public transportation boardings in the central Puget Sound region have grown faster since 2005 than in any other large metropolitan area in the United States. Kitsap Transit, Community Transit (serving Snohomish County), King County Metro, Pierce Transit, and Sound Transit have updated their development plans to meet the needs of the expanding population. The implementation of these transit agency plans will result in a robust transit network throughout the region. Highlights of service expansions from these transit agencies include:

- Sound Transit: Voters in the Sound Transit district passed the Sound Transit 2 investment package in 2008 and the Sound Transit 3 investment package in 2016. Sound Transit began operation of its light rail system in 2009 and updated its Long-Range Plan in 2014. Implementation of new light rail and bus rapid transit service is underway. Sound Transit 3 provides a plan and funding for connecting the region with various modes of high-capacity transit through 2040. The completion of

Figure 2.5-1. Regional Transportation Network, 2040



Source: PSRC

Sound Transit 3 will result in approximately 116 miles of light rail transit, 90 miles of commuter rail, and expanded bus rapid transit and express bus service (Sound Transit 2016). Development of Sound Transit 3, along with continuing efforts to integrate public transit services, created an impetus for agencies throughout the region to develop or update their own long-range transit plans, resulting in a robust transit network throughout the region.

- King County Metro: King County Metro began service on its first RapidRide line in 2010. METRO CONNECTS, the King County Metro Long-Range Plan (adopted January 2017), envisions an expansion from six RapidRide bus rapid transit lines to 26 in 2040 and an overall system service increase of 70 percent by 2040 (King County Metro 2017).
- Pierce Transit: Destination 2040, the Pierce Transit Long-Range Plan (adopted April 2016) explores potential high-capacity transit options along key corridors (e.g., Route 1 – Pacific Avenue and 6th Avenue, and Route 2 – Bridgeport Way) as well as general service expansion throughout the county (Pierce Transit 2016).
- Community Transit: Community Transit launched the state's first bus rapid transit line in 2009 between Everett and Shoreline. The Long-Range Transit Plan (adopted March 2011) identifies 13 transit emphasis corridors, six of which will support future bus rapid transit service expansion. Overall the plan will roughly double current service hours (Community Transit 2011).
- Kitsap Transit: The Kitsap Transit Long-Range Transit Plan presents a Transit Corridors Vision Map, which outlines service improvement focus areas that provide service to urban growth areas and connect them along designated transit corridors (Kitsap Transit 2016). New transit corridors are anticipated in addition to corridor improvements along existing transit corridors.

Active Transportation

The active transportation network—infrastructure that serves pedestrians and bicyclists—is a critical element of the region's mobility strategies. The region now has over 450 miles of regional trails/shared-use paths (PSRC 2018c). The Regional Active Transportation Plan (Appendix L of the Regional Transportation Plan) provides a framework for how the region's communities can provide increased, connected, and safer options for people to walk and bike to their destinations. The plan includes a regional bicycle network and pedestrian networks to designated regional centers and transit station areas as a framework for regional and local nonmotorized transportation planning and investment.

Investments in active transportation identified in the Regional Transportation Plan are anticipated to result in a 50 percent increase in biking and walking for transportation purposes compared to 2017 conditions. This is a result of investments in the active transportation network and population and employment opportunities anticipated to be created near a more robust transit system.

Roadway Systems

The regional system currently has about 24,000 miles of roadways that carry more than 86 million vehicle miles of traffic per day. Major investments have occurred since the FEIS, including the Connecting Washington state highway funding package approved in 2015 and various local initiatives, resulting in many projects in the Regional Transportation Plan being fully funded and moving toward completion. The arterial and highway investments included in the Regional Transportation Plan implement the VISION 2040 Regional Growth Strategy by creating and maintaining a highly connected network of multimodal roadway facilities, and by providing transportation choices and supporting various types of travel within the urban growth area, with a particular emphasis on improving accessibility to jobs and destinations.

Ferry

Passenger and auto ferry services support the region's land use and transportation objectives by providing an effective transportation option that can reduce travelers' dependence upon cars and reduce congestion. Over 24 million customers annually rely on the Washington State Ferries division's 22 vessels and 20 ferry terminals for safe, reliable transportation across Puget Sound.

The Regional Transportation Plan includes adding eight new vessels by 2030 to replace older vessels as they come due for retirement. Between 2030 and 2040, four 144-car ferries and two 188-car ferries will need to be replaced. Terminal investments will be necessary to continue to operate efficient and productive auto and passenger ferry service. Washington State Ferries terminal investments in the plan include Mukilteo Multimodal Terminal relocation and improvements, and Seattle Colman Dock improvements and seismic upgrades.

In November 2016, Kitsap County voters approved a ballot measure that allowed Kitsap Transit to begin fast ferry service connecting Bremerton to downtown Seattle in July 2017 and Kingston to downtown Seattle in November 2018. Kitsap Transit has additional plans to add new passenger-only ferry routes, from Southworth to downtown Seattle. The plan includes improvements to existing passenger terminals, and new terminal facilities and docks to support the new cross-Sound routes. These include improvements at West Seattle, Bremerton, Port Orchard, Seattle, Kingston, and Southworth.

In addition, King County Marine Division operates popular passenger-only ferry service from Vashon Island and West Seattle to downtown Seattle, providing important additional water transportation options.

Regional Aviation System

The existing regional airport system consists of 24 public use airports and two military airfields. The portion of the regional airport system that is included in the metropolitan transportation system consists of the region's two primary airports—Sea-Tac International Airport and Boeing Field—and the region's four general aviation reliever airports—Paine Field, Renton Municipal Airport, Harvey Field, and Auburn Municipal Airport.

Several of these airports are in the process of updating master plans. The master planning processes will provide additional information in support of future regional transportation plans. One emerging theme is a need for a comprehensive technical assessment of capacity constraints in the regional air transportation system. PSRC received a grant from the Federal Aviation Administration to conduct a Regional Aviation Baseline Study, with an expected completion date of fall 2020. Regional planning for future system needs embraces the strategies and recommendations contained in the state's Long-Term Air Transportation Study completed in 2009 (Washington State Department of Transportation [WSDOT] 2009). One of those recommendations is that the state take the lead in addressing future airport capacity needs. Any future regional system planning process would likely take the form of a joint effort between PSRC, the state, and other key stakeholders.

Intercity Passenger Rail and Bus Service

Intercity passenger rail and intercity passenger bus services provide long-distance transportation and connections for all types of trips, offer an alternative to automobile and air travel, and can help reduce the congestion, energy use, and environmental impacts of highways. Notable service changes or planning updates include:

- As of June 2017, 18 of 20 rail projects have been completed on the Amtrak Cascades corridor to reduce travel times, increase reliability, and increase the number of round trips between Seattle and Portland.
- Intercity bus service in the region is provided by a variety of private companies, including Greyhound, Bolt Bus, Northwest Trailways, and WSDOT-funded Dungeness Line. WSDOT is planning an update to its Intercity Bus Plan in the coming years.

Freight

Efficient movement of freight and goods through the transportation system is important in maintaining quality of life, strengthening the region's economy, and leveraging the central Puget Sound region's strategic position as a critical gateway for international trade. The Regional Transportation Plan notes that regional freight forecasts show growth in freight movement, with truck tonnage growing 56 percent, and freight rail tonnage growing 51 percent by 2040.

The central Puget Sound region's freight and goods transportation system consists of a multimodal network that includes roadway, rail, air, marine, and pipeline operations. This includes:

- Roadway facilities include major trade corridors, as well as national, state, and local roadway links. International trade for the central Puget Sound region is served by Interstate 5 (I-5) and Interstate 405 (I-405) for north-south connectivity and Interstate 90 (I-90) for east-west connectivity.
- Rail includes both Class 1 rail facilities of the BNSF and the Union Pacific railroad mainlines that support international and regional cargo as well as a number of short line railroads that support the regional industries.

- Marine and air cargo facilities include the Port of Everett, Northwest Seaport Alliance (cargo operations for ports of Seattle and Tacoma), and air cargo facilities at Sea-Tac, Boeing Field, and Paine Field.
- Pipeline capacity is provided primarily by the Olympic pipeline, which carries gasoline, diesel, and jet fuel along its 299 miles from Blaine, Washington, to Portland, Oregon.

Highway, transit, and local roadway projects that expand transportation capacity and improve mobility through transportation efficiency improvements, such as transportation demand management or technology, directly affect freight movement. The Regional Transportation Plan includes investments that will support freight movement. Some examples of strategic freight capacity projects in the regional plan include:

- Canyon Road Freight Corridor Improvements (Pierce County) — connects the planned employment center in Frederickson with the Port of Tacoma and destinations northward.
- 41st Street Rucker Avenue Freight Corridor (Everett) — arterial and access improvements from Port of Everett to I-5 on West Marine View Drive to Rucker Avenue to 41st Street with improvements to better accommodate over-dimensional freight traffic and increasing general freight traffic.
- South Lander Street Grade Separation (Seattle) — develop a grade separation of the roadway and the BNSF Railway mainline railroad tracks between 1st Avenue South and 4th Avenue South.
- WSDOT Puget Sound Gateway Program — the Puget Sound Gateway Program is comprised of two unique projects, State Route (SR) 509 and SR 167, which together make major improvements to relieve traffic congestion and improve freight mobility.

Additional details on freight and goods movements throughout the region are provided in Appendix J of the Regional Transportation Plan.

2.5.2 Transportation System Efficiency Improvements

Transportation system efficiency improvements include strategies for enhancing system efficiency and mobility without adding capacity to the system. These improvements fall into two main categories: transportation demand management and transportation technology.

> **Transportation demand management** refers to activities that help people use the transportation system more efficiently by promoting alternatives to driving alone, shifting trips out of peak travel periods, or eliminating the need for trips.

Transportation demand management activities occur throughout the entire region and are implemented by a range of public and private sector organizations. These activities are beneficial to enhancing the existing transportation system because they can be tailored to address specific situations and contexts and can be implemented quickly and at low cost. Examples of enhancing the existing system include parking management and shared mobility

services such as bikeshare, carshare, and ride-hailing services. A complete list of objectives, strategies, and actions can be found in the Regional Transportation Demand Management Action Plan (Appendix F of the Regional Transportation Plan).

Transportation Technology

The Regional Transportation Plan contains recommended regional strategies for both established and emerging technologies. The overall purpose is to make the best use of rapidly evolving technologies in the near term and to forge a path for leveraging benefits, minimizing disruptions, and aligning with regional policy goals in the long term. Both established and emerging technologies are critical and will likely become increasingly intertwined in the coming years.

Existing technology is in use today that provides operational efficiencies and mobility improvements for a variety of users. These include the use of Intelligent Transportation Systems such as freeway ramp metering, adaptive signals, coordination of traffic signals, transit signal priority, and other tools to improve traffic flow and safety for cars, buses, bicyclists, and pedestrians. In addition, a variety of information tools help travelers make more informed decisions and travel with greater efficiency and convenience. These include navigation and real-time traffic services (e.g., Waze, Google Maps), real-time arrival mobile applications (e.g., OneBusAway), options to pay fares and fees via mobile apps (e.g., PiercePay), and other tools that allow for more efficient and effective travel planning. Technology investments support projects such as managed lanes on the interstates, express toll lanes, and other innovative methods of managing travel flow.

In recent years, there has been a rapid increase of potentially transformative transportation technologies. Emerging technologies such as connected and autonomous vehicles have the potential to disrupt the transportation system and alter the way people travel. However, the technology landscape is in a constant state of change and is continuously evolving.

Autonomous vehicles, also known as self-driving cars, are vehicles that navigate the roadway with limited or no human interaction. They use an array of in-vehicle technologies to process their surroundings, detect road signage and markings, and determine the most suitable navigation path.

Connected vehicle technology allows vehicles to transmit and receive important mobility, safety, and other information in real time. Communication can occur with other vehicles, traffic lights, pedestrians and bicyclists, and any other entity that may interact with or affect the vehicle.

An increasing amount of private sector investment is going toward developing and advancing both autonomous vehicle and connected vehicle technology; however, projections of where and when the technologies will be available are wide ranging. Additional detail on existing and emerging technologies is described in Appendix N of the Regional Transportation Plan.

2.6 Air Quality and Greenhouse Gas Emissions

Over the last two decades, levels of many pollutants have decreased and air quality has improved overall. In 2017 and 2018, there were several periods when wildfire smoke caused degraded air quality (Puget Sound Clean Air Agency [PSCAA] 2018a, PSCAA 2018b). As the climate changes, wildfire smoke could increasingly degrade air quality. This section updates the status of the Puget Sound region for the six criteria air pollutants, and greenhouse gas emissions.

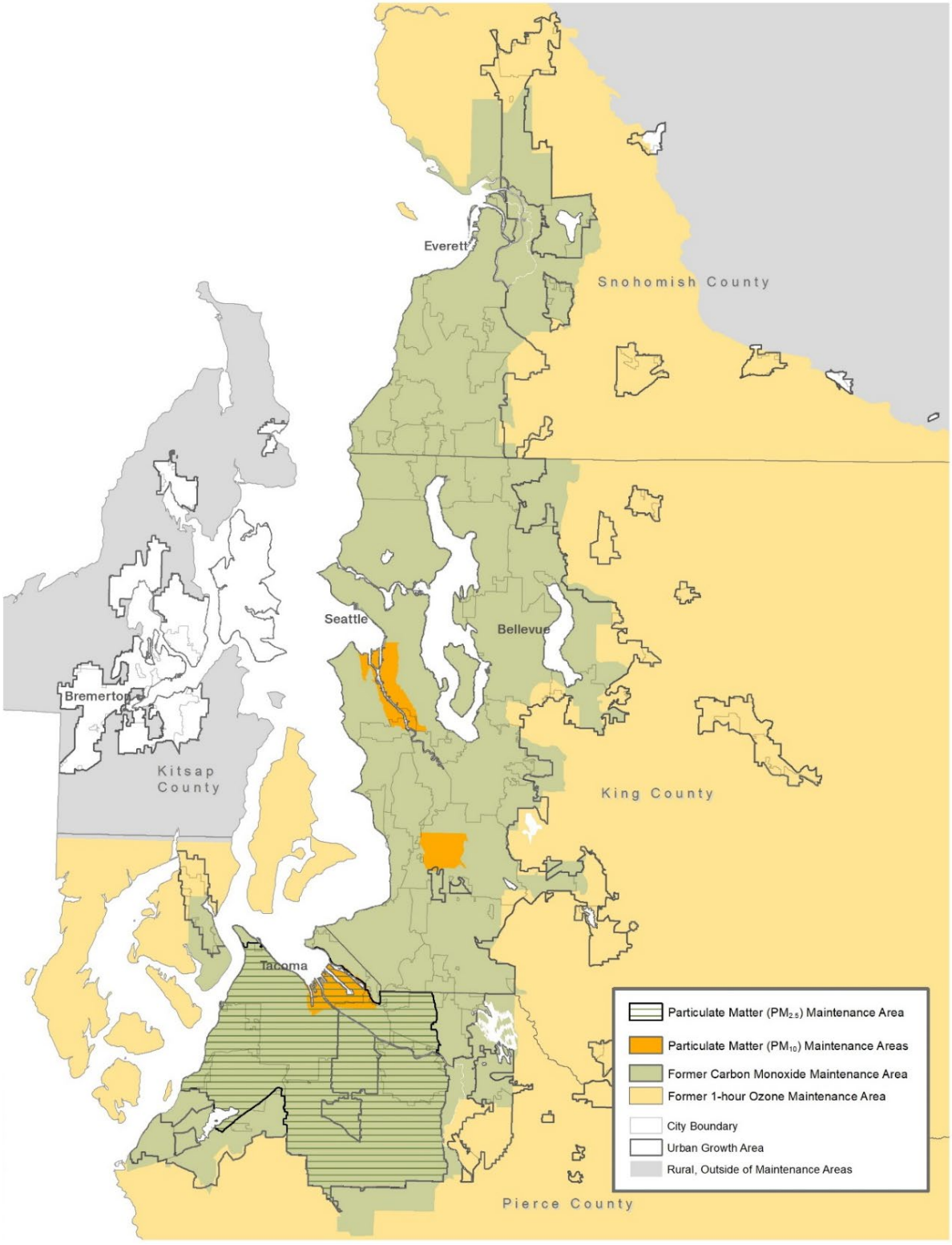
2.6.1 Pollutants of Concern

The description of the regional physical setting and details of each pollutant of concern remain the same as described in the VISION 2040 FEIS. The federal Clean Air Act requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants: particulate matter (PM) (fine particulates, $PM_{2.5}$; and coarse particulates, PM_{10}), ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides (NO_X), and lead. Since the VISION 2040 FEIS, the NAAQS have changed slightly, with updated standards as shown in Appendix B.

Areas of the country that have experienced exceedances of the NAAQS may be designated by the EPA as "nonattainment" for a particular pollutant. The Clean Air Act requires states to develop a general plan to attain and maintain the NAAQS in all areas of the country, and a specific plan to attain the standards for each area designated nonattainment for any pollutant. These plans, known as State Implementation Plans, are developed by state and local air quality management agencies and submitted to the EPA for approval. A nonattainment area that has demonstrated pollutant concentration levels below the NAAQS may be redesignated to "attainment." These areas are subject to an EPA-approved maintenance plan included as part of the State Implementation Plan and are commonly referred to as maintenance areas.

The Puget Sound region is in attainment for all pollutants regulated by EPA. At various points in the past, the region has violated the federal standards for several pollutants, but PSRC has worked closely with the region's air quality consultation partner agencies—the EPA, the Federal Highway Administration, the Federal Transit Administration, Ecology, WSDOT, and the Puget Sound Clean Air Agency (PSCAA)—to successfully achieve and maintain attainment of the standards. Within the Puget Sound region, there is currently one $PM_{2.5}$ maintenance area and three PM_{10} maintenance areas (Figure 2.6-1).

Figure 2.6-1. Current Central Puget Sound Region Designated Maintenance Areas



Source: PSRC

2.6.2 Greenhouse Gas Emissions and Climate Change

Gases that absorb and trap heat in the atmosphere are called "greenhouse gases." As the amount of greenhouse gases in the atmosphere increases, the amount of heat trapped by the atmosphere also increases, causing the overall warming of the planet. This warming is referred to as global warming. The impacts from global warming are referred to as climate change (PSCAA 2018c).

The major greenhouse gases include ozone, carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons. They come from both natural processes as well as human activities, though increases in the human-made greenhouse gases are most responsible for disrupting the balance of the atmosphere (PSCAA 2018c).

Many cities, counties, and other organizations in the region have adopted greenhouse gas emission reduction targets, which vary in breadth and timeframes. For example, King County adopted targets to reduce greenhouse gas emissions 25 percent by 2020, 50 percent by 2030, and 80 percent by 2050, from a 2007 baseline. In 2017, the PSCAA adopted the following regional targets for reducing greenhouse gas emissions:

- By 2020, reduce emissions to 1990 levels
- By 2030, reduce emissions to 50 percent below 1990 levels
- By 2050, reduce emissions to 80 percent below 1990 levels

The state of Washington's greenhouse gas emission reduction targets are to (Ecology 2019a):

- By 2020, reduce overall greenhouse gas emissions to 1990 levels
- By 2035, reduce overall greenhouse gas emissions 25 percent below 1990 levels
- By 2050, reduce overall greenhouse gas emissions 50 percent below 1990 levels

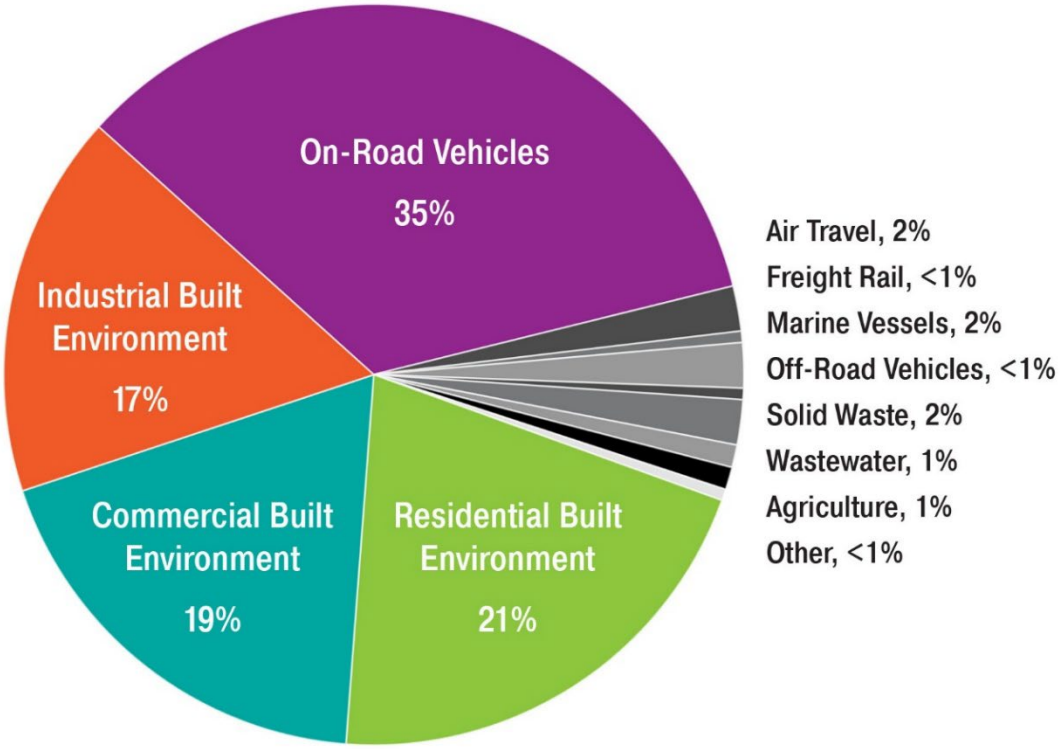
In 2005, PSCAA conducted the first comprehensive greenhouse gas inventory of its four-county area, which includes King, Pierce, Snohomish, and Kitsap counties. This report was updated for the year 2015 (PSCAA 2018c). Sources of greenhouse gas emissions in the region are shown in Figure 2.6-2. Because different methodologies were used for the greenhouse gas inventories, a direct comparison is not available from 2005 to 2015.

How are greenhouse gases inventoried?

PSCAA follows the U.S. Community Protocol—a framework for providing accurate community-level estimates of greenhouse gas emissions. The 2015 inventory for PSCAA adheres to the Community Protocol and includes emissions from transportation and building energy use, water and wastewater treatment and conveyance, land use changes, and solid waste transport and disposal.

The measure for reporting greenhouse gases is the CO_2e, or "carbon dioxide equivalent." CO_2e is a term for describing different greenhouse gases in a common unit. For any quantity and type of greenhouse gas, CO_2e signifies the amount of CO_2 that would have the equivalent global warming impact.

Figure 2.6-2. Sources of Greenhouse Gas Emissions for the PSCAA Area in 2015



Source: PSCAA

In addition, the report describes the following key findings:

- In 2015, the largest sources of community greenhouse gas emissions were the built environment (commercial, residential, and industrial sectors [57 percent]) and transportation (on-road vehicles, air travel, freight rail, marine vessels, and off-road vehicles [38 percent]).
- Emissions from solid waste (2 percent), wastewater (1 percent), and agriculture (1 percent) were minimal in the Puget Sound region in 2015.
- Passenger vehicles comprise the largest share of transportation emissions (74 percent), followed by freight and service vehicles (14 percent).

Regional greenhouse gas emission reduction efforts are supported by the Regional Transportation Plan's Four-Part Greenhouse Gas Strategy, consisting of strategies centered around land use, user fees, transportation choices, and technology. Major strides have been made in advancing the region's Four-Part Greenhouse Gas Strategy over the past several years. Of particular importance is the adoption of updated federal fuel economy and greenhouse gas standards for passenger vehicles and trucks. Implementation of the current Regional Transportation Plan and the land use pattern described in the VISION 2040 Regional Growth Strategy would result in a 24 percent reduction in greenhouse gas emissions from 2006 levels (PSRC 2018c).

2.7 Ecosystems

The affected environment for several components of the ecosystem is similar to the description provided in Section 5.5.1 of the VISION 2040 FEIS. These resources include wildlife, aquatic resources, and biological diversity, as well as factors that affect ecosystems resources such as land use, impervious surfaces, and invasive species. This section provides an updated discussion on resources that have experienced change: regionally significant habitat, threatened and endangered species, regional ecosystem planning and restoration efforts, and climate change.

2.7.1 Regionally Significant Habitat

The Washington Department of Fish and Wildlife's (WDFW) Priority Habitat and Species List shows that geographic distribution of priority habitat and species continue to favor undeveloped areas, major waterways, and green spaces (WDFW 2018). Priority habitat is largely outside of the urban growth area. Part of the goal for implementing an urban growth area is to allow non-urban areas to maintain their natural resource value. At a regional level, the distribution of regionally significant habitat is similar to that described in the VISION 2040 FEIS, but since that time there likely has been loss of habitat due to continued development outside of the urban growth area and on larger undeveloped parcels within the urban growth area (see Section 2.4). For instance, PSRC's Regional Open Space Conservation Plan reports that between 2010 and 2015 there were 1,589 permitted housing units in aquatic system lands[1] and 3,354 permitted housing units in natural lands[2] (PSRC 2018j). Continued development in these areas of higher ecological value leads to degraded ecosystems through fragmentation, loss of habitat, and water quality impacts.

2.7.2 Threatened and Endangered Species and Critical Habitat

The VISION 2040 FEIS discusses the designation of critical habitat under the Endangered Species Act. Section 7 of the Endangered Species Act requires federal agencies to consult with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service to assist the agencies in ensuring that federal actions are not likely to jeopardize the existence of a listed species or destroy or modify its designated critical habitat or essential fish habitat. Finally, Section 9 of the Endangered Species Act makes it unlawful to "take" individuals of an endangered or threatened species, which includes significant habitat modifications that would result in impairment of a species' essential behavioral patterns.

[1] Aquatic system lands include lands that support clean drinking water, mitigate flood hazards, and support healthy habitat for salmon and other aquatic life (PSRC 2018j).

[2] Natural lands are areas important for supporting wildlife, preserving ecosystems, and providing opportunities for recreation and experiencing nature (PSRC 2018j).

Key species listed as threatened or endangered under the Endangered Species Act include the Southern resident killer whale (orca), Hood Canal summer-run chum salmon, Puget Sound chinook salmon, bull trout, and the marbled murrelet (small seabird that nests in old-growth forests). Additional species found regionally have been listed under the Endangered Species Act since the VISION 2040 FEIS was published and are described in the following list, along with whether critical habitat is present in the region (U.S. Fish and Wildlife Service 2018, National Oceanic and Atmospheric Administration [NOAA] 2018):

- Roy Prairie Pocket Gopher (threatened; no critical habitat has been formally designated within the region)
- Streaked Horned Lark (threatened; no critical habitat has been formally designated within the region)
- Yellow-billed Cuckoo (threatened; no critical habitat has been formally designated within the region)
- Oregon Spotted Frog (threatened; no critical habitat has been formally designated within the region)
- Taylor's Checkerspot (threatened; no critical habitat has been formally designated within the region)
- Puget Sound steelhead (threatened; critical habitat has been formally designated within the region)
- Puget Sound/Georgia Basin rockfish (threatened; critical habitat has been formally designated within the region)

2.7.3 Relevant Plans, Studies, and Court Rulings

Several plans have been developed since the 2008 publication of the VISION 2040 FEIS that inform regional ecosystem resources and strategies for preservation or restoration. The following summarizes the purpose of each plan and key findings.

The PSRC Regional Open Space Conservation Plan (PSRC 2018j) maps the regional open space network and identifies priority conservation actions needed to sustain open spaces and critical ecological systems. Some of these actions are relevant for VISION 2050 planning. This plan is discussed in greater detail in the Parks and Recreation section below. It includes identification of strategies for protection of key habitat areas through maintenance of a stable urban growth area, incorporation of the regional open space network into land use decisions, and restoration of habitat in high-value areas to support wildlife and recover salmon and orca populations.

As briefly described in the VISION 2040 FEIS, in 2007 the state Legislature formed the Puget Sound Partnership to focus on restoring and protecting the ecosystems in the Puget Sound. The 2017 State of the Sound (Puget Sound Partnership 2017) states that "10 years after the statute was enacted, the region has succeeded in forming regional and subregional plans and

management systems to make recovery happen. However, investment in recovery has been a fraction of that needed to reach targets." The plan describes in detail a series of ecosystem recovery goals and indicators to track progress in meeting those goals. The following highlights the progress made for several of these goals and indicators:

Habitat

- Indicators of habitat restoration in estuaries, floodplains, riparian areas, and shoreline areas have made modest gains. Such areas are important to many key species, including chinook salmon.
- Forest habitats, particularly those deemed as having high ecological value, continue to be lost.
- Sound-wide eelgrass habitat area is holding steady, though local gains have been made. This habitat is important to small fish, shellfish, and other marine organisms.

Species

- The spawning population sizes of chinook salmon are dangerously below federal recovery goals and are not improving.
- As of September 2017, the Southern Resident orca population consisted of only 76 individuals[3]. Recovery depends on increasing the whales' main prey, chinook salmon; reducing the load of toxins entering Puget Sound; and minimizing the impacts and risks of vessel traffic.
- Pacific herring (small schooling fish that are important prey for salmon, birds, and mammals) and marbled murrelets continue to show signs of decline.
- The health of the populations of small marine animals that live in the sediment at the bottom of Puget Sound shows signs of decline.

Water

- In certain local areas of Puget Sound, harmful bacteria and viruses declined enough to allow shellfish beds to be reopened to harvest. Other shellfish beds, however, were closed to harvest because of increased bacteria and viruses. On balance, harvest areas increased.
- Contaminants in Pacific herring and English sole (a bottom fish species) surpass levels considered safe for fish in some areas, though other areas are improving.

The 2016 State of Salmon in Watersheds (Governor's Salmon Recovery Office 2016) reports on the statewide status of salmon recovery and watershed health. As with the 2017 State of the

[3] Since publication of the State of the Sound in 2017, the orca population has declined to 74 individuals (NOAA 2018).

Sound report, the 2016 State of Salmon report notes areas of improvement and also areas lacking progress. Key findings from this report include:

- The recovery goals for most Puget Sound chinook salmon populations have been set, but none of the populations have reached these goals. Some populations have shown promising growth in recent years, while others continue to struggle.
- While the region is making progress in terms of habitat protection and restoration, valuable salmon habitat continues to be lost in many areas.
- In 2016 alone, major projects restored more than 75 acres of estuarine habitat.
- Removal of permitted seawalls outpaced the rate of permitted new seawalls in 2014 for the first time.
- Toxic chemicals are concentrating in the water and entering the food chain. Low oxygen caused by nitrogen discharged from septic tanks, sewage treatment plants, and other sources threatens Puget Sound.

Washington's Statewide Wildlife Action Plan (WDFW 2015) is a comprehensive plan that informs conservation of the state's fish, wildlife, and habitat, and provides tools and resources to support conservation initiatives. The plan updates the 2005 Comprehensive Wildlife Conservation Strategy. The major changes include:

- Modification to criteria used to determine species of greatest conservation need
- Significant changes to the way habitat was described and classified
- Integration of climate change discussion

The 2017 King County Land Conservation Initiative (King County 2017) builds on previous bonds and levy programs that have been enacted since the 1960s. This initiative aims to protect and secure 65,000 acres of high ecological value lands that are at highest risk in the next 30 years.

The Sustainable Lands Strategy was established in 2010 by Snohomish County, the Tulalip and Stillaguamish Tribes, state and federal agencies, and agricultural and environmental stakeholders to improve coordination and generate progress for fish, farm, and flood management interests. The Sustainable Lands Strategy identified four major river reaches in Snohomish County on which to focus its multi-benefit planning approach to develop its own plan to address its unique needs and priorities. Plans have been developed or are in the process of being developed for the following river reaches: Lower Skykomish River, Lower Stillaguamish River, Stillaguamish River, and Snohomish River and Estuary.

In addition, several watershed-based Salmon Recovery Plans have been updated. This includes the 2015 Snohomish Basin Protection Plan, 2017 Lake Washington/ Cedar/Sammamish River Watershed Chinook Salmon Conservation Plan, and 2018 Salmon Habitat Protection and Restoration Strategy for the Puyallup and Chambers Watersheds. The

overarching strategies of these plans are to support salmon recovery efforts and prevent the degradation of salmon habitat.

In 2001, 21 northwest Tribes, joined by the United States in U.S. v. Washington, sought a court determination that Washington state has a duty to preserve fish runs and habitat, specifically targeting state-owned culverts that impede fish passage. The resolution of the case in June 2018 in favor of the Tribes ordered the state of Washington to fix or replace culverts that impede fish passage by 2030. The ruling affects WSDOT, the Washington State Department of Natural Resources (WDNR), WDFW, and the Washington State Parks and Recreation Commission (MRSC 2018). The state is currently working to repair or replace culverts that impede salmon migration.

These plans, studies, and court rulings highlight the challenges facing ecosystems in the Puget Sound region and the importance of preservation and restoration efforts; however, adequate funding of preservation and restoration is a concern. The 2017 State of the Sound report highlights that lack of funding continues to limit the implementation of near-term actions. Inadequate and unreliable funding continues to be a major barrier to achieving a healthy regional ecosystem, and the prohibitive costs to preserve and restore habitat could continue to be exacerbated as the region continues to grow.

2.7.4 Climate Change

As discussed in the VISION 2040 FEIS, the effect of climate change on ecosystems is highly complex and interrelated. Increased temperatures and altered precipitation patterns are leading to earlier flowering of plants, shifted species distributions, and changes in the timing of migration, hatching, and breeding for wildlife (Case et al. 2015).

Not all species respond similarly to climatic change, which makes ecosystem management challenging. Since the VISION 2040 FEIS, additional efforts have been undertaken to understand the climate change sensitivity of species in northwestern North America (Case et al. 2015). Managing species in the face of such changes will require an understanding of which species will be most susceptible to future climate change and what factors will increase vulnerability or resilience (Case et al. 2015). WDNR is using a Climate Change Vulnerability Index to distinguish species that may be most vulnerable to change throughout the state to guide policymakers and land managers to inform conservation efforts (WDNR 2018).

Maintaining habitat connectivity will also be important given the threat of climate change. Habitat connectivity allows wildlife populations to move safely to find food, reproduce, and migrate. As the climate has warmed over the past century, species have begun moving upward in both elevation and latitude. These shifts will become even more important over the coming century as climate change becomes more severe. Because landscapes are increasingly fragmented by human activities, providing and maintaining a connected network of habitats for wildlife to move through as conditions change will help conserve biodiversity into the future (Washington Wildlife Habitat Connectivity Working Group 2018).

Northwest coastal waters are among the most acidified in the world (Mote et al. 2014). Ocean acidification threatens culturally and commercially important marine species directly affected by changes in ocean chemistry (such as oysters) and those affected by changes in the marine food web (such as Pacific salmon). In addition, increasing coastal water temperatures and changing ecological conditions may alter the ranges, types, and abundance of marine species. Warmer water in regional estuaries (such as Puget Sound) may contribute to a higher incidence of harmful blooms of algae that could result in adverse economic impacts from beach closures affecting harvesting of shellfish (Mote et al. 2014). Additional climate change impacts on water resources are discussed in Section 2.8.

Climate change will likely alter forests throughout the region by increasing wildfire risk and insect and tree disease outbreaks, and by forcing longer-term shifts in forest types and species. These impacts will be driven by increased air temperature and prolonged droughts, which increase tree stress and mortality, tree vulnerability to insects, and fuel flammability (Case et al. 2015; WDFW 2015).

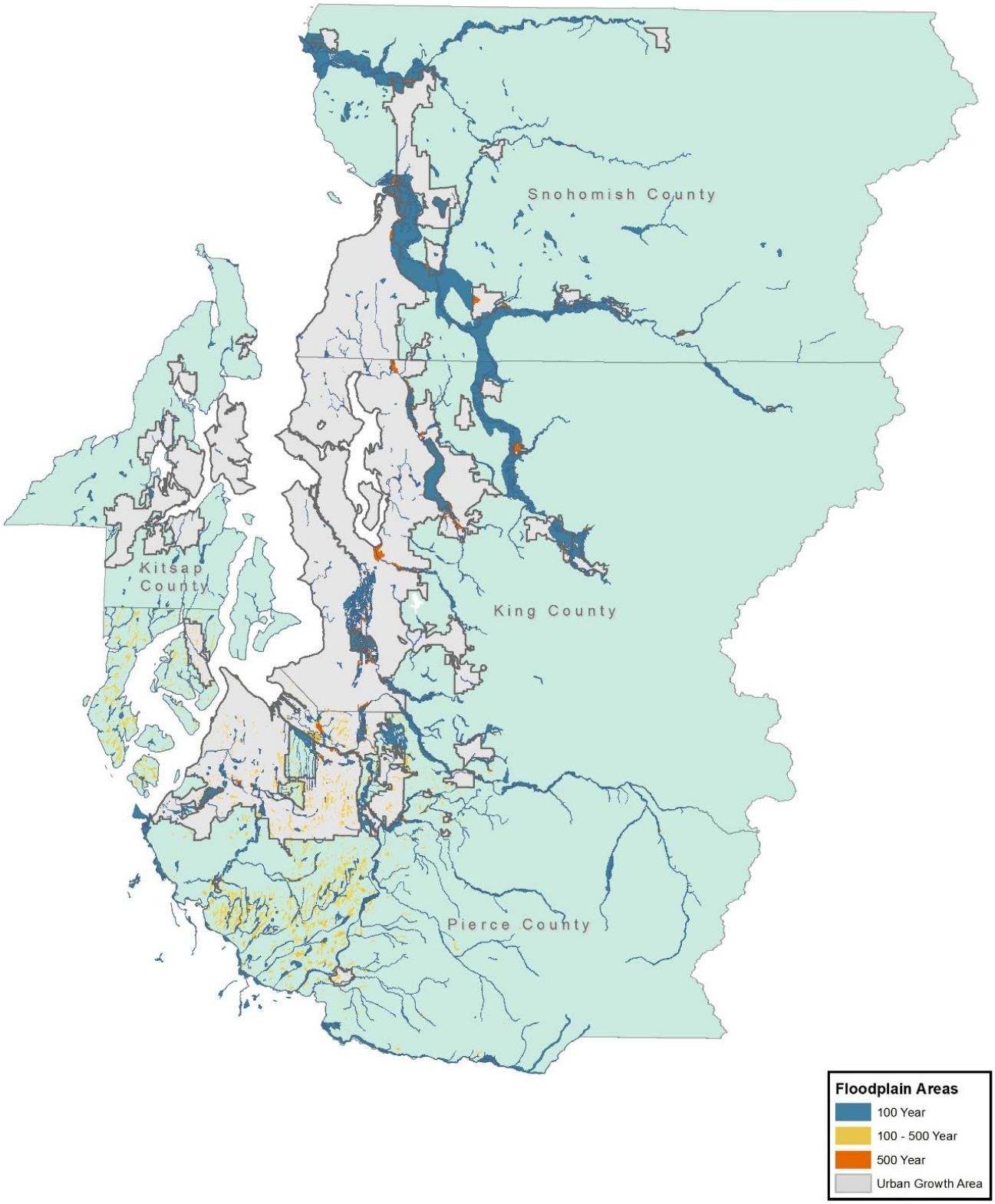
2.8 Water Quality and Hydrology

The affected environment for water resources remains similar to the discussion in Section 5.6.1 of the VISION 2040 FEIS for regional watersheds, general distribution of impaired waters, sole-source aquifers, large contiguous floodplains (Figure 2.8-1), wetlands, lakes, rivers, and streams. This section updates the affected environment for impervious surfaces, water-related climate change considerations, and updated stormwater regulations.

2.8.1 Impervious Surfaces

The VISION 2040 FEIS identified the amount of impervious surface as a key metric related to the health of the region's water resources. Increasing the amount of impervious surface may have numerous impacts stemming from altered stormwater hydrology. These impacts include reduced aquatic habitat from sediment transport and scour, degraded water quality through an increase of pollutants in stormwater, and increased water temperature. In the last 20 years, regulations and policies have been implemented to control runoff and minimize hydrologic and water quality impacts from new development. In addition, redevelopment of areas with outdated stormwater infrastructure can result in improvements to water quality through upgrades and improvements to stormwater management.

Figure 2.8-1. Regional Floodplain Areas



Source: Federal Emergency Management Agency, county geographic information system departments

VISION 2040 FEIS Figure 5-6-2 depicted the areas in the region with 15 percent or greater impervious cover. This Draft SEIS presents an updated analysis that models the total acreage of impervious surfaces throughout the region. These estimates for each county and the region are shown in Table 2.8-1 and mapped in Figure 2.8-2. King and Kitsap counties have the highest percentage of impervious surfaces at 9.4 and 9.1 percent, respectively, followed by Pierce County at 6.1 percent. Snohomish County has the lowest percentage of impervious surfaces at 4.0 percent.

The analysis also calculated areas of uncontrolled/under-controlled impervious surfaces, defined as those impervious surfaces installed before stream-protection, duration flow-control stormwater management regulations were established and came into widespread practice (approximately 1996). If these areas are redeveloped, local hydrology and water quality would improve as the runoff from these surfaces is addressed through up-to-date stormwater management. Of the 273,000 total acres of impervious surfaces throughout the region, the majority (223,900 acres—or 82 percent) were built before more stringent stormwater regulations were established in approximately 1992 and came into widespread practice by 1996. Approximately 49,100 acres of newer impervious surfaces were built after 1996.

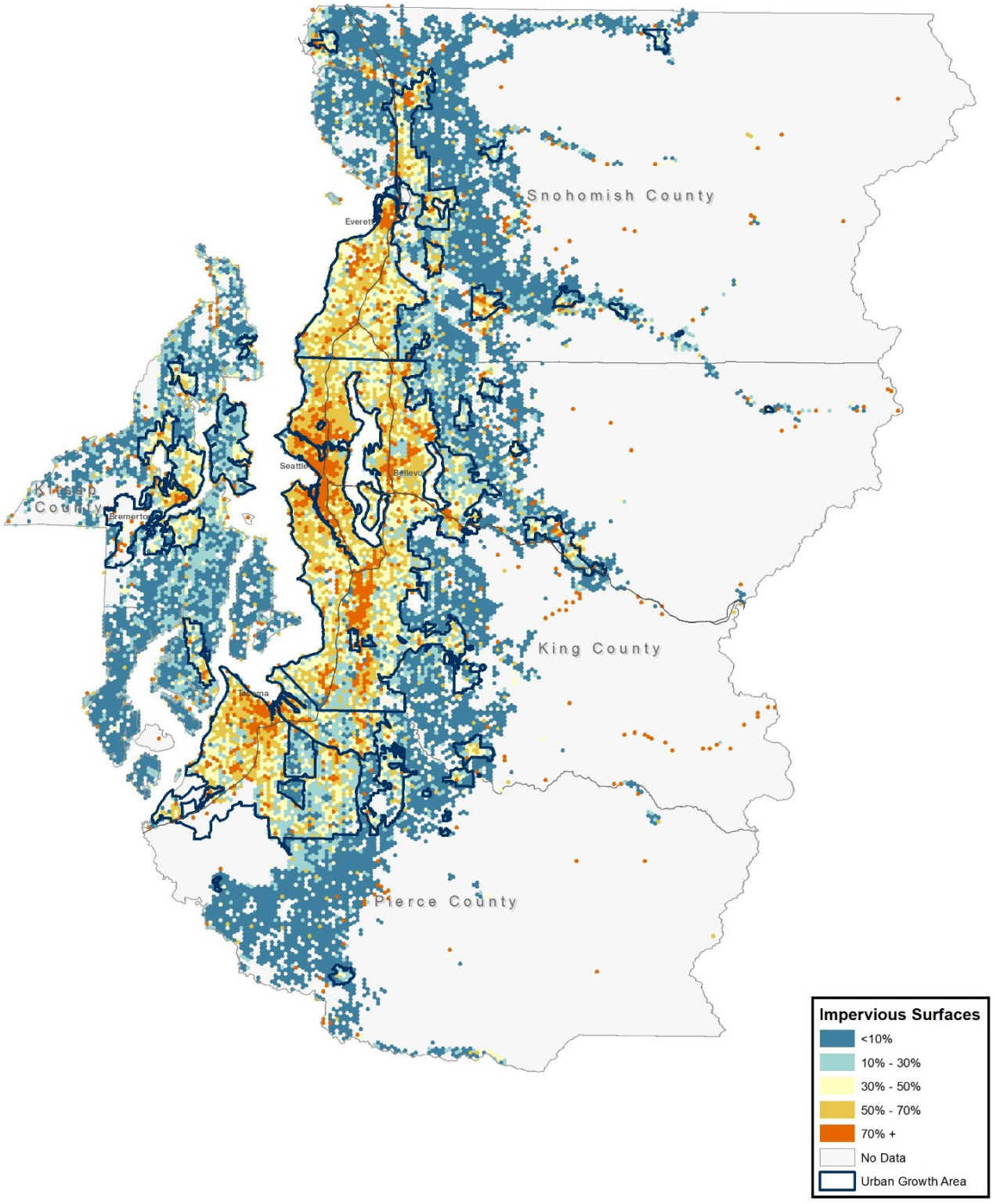
Although a direct comparison to the total amount of impervious surfaces from the VISION 2040 FEIS is not possible, new impervious surfaces (along with replaced impervious surfaces) generally increase as development occurs over time. Therefore, this analysis assumes that impervious surfaces have increased throughout the region since publication of the VISION 2040 FEIS.

Table 2.8-1. Impervious Surface Area by County, 2017

	Total Acres	2017 Impervious Surface Area (acres)	% of Area Covered by Impervious Surface
King County	1,374,000	129,600	9.4%
Kitsap County	255,000	23,400	9.2%
Pierce County	1,081,000	66,100	6.1%
Snohomish County	1,345,000	53,800	4.0%
Region	4,056,00	273,000	6.7%

Source: PSRC, Parametrix

Figure 2.8-2. Regional Impervious Surfaces



Source: PSRC, Parametrix

2.8.2 Climate Change and Sea Level Rise

The 2014 National Climate Assessment (Mote et al. 2014) describes water quality and water supply-related impacts resulting from climate change. Increased air and water temperatures, more intense precipitation and runoff, and intensified droughts resulting from climate change could increase sediment loads, nitrogen concentrations, and other pollutant loads, thereby degrading water quality. Water supply may be affected through an increase in demand coupled with altered timing and quantity of streamflow. Effects include increased winter stream flows, reduced summer stream flows, decreased groundwater recharge, and prolonged droughts. Sea level rise, increasing frequency and intensity of storms and storm surges, and changes in surface and groundwater use patterns may compromise the sustainability of coastal freshwater aquifers and wetlands. As a result of these changes, water resource managers and planners must plan for new risks and vulnerabilities that may not currently be managed within existing practices.

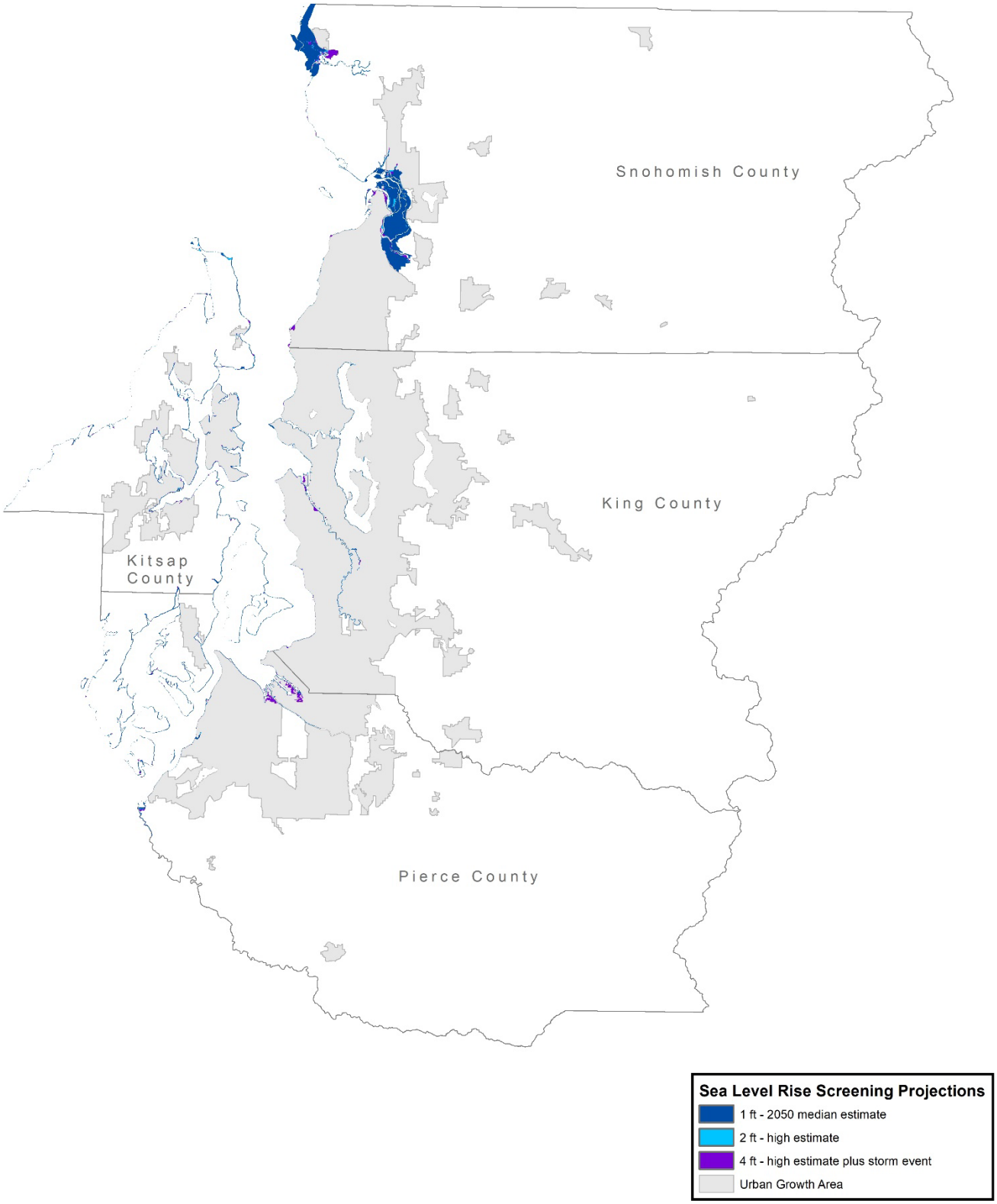
In coastal areas, the effects of sea level rise also pose threats to coastal infrastructure, communities, and habitats. The Washington Coastal Hazards Resilience Network provides updated probabilistic relative sea level rise projections for 171 sites along Washington's coast, including sites in the central Puget Sound (Miller et al. 2018). These relative sea level rise projections can be used as a tool for communities to assess risk and for hazard mitigation planning. The Washington Coastal Hazards Resilience Network website (www.wacoastalnetwork.com) provides a Google map viewer and detailed mapping guidelines. Figure 2.8-3 illustrates potential areas of inundation in the region based on screening level projections of various sea level rise scenarios. The areas near the estuaries of the Stillaguamish, Snohomish, Duwamish, and Puyallup rivers and other low-lying coastal areas are most at risk of inundation. More detailed maps of potential inundation are available at the NOAA website (coast.noaa.gov/slr).

2.8.3 Policies and Regulations

Federal, state, and local regulations are similar to those presented in the VISION 2040 FEIS. Since publication of the VISION 2040 FEIS in 2008, Ecology updated the Stormwater Management Manual for Western Washington (SWMMWW) in 2012 and amended it in 2014. The updates include best management practices for protecting water quality from adverse stormwater impacts. A draft update to the SWMMWW for 2019 has been released and will likely be finalized in 2019.

Washington state has developed a new streamflow restoration law (RCW 90.94) in response to the "Hirst decision." Hirst was a 2016 Washington State Supreme Court decision that changed the way counties approve or deny building permits that use permit-exempt wells for a water source (Ecology 2018). The new streamflow restoration law requires watershed planning and establishes interim standards for new domestic water use and fees for building a permit-exempt well. The law affects a majority of the watersheds in the region and planning is underway in applicable watersheds in coordination with Ecology.

Figure 2.8-3. Areas of Potential Inundation



Source: NOAA Office for Coastal Management

2.9 Public Services and Utilities

Since the VISION 2040 FEIS was published in 2008, counties, cities, and towns have continued to plan for and provide public services and utilities that accommodate an increasing population and corresponding demand for services. This section describes utility planning updates, water supply considerations, and general service expansions that contribute to the affected environment for VISION 2050.

2.9.1 Utility Planning Updates

As described in the VISION 2040 FEIS, under GMA cities and counties are required to develop and adopt comprehensive plans that include long-range planning for future public service and utility needs. Among the requirements for comprehensive plans are a capital facilities plan element and utilities element.

The following summarizes the utility planning requirements for solid waste, wastewater, water, and stormwater utility providers:

- Solid waste – Each county is required to develop a Solid Waste Management Plan (RCW 70.95.020) to ensure solid waste and disposal capacity is in place over a 20-year period.
- Wastewater – Each wastewater utility is required to prepare a Comprehensive Sewer Plan (RCW 57.16) to document current operations and forecast future demand.
- Water – Each water utility is required to prepare a Water System Plan (WAC 246-290-100) to demonstrate how the system will address present and future needs.
- Stormwater – Jurisdictions are required to manage stormwater in accordance with the SWMMWW (discussed above in Section 2.8.3) to prevent adverse water quality impacts.

2.9.2 Water Supply Considerations

From 2000 to 2015, total public water supply consumption decreased from 546 million gallons per day to 393 million gallons per day. Use of groundwater and surface water sources remained similar to that described in the VISION 2040 FEIS in King, Kitsap, and Snohomish counties, while Pierce County saw a decrease in production from surface water and an increase in groundwater supply production (U.S. Geological Survey 2018). Specific sources of water described in the VISION 2040 FEIS remain the same, with Kitsap County primarily served by groundwater sources, and King, Pierce, and Snohomish counties primarily served by surface water from the three largest water purveyors—Seattle Public Utilities, Tacoma Water, and Everett Water/Snohomish Public Utility District.

The Water Supply Forum, a consortium of King, Snohomish, and Pierce counties, notes in the 2012 Regional Water Supply Update that water supply throughout the region is sufficient for current and future use. The document further states that “water is an increasingly precious

commodity in some places, but in the central Puget Sound region there will be sufficient quantities of high quality, great tasting water for the next 50 years, giving the region a competitive edge for the future… Collaborative planning and foresight have resulted in coordinated action that allows the region to deal with growth and uncertainty with well-planned but flexible portfolios of supply options" (Water Supply Forum 2012).

While the Puget Sound region anticipates the water supply is sufficient for current and future use, water resource managers and planners must plan for new risks and vulnerabilities as a result of climate change that may not currently be managed within existing practices. As noted in Section 2.8.2, climate change may exacerbate the current stresses on water resources from excessive water withdrawals, conflicts between water users, water quality degradation, and more frequent and intense droughts and floods (Ecology 2019b).

2.9.3 General Service Expansions

The provision of other services—fire protection and police services, health and medical services, and schools—is similar to that described in the VISION 2040 FEIS. In response to increased population and demand, additional services have been added since 2008. These services are planned for and provided in response to projected population growth, housing needs, and land use, as described below.

- Fire protection and police services: Fire districts (including some city fire departments) develop plans that are consistent with county, city, and town comprehensive plan elements that project future growth.
- Health and emergency medical services (including hospitals): Public health departments/agencies within each county inventory facilities, forecast future needs, and create finance plans to develop services to meet future needs.
- Schools: As noted in the VISION 2040 FEIS and required by GMA, the capital facilities plan of each county, city, and town requires inventory of existing schools owned by public entities, assessment of projected needs, and determination of new facility locations. Each plan also requires expansion of existing facilities and a six-year financing plan to fund all construction. In 2017, two GMA bills passed (codified in RCW 36.70A.211-213) that provide guidance on how new schools may be sited outside urban growth areas under limited circumstances, and how the extension of public facilities and utilities may be authorized to serve those schools.

2.10 Parks and Recreation

Open spaces provide considerable physical and mental health benefits, contribute to a high quality of life, and provide critical ecosystem habitat. This section updates Section 5.8.1 of the VISION 2040 FEIS and describes:

- Existing parks and open space resources
- Access to parks and open space
- Key findings from the PSRC Regional Open Space Conservation Plan
- Climate change

2.10.1 Existing Open Space Resources

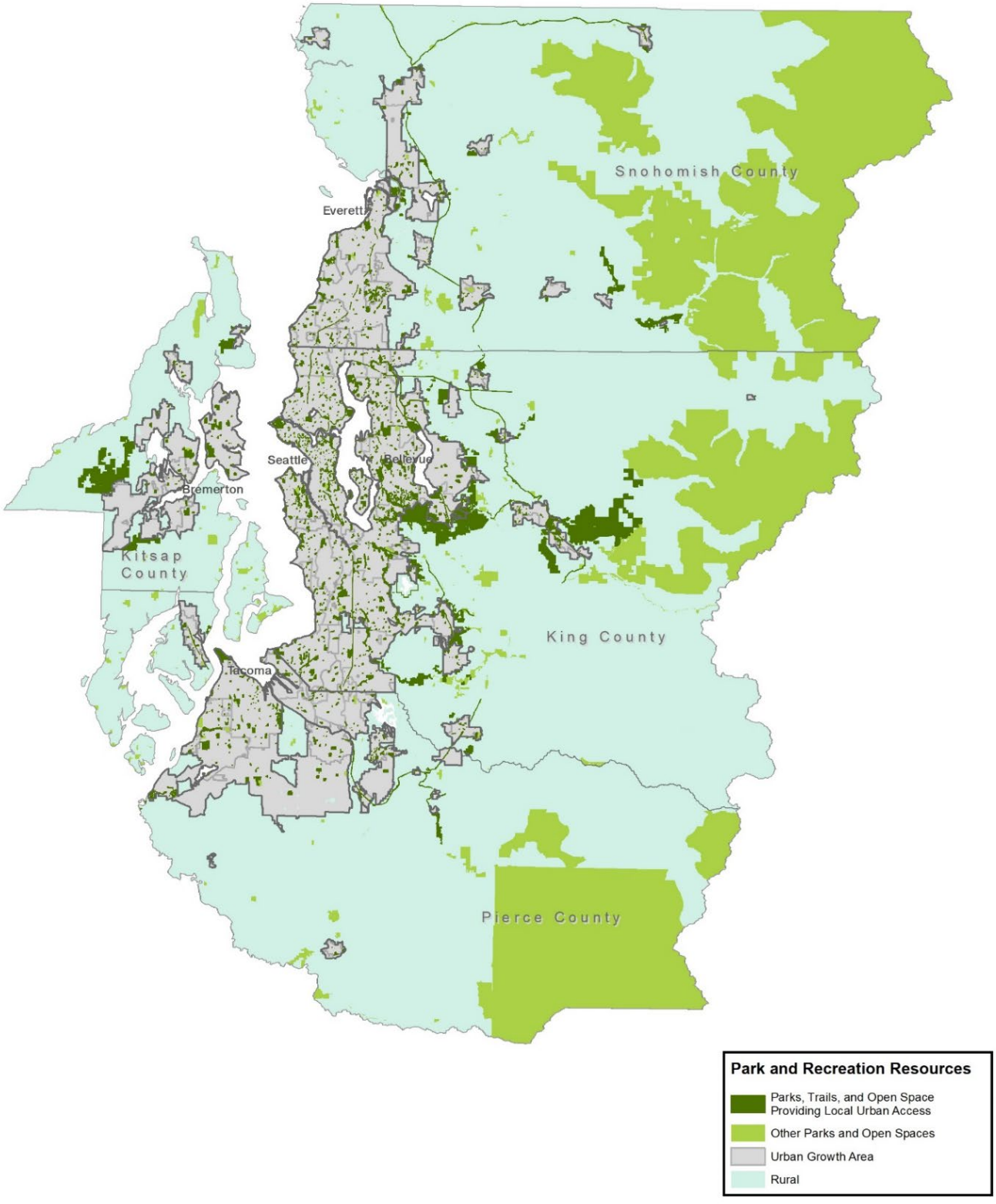
The regional inventory of parks and open spaces is described in the Regional Open Space Conservation Plan. The categories of lands in this plan are different from those described in the VISION 2040 FEIS and provide more detail. The types and acreage of parks and open space within the region include:

- Federal lands – 1.16 million acres
- State lands – 356,000 acres
- County lands – 69,700 acres
- Municipal lands – 35,000 acres
- Tribal lands – 126,000 acres
- Conservation non-profit land and easements – 39,750 acres

2.10.2 Park and Open Space Access

Figure 2.10-1 depicts the region's parks, trails, and open spaces. To evaluate access to parks and recreational facilities, the amount of the region's existing urban population that lived within a quarter-mile distance of existing parks, trails, and open space was analyzed. Table 2.10-1 shows the current population located within one-quarter mile of these facilities. King County has the greatest urban population with proximate access to parks at 72 percent, followed by Snohomish, Pierce, and Kitsap counties with 46 percent, 39 percent, and 35 percent, respectively.

Figure 2.10-1. Park and Recreation Resources in the Region



Source: PSRC

Table 2.10-1. Population Within One-Quarter Mile of Parks Providing Local Urban Access* in 2017

	Total Urban Population	Percent of Urban Population Within One-Quarter Mile Access
King County	2,024,000	72%
Kitsap County	158,000	35%
Pierce County	692,000	39%
Snohomish County	658,000	46%
Region	**3,532,000**	**59%**

Source: PSRC

* Note: The definition of "parks providing local urban access" includes parks, trails, and other open space facilities located within the urban growth area or within a one-quarter mile distance of the urban growth area boundary.

2.10.3 Park and Open Space Acreage per Resident

The acres of parks per 1,000 residents was calculated and is shown in Table 2.10-2. The general trends are similar to what was presented in the VISION 2040 FEIS, with Kitsap County having access to the greatest park acreage per resident, followed by King, Snohomish, and Pierce counties. Kitsap and Pierce counties saw slight increases in acreage per resident while King County, Snohomish County, and the region saw slight decreases.

Table 2.10-2. Parks Providing Local Urban Access* – Acreage Per 1,000 Urban Residents in 2017

	Parks Providing Local Urban Access (acres)	Population in Urban Growth Area	Acreage Per 1,000 Urban Residents
King County	61,300	2,024,000	30
Kitsap County	13,700	158,000	87
Pierce County	8,000	692,000	12
Snohomish County	11,400	658,000	17
Region	**94,400**	**3,532,000**	**27**

Source: PSRC

* Note: The definition of "parks providing local urban access" includes parks, trails, and other open space facilities located within the urban growth area or within a one-quarter mile distance of the urban growth area boundary.

2.10.4 Access to Wild Open Spaces

As the region works to increase access to parks and open spaces, it will be necessary to plan for potential impacts to these open spaces from increased use. More people visiting these natural areas can lead to more litter, erosion of trails and roads, and trampling of vegetation without management strategies for sustainable recreation (PSRC 2018j).

Another important access consideration is that a car is most often required to access these areas, which contributes to carbon emissions, leads to congestion at trailheads, increases safety concerns, and limits who can access wildlands. The necessity of having a car to access these areas creates a barrier for people with lower incomes, as they are the less likely to own a car (PSRC 2018j). In addition, a 2015 survey of visitors to the Mount Baker Snoqualmie National Forest found that only 11 percent of respondents identified as people of color, while people of color represent 35 percent of the region and 20 percent of the state.

2.10.5 PSRC Regional Open Space Conservation Plan

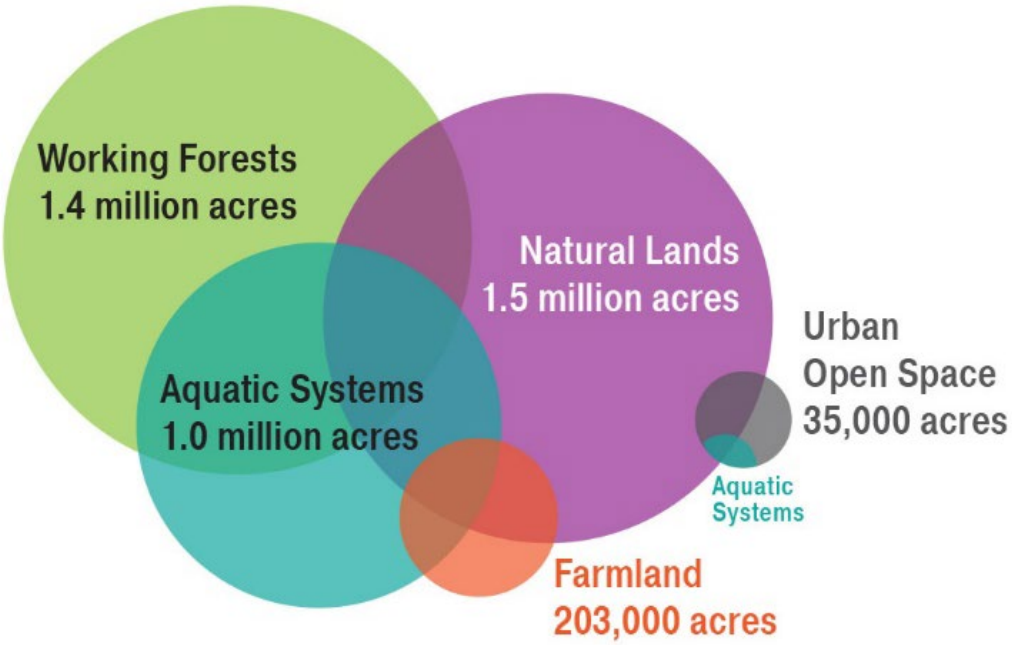
The PSRC Regional Open Space Conservation Plan (PSRC 2018j) maps the regional open space network, identifies strategies for conservation, and sets forth a plan for implementation. This plan envisions a future regional open space network not defined previously.

The regional open space network includes six categories of open space:

1. Natural lands are areas important for supporting wildlife, preserving ecosystems, and providing opportunities for recreation and experiencing nature.
2. Farmlands support agriculture. These lands provide local food options for the region's residents along with wildlife habitat, stormwater management, and many other ecosystem benefits.
3. Working forests are resource lands that support jobs and our rural economies, provide timber and other materials, and support carbon sequestration, stormwater management, drinking water, and wildlife habitat.
4. Aquatic systems include lands that support clean drinking water, mitigate flood hazards, and support healthy habitat for salmon and other aquatic life.
5. Regional trails are active transportation corridors that provide access to the region's open spaces and connect communities and other important regional destinations. Often, trails are interconnected with rivers, floodplains, and farmlands.
6. Urban open space is the system of parks and green spaces (both public and private) that provide recreational, aesthetic, environmental, and health benefits within an accessible distance to the region's urban residents.

The approximate acreage of each category is shown in Figure 2.10-2.

Figure 2.10-2. Approximate Acreage of Each Category in the Regional Open Space Network



Source: PSRC 2018

The regional open space network is characterized by the following:

- 3.03 million acres of public and private land and 339 miles of trail.
- Approximately 70 percent of the regional open space network has long-term protection through public ownership and conservation easements; the remaining 30 percent is in private ownership without a conservation easement.
- About 463,000 acres of open spaces within the regional network are considered "at-risk." Of those, 104,000 acres of farmland are considered to be at-risk, 183,000 acres of working forest are considered to be at-risk, and 175,000 acres of intact habitat in natural lands and aquatic systems are considered to be at-risk.
- To complete the regional trail network, an additional 300 miles of trail are needed.

The Regional Open Space Conservation Plan recognizes the challenges facing open space—a strong economy accelerating growth and development, the increasing popularity of outdoor recreation, and insufficient funding for maintaining and providing access. In response to these challenges, the plan lays out strategies and an implementation plan to conserve and protect open space. Implementation of the plan can help avoid and mitigate impacts of development on the region's open spaces and help maintain the services that they provide, such as carbon sequestration, flood control, and outdoor recreation.

2.10.6 Climate Change

Open spaces in the region are integral to helping the region mitigate and adapt to climate change. Forests, forest soils, agricultural soils, estuaries, and wetlands store large quantities of carbon, preventing it from entering the atmosphere and contributing to additional warming. Forests in the region store 629 million equivalent tons of CO_2; loss of these lands would result in much of this carbon entering the atmosphere (PSRC 2018j).

As the global climate changes, the regional climate will experience many changes as well. Open spaces help the region be resilient to these changes. With predicted increased frequency and intensity of flooding, undeveloped floodplains store flood waters and reduce the risk to developed areas downstream. Forested riparian areas help keep rivers cooler and healthier for fish, and open space in upland areas provides water storage. As wildlife habitat ranges shift to follow cooler habitats, open spaces provide corridors and stepping stones for wildlife movement. Forest canopy in urban areas reduces the effect of heat that can accumulate in developed areas, known as the urban heat island effect (PSRC 2018j).

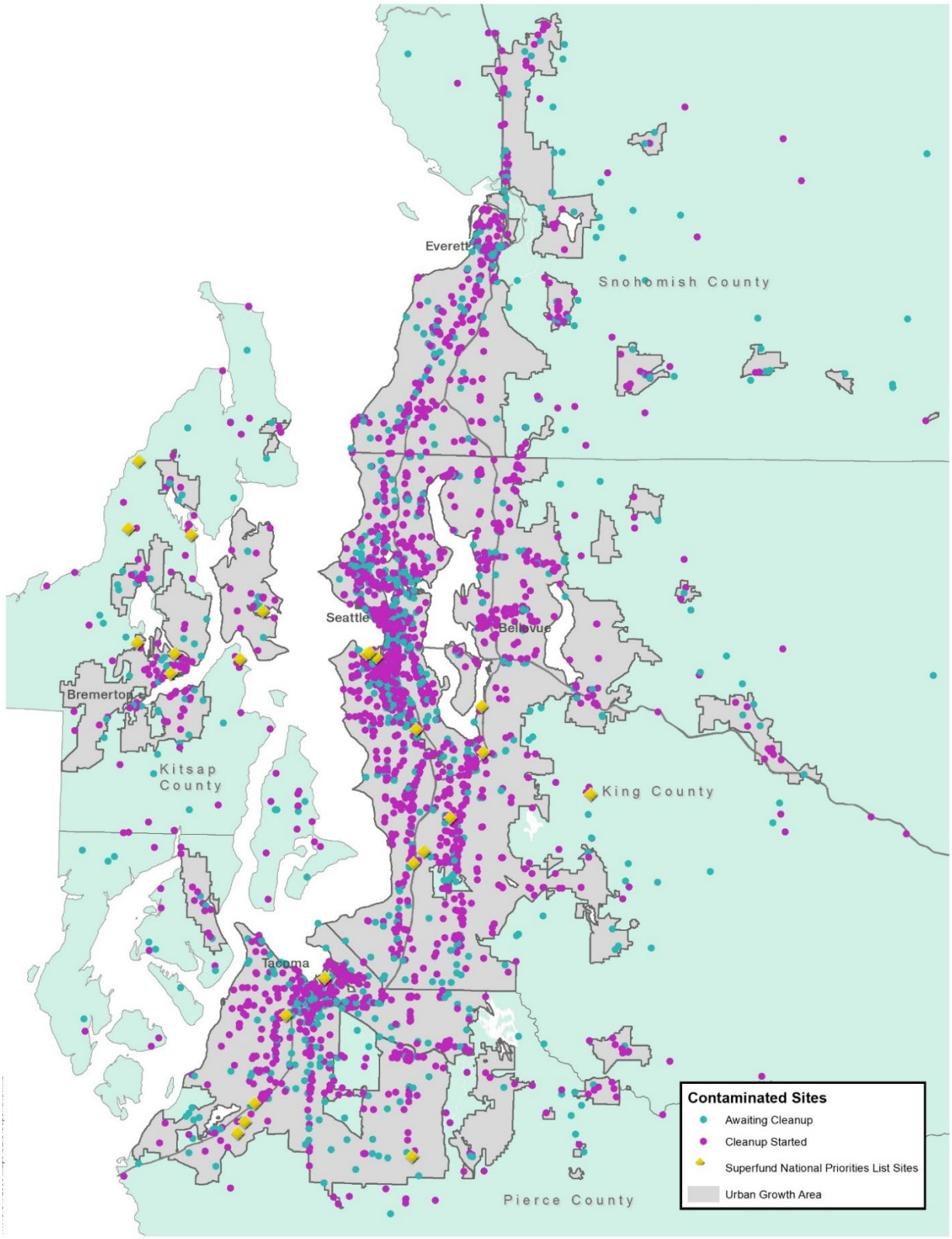
2.11 Environmental Health

The affected environment for environmental health, which includes the locations, sources, and types of hazardous materials, is similar to Section 5.9.1 of the VISION 2040 FEIS. This section updates considerations for contamination and pollution, and human health benefits from both the built and natural environment.

2.11.1 Contamination and Pollution

As described in the VISION 2040 FEIS, potentially contaminated sites are present throughout the region, commonly along shorelines, major transportation corridors, and in industrial and manufacturing areas. Although many sites have been replaced by residential and commercial development that have a lower risk of creating contaminated sites, some of these industrial and manufacturing industries have left a legacy of contamination and sites of potential environmental concern still exist throughout the region (Figure 2.11-1). Cleanup of contaminated sites is occurring in accordance with federal and state laws, leading to a gradual reduction in hazardous material sites, especially as these areas redevelop. With continued regulatory compliance and management requirements as redevelopment of these sites occurs throughout the region, it can be assumed that the overall number of potential significant hazardous waste sites from manufacturing and industrial uses will continue to decrease.

Figure 2.11-1. Regional Contaminated Sites



Source: EPA, Ecology

2.11.2 Human Health

Public health concerns have traditionally focused on preventing the spread of disease and protecting people from unsafe water, polluted air, and hazardous waste. In recent years, the focus has shifted to the health implications of the built environment and natural environment.

Research findings from the Centers for Disease Control link the country's obesity epidemic in part to built environment considerations, including community design and travel choices. Physical inactivity is a growing health problem in the United States, contributing not only to obesity, but also to chronic diseases, such as diabetes and cardiovascular disease. Several Centers for Disease Control studies indicate that communities that feature a mix of land uses, are connected by pedestrian and bicycle infrastructure and transit, and rely less on driving have higher rates of physical activity. The Surgeon General has released a call to action to promote walkable communities, recognizing that being physically active is one of the most important steps that people of all ages and abilities can take to improve their health (PSRC 2018c). If development is not properly planned at the project level, there is potential to exacerbate localized air quality and noise impacts, and to adversely impact environmental health (see Section 4.4 and Section 4.14 for additional details).

PSRC's planning efforts seek to promote programs and investments that provide alternatives to driving, especially those that would improve the pedestrian and bicycle network in the region's communities. These investments can result in mobility choices that are healthier and safer. These projects and programs also have air quality benefits. The Regional Transportation Plan includes best practices that serve people of all ages and abilities safely. These strategies help both to increase physical activity and reduce barriers people may currently experience that prevent them from walking, biking, and taking transit.

The region's built environment—including the design of communities, the completeness of sidewalk networks, and the provision of open space—affects not only physical but also mental well-being. Land use practices improve public health by supporting the development of compact, accessible communities where walking and biking are viable means to get around, experience the local community, enjoy open spaces, and connect people to jobs and transit.

Recent research has shown that open spaces in urban areas provide both physical and mental health benefits. Open spaces, particularly those with high levels of tree canopy coverage, reduce the urban heat island effect and improve air quality by removing air pollutants (such as particulates, nitrogen dioxide, sulphur dioxide, and carbon monoxide). Open spaces also provide opportunities for exercise and recreation, which lead to improved cardiovascular health outcomes and reduced mortality. The Regional Open Space Conservation Plan (PSRC 2018j) provides additional details on the value of open space to physical and mental health.

PSRC's Health Briefing Paper (PSRC 2018k) notes that overall, Washington residents are healthier than in other states, with lower rates of obesity, diabetes, heart disease, and stroke mortalities. Overall, access to transit, active transportation, and clean air and water is improving. The progress has not been equitable, and health outcomes vary by place, race, and income. The Health Briefing Paper presents findings on health disparities such as the statewide disparity in life expectancy by race.

2.12 Energy

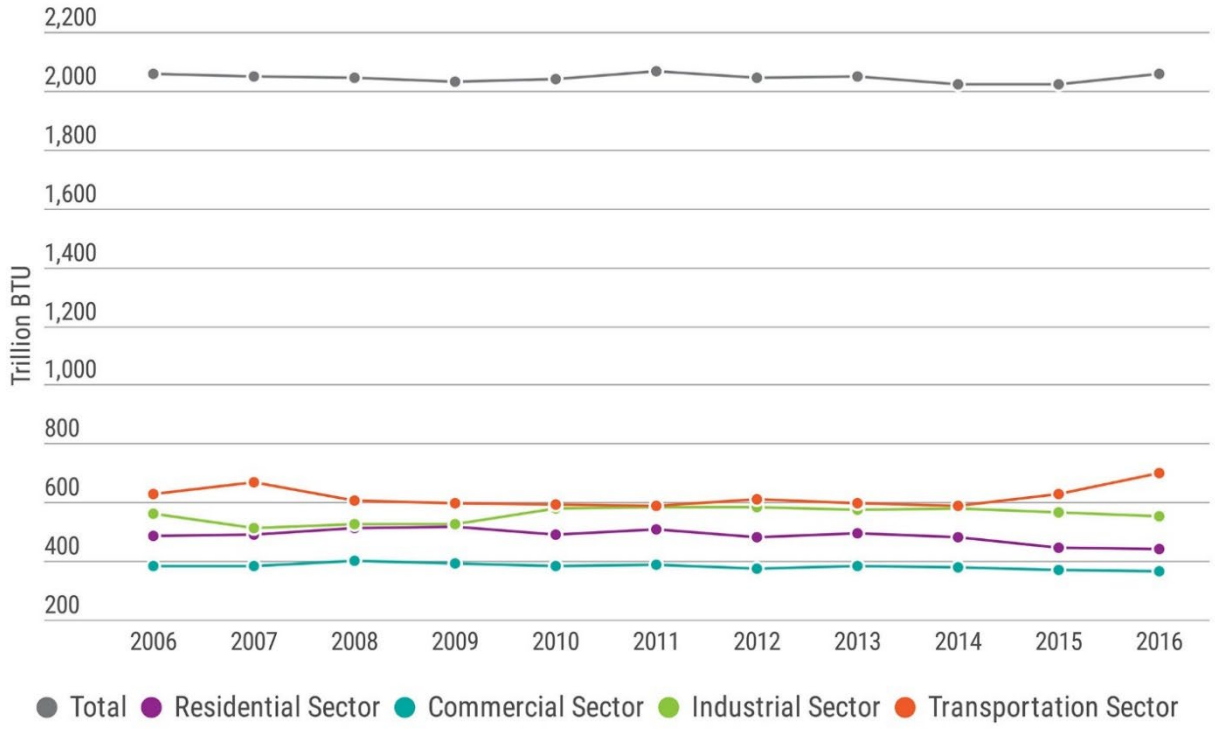
At a regional level, the affected environment for energy resources, including energy consumption, source, and availability, is similar to the description in Section 5.10.1 of the VISION 2040 FEIS.

Even with population growth, total energy consumption has remained largely constant over the last decade (Figure 2.12-1). The success of energy conservation efforts, sustainable building practices, and improved vehicle and fuel technologies during the past 10 years likely all contribute to a relatively steady level of energy consumption. However, the balance of sources and consumption has changed slightly as depicted in Figures 2.12-1 and 2.12-2. The use of renewable energy sources increased in the decade from 2006 to 2016, while the use of coal has decreased. From 2006 to 2016, consumption of renewable energy (primarily wind and biomass) increased from 6 to 10 percent, and electricity generated from renewable energy sources increased from 2 to 8 percent (Energy Information Administration [EIA] 2018a). Climate change implications resulting from greenhouse gas emissions are discussed above in Section 2.6.

Primary energy is the **input** to the power plant that generates electricity—from sources such as coal, natural gas, or wind.

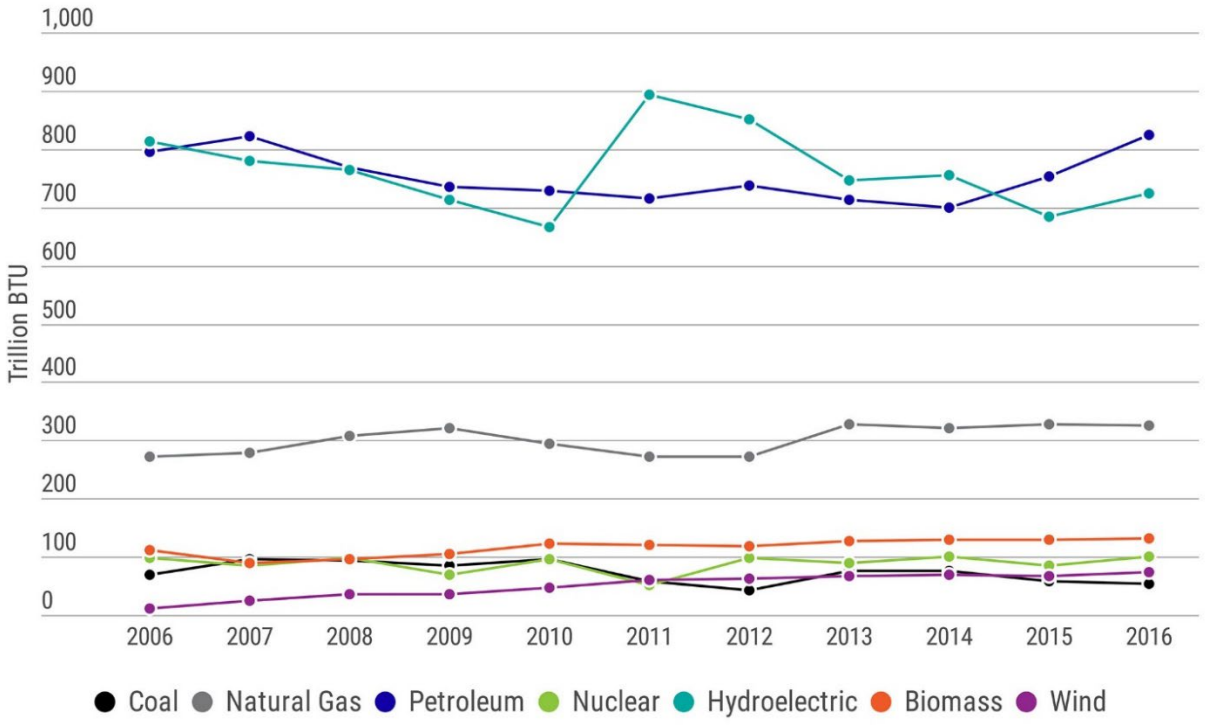
End-use energy is the **output** of the power plant that is consumed by homes, businesses, industry, and the transportation sector.

Figure 2.12-1. Washington State End-Use Energy Consumption Estimates, 2006–2016



Source: U.S. Energy Information Administration

Figure 2.12-2. Washington State Primary Energy Consumption Estimates, 2006–2016



Source: U.S. Energy Information Administration

2.13 Historic, Cultural, and Archaeological Resources

The types of historic, cultural, and archaeological resources and their distribution throughout the region have not changed substantially compared to the resources described in the VISION 2040 FEIS.

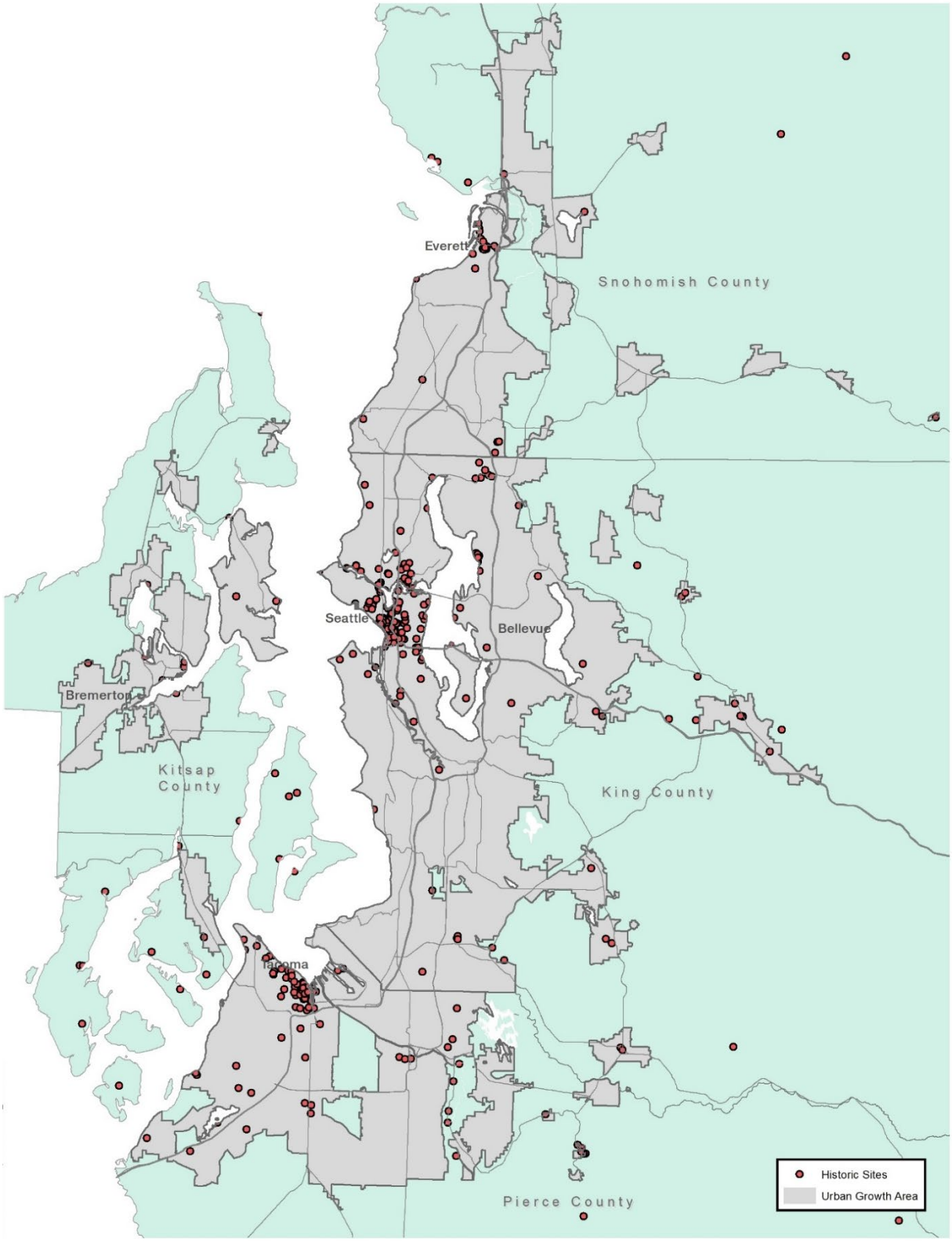
Historic properties are historic buildings, bridges, and sites listed on the National Register of Historic Places, Washington Historic Register, and local historic registers. The majority of these sites are concentrated in urban areas.

Cultural properties refer to the beliefs, customs, and practices of a living community of people that have been passed down through generations. As noted in the VISION 2040 FEIS, the cultural significance of a property is derived from the role the property plays in a community's historically rooted beliefs, customs, or practices. Traditional cultural properties in the central Puget Sound region are primarily associated with Native American Tribes. Chapter 5 and Appendix H (Equity Analysis) more broadly address historic urban communities, cultural establishments, or businesses associated with existing demographic conditions and changes in low-income communities and communities of color.

Archaeological sites in the region include shell middens, burials, lithic sites, wet sites, and rock shelters. These types of sites reflect a number of cultural uses including villages, camps, food gathering, and other seasonal activity sites beginning around 11,000 years ago. Most sites are associated with shorelines and watercourses.

Since the VISION 2040 FEIS, additional historic properties have become eligible for investigation and inclusion in historic registers. Historic properties listed in the National Register of Historic Places are shown in Figure 2.13-1. As noted in the VISION 2040 FEIS, these properties are most in need of protection as they are often in areas with high rates of development and redevelopment activities.

Figure 2.13-1. Historic Sites



Source: PSRC, National Register of Historic Places

2.14 Visual Quality

At a regional level, the affected environment for visual quality and aesthetic resources, including the description of the regional physical setting and current trends affecting the visual environment, is similar to the description in the VISION 2040 FEIS.

Natural resources provide visual features throughout the region. These include the scenic views of the Cascade and Olympic Mountains and foothills, and the many lakes and rivers in the region. Undeveloped forested areas, wetlands, creek and river corridors, and floodplains are also natural features that are valuable visual resources.

The urban and suburban visual resources are diverse and include iconic structures such as the Space Needle and the scenic downtown skylines of Seattle, Tacoma, Bellevue, and Everett. Industrial land uses such as shipping, manufacturing, and warehouses are prominent visual features located along parts of the waterfronts of Bremerton, Everett, Seattle, and Tacoma. Suburban visual features are also diverse and include single-family residential development along with retail and commercial development. Transportation and utility infrastructure is a prominent feature of the visual landscape in the urban and suburban communities throughout the region.

Rural areas are typically dominated by views of natural features, low-density development, rural architecture and landscapes, and agricultural activities.

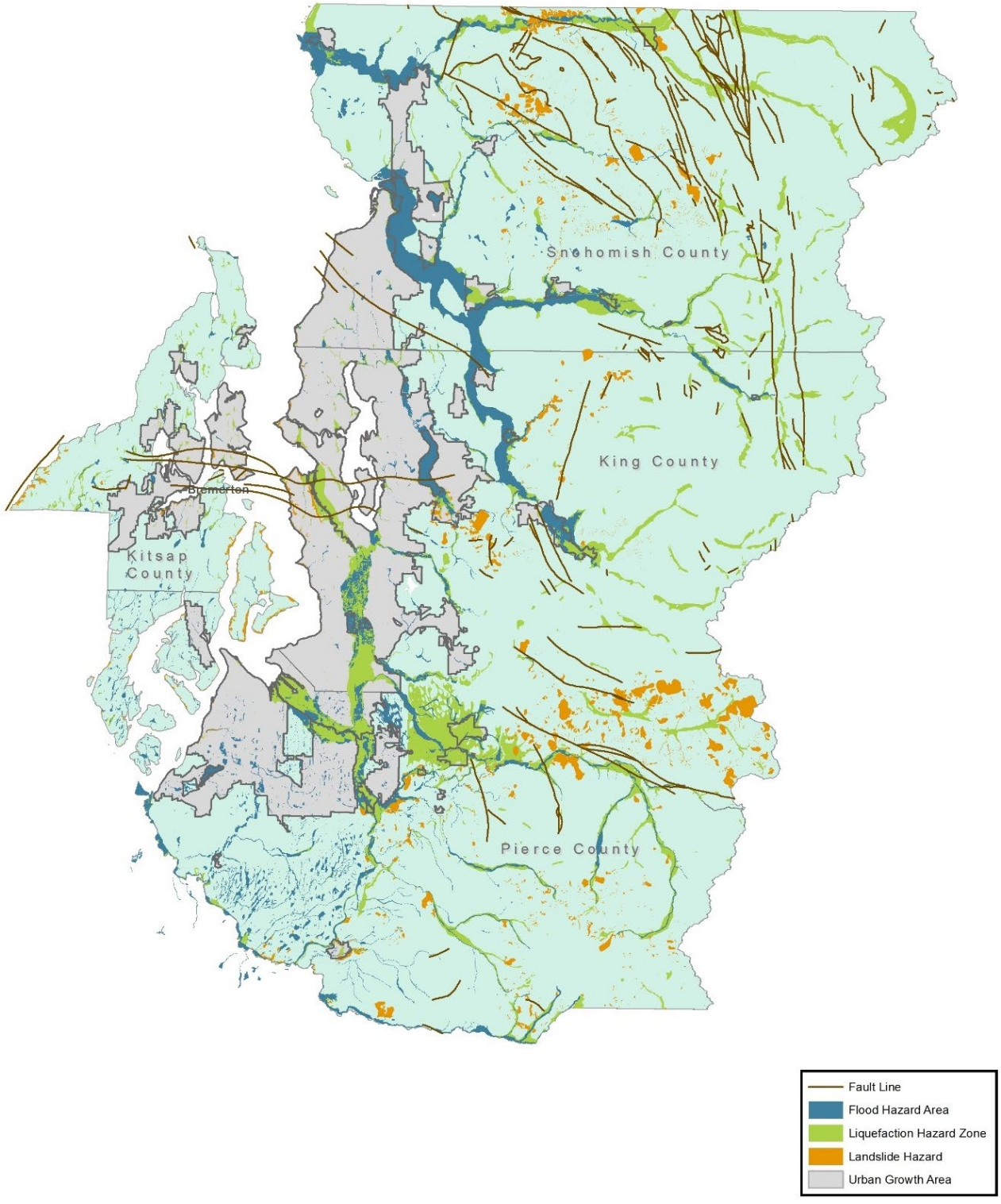
The trends described in the VISION 2040 FEIS that alter the visual environmental persist today. They include increased development in urban, rural, and open space areas; expanded road and transit systems; and increased density.

2.15 Earth

At a regional level, the affected environment, including the description of the regional physical setting and geology, primary geologic hazards, and current trends, is similar to the description in the VISION 2040 FEIS. The region is a geologically active area susceptible to earthquakes, landslides, volcanic hazards, flooding, and coal mine subsidence. Expanded discussion of flooding as a result of climate change is discussed in Section 2.8.

The VISION 2040 FEIS includes and references data about the location and extent of these hazards. Since the Oso landslide in 2014, increased attention has been paid to geologic hazards and incompatibility of residential land uses in high-hazard areas. City and county comprehensive plans account for physical conditions and geological hazards in planning for future land uses. The need for infrastructure and land use planning, building codes, and critical areas regulations to address these risks continues to be a priority throughout the region. Geologic hazard areas throughout the region are depicted in Figure 2.15-1.

Figure 2.15-1. Regional Geologic Hazard Areas



Source: WDNR

2.16 Noise

At a regional level, the affected environment, including the description of roadway noise, railway noise, transit noise, and airport noise, is similar to the description in Section 5.13.1 of the VISION 2040 FEIS.

As described in Section 2.5 above, transportation infrastructure has been expanded since the VISION 2040 FEIS was published. Types of noise generated by these modes of transportation are as described in the VISION 2040 FEIS but are now more widespread due to the construction and operation of additional infrastructure.

Road, rail, and air traffic sources account for the majority of noise in urban areas, with additional noise generated by commercial/industrial uses, construction, pets, and stereos/radios (King et al. 2012). Recent studies suggest that planning strategies emphasizing increases in urban development densities and mixed uses may lead to an increase in exposure to traffic, construction, and related urban environmental noise (King et al. 2012). It can be assumed that as the region has grown over the last decade, so have noise sources in the urban environment. Noise at a local level, however, would likely vary according to proximity to noise-related activities such as high-traffic roads and construction.

2.17 How Has the Regulatory Setting Changed Since VISION 2040?

Regulation and policy changes since the 2008 publication of the VISION 2040 FEIS are summarized in Table 2.17-1. Since 2008, local jurisdictions have updated comprehensive plans and enacted new policies, and new regulations and policies are also now in effect that were not contemplated in the VISION 2040 FEIS. Many of the federal and state regulations and policies remain in effect as described in the VISION 2040 FEIS, and these are described in Table 2.17-2.

Table 2.17-1. Regulation and Policy Changes Applicable to SEIS Resources

Regulation/ Policy	Type	Description and/or Updates since VISION 2040 FEIS	Applicable Resources in VISION 2050 SEIS
GMA	State	GMA has been amended several times since 2008. Most notably: • An amendment made during the recession extended the timeframe for periodic updates of local plans from 2011–2012 to 2015–2016, creating a significant delay from the time VISION 2040 was adopted to the time when local plans were adopted and implemented.	Population, Employment, Housing, Land Use, and many other resources

Table 2.17-1. Regulation and Policy Changes Applicable to SEIS Resources (continued)

Regulation/ Policy	Type	Description and/or Updates since VISION 2040 FEIS	Applicable Resources in VISION 2050 SEIS
GMA (continued)		• A major update to Buildable Lands provisions, siting schools in the rural area, and various updates related to development and critical areas provisions. • Key sections of the WAC were updated to address GMA provisions, which included changes to WAC 365-196-305 addressing the countywide and multicounty planning policies. • For more information, the Washington State Department of Commerce maintains a detailed list of amendments to GMA, available at the following link: https://deptofcommerce.app.box.com/s/6qllul1djytd3n52h37ioh7t04e8su86	
Shoreline Management Programs (under Shoreline Management Act)	Local	Cities and counties updated their Shoreline Master Programs to comply with updated Shoreline Management Act guidelines to protect shoreline ecological functions.	Ecosystems, Water
Critical Areas Regulations (under GMA)	Local	Cities and counties updated their Critical Areas Ordinances to incorporate updated science.	Ecosystems, Water, Earth
Regional Planning: VISION 2040, Regional Growth Strategy, and multicounty planning policies	Regional	University Place and Issaquah were designated as regional growth centers; Sumner-Pacific was designated a manufacturing/industrial center. Arlington, Bonney Lake, Covington, Fife, Lake Stevens, Maple Valley, Mill Creek and Monroe were reclassified from Small to Larger cities through VISION 2040 technical amendments. PSRC adopted the Regional Centers Framework in 2018, providing additional planning expectations for regional centers.	Population, Employment, Housing, Land Use, and other resources
Countywide planning policies, local comprehensive plans	Local	Countywide planning policies and growth targets were updated since the FEIS for consistency with VISION 2040. City and county comprehensive plans, including policies and growth targets, were updated since the FEIS for consistency with VISION 2040.	Population, Employment, Housing, Land Use, Transportation, Ecosystems, and other resources
Clean Air Act	Federal	NAAQS (40 Code of Federal Regulations [CFR] part 50) were updated and are described in Section 2.6 and Appendix B.	Air Quality

Table 2.17-1. Regulation and Policy Changes Applicable to SEIS Resources (continued)

Regulation/ Policy	Type	Description and/or Updates since VISION 2040 FEIS	Applicable Resources in VISION 2050 SEIS
National Pollutant Discharge Elimination System, Ecology, SWMMWW, and local stormwater regulations	State and local	Periodic issuance of the National Pollutant Discharge Elimination System permit and related updates to the state stormwater manual and local stormwater regulations. Additional detail provided in Section 2.8 above.	Water, Public Utilities
Clean Car Standards	State and federal	In 2018, National Highway Traffic Safety Administration and EPA proposed revised standards for light duty vehicles to freeze or reduce clean car standards (Center for Climate and Energy Solutions 2018). New standards have not been finalized.	Air Quality
Federal and state noise regulations and guidance for transportation sources	State and federal	Federal Transit Administration transit noise criteria were updated in 2006 (Federal Transit Administration Transit Noise and Vibration Impact Assessment). The VISION 2040 FEIS references criteria from 1995. FHWA noise abatement criteria (23 CFR Part 772) were last updated July 2010. Applicable Federal Aviation Administration and State Noise Criteria have not been updated from the VISION 2040 FEIS.	Noise, Transportation

Table 2.17-2. Regulations and Policies That Have Largely Remained the Same Since the VISION 2040 FEIS

Regulation/Policy	Type	Applicable Resources in VISION 2050 SEIS
Washington Clean Air Act (RCW 70.94)	State	Air Quality
Endangered Species Act	Federal	Ecosystems, Water
Clean Water Act Sections 303 (d), 401, 402, and 404	Federal	Ecosystems, Water, Public Utilities
Federal, state, and local permits/approval for infrastructure projects Federal regulations include, but are not limited to: National Environmental Policy Act, SEPA, Endangered Species Act, Clean Water Act, Migratory Bird Treaty Act, Fish and Wildlife Coordination Act, Coastal Zone Management Act, River and Harbors Act (Sections 9 and 10), Executive Order 13186, Executive Order 11988 State regulations include, but are not limited to: Hydraulic Project Approval, Aquatic Use Authorization, Governor's Executive Order 89-10 and 90-04	Federal, state, and local	Transportation, Ecosystems, Water, Public Utilities
State and federal regulations on hazardous materials State and federal regulations include, but are not limited to: Occupational Safety and Health Act of 1970, Washington Industrial Safety and Health Act, Model Toxics Control Act, Dangerous Waste Regulations, Comprehensive Environmental Response, Compensation and Liability Act	State and federal	Environmental Health, Air Quality
Federal, state, and local laws/ordinances related to historic and cultural resources State and federal regulations include, but are not limited to: Archaeology and Historic Preservation Washington State Legislative Declaration, National Environmental Policy Act, SEPA, Shoreline Management Act, Section 106 of the National Historic Preservation Act, Section 4(f) regulations of the U.S. Department of Transportation, Archaeological Resources Protection Act of 1979	Federal, state, and local	Historic, Cultural, and Archaeological Resources
State and federal regulations related to erosion, landslide, seismic, mine, and volcanic hazards Regulations include: GMA Critical Areas Regulations and guidelines, Federal Emergency Management Agency flood programs, International Building Code seismic safety standards	State and federal	Earth


NE BALLINGER WAY
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3. Alternatives Evaluated

This environmental analysis includes three distinct alternative patterns of future growth that were developed after a public comment and scoping process, extensive review by PSRC's Growth Management Policy Board, and input from regional staff and other stakeholders. These three alternatives allow the environmental analysis to consider the effects of extending the current growth strategy (VISION 2040) to 2050 and the potential effects of adjustments to that strategy.

At the heart of VISION 2040 is a shared vision of how and where the region should grow. The Regional Growth Strategy provides a description of a desired overall physical development pattern that the central Puget Sound region will evolve into over time. The strategy for accommodating growth is organized around the state GMA concepts of urban, rural, and natural resource areas. The strategy asserts that the region will maintain a variety of places, such as active centers and central cities, small towns, and rural areas, into the future. Other than in natural resource lands and major military installations, the Regional Growth Strategy assumes that all types of communities will grow and accept forecasted growth, though at different rates by geography and county.

Under GMA, counties, in consultation with cities, are responsible for adopting 20-year growth targets. These population and employment growth targets are a key input to local comprehensive plans, ensuring that each county collectively is accommodating population growth and that jurisdictions have shared expectations for growth. Jurisdictions use growth targets to inform decisions about land use, transportation, and capital facilities in their 20-year comprehensive plans, and to ensure interjurisdictional coordination, a requirement of the GMA. The Regional Growth Strategy provides regional guidance for the countywide growth target process. The Regional Growth Strategy defines a role for different types of places in accommodating the region's residential and employment growth and allocates a policy-informed share of regional and county growth to each geography.

The adopted Regional Growth Strategy aids coordination between local governments and service providers. Its distribution of growth is used as the basis for analyzing regional transportation plan updates and transportation-related environmental impacts, such as air pollution. Planning for growth helps the region plan for transportation and infrastructure needed to support that growth.

PSRC's Regional Macroeconomic Forecast estimates that the region will need to plan for another 1.8 million people and 1.2 million jobs between now and 2050. The forecast is based on an econometric model of population, households, and employment. The forecast used in this analysis is an estimate of future growth based on local and national factors and is intended to establish an informed basis for regional and subregional growth assumptions. The forecasted growth for 2050 is similar to the levels of growth studied in 2008 for the VISION 2040 FEIS, which anticipated an additional 1.7 million people and 1.2 million jobs from the study period of 2000 to 2040.

PSRC previously analyzed the accuracy of population and employment forecasts over time and demonstrated that actual levels of growth have largely aligned with both the population and employment forecast, with slightly more variability for long-range population projections (PSRC 2018l).

OFM releases population projections every five years to inform GMA planning. OFM uses a different forecasting approach than PSRC, modeling births, deaths, and migrations through a cohort component model. The Medium Series is considered the "most likely" scenario under WAC. In PSRC's 2018 Regional Macroeconomic Forecast for 2040, the forecast is 3.5 percent higher than OFM's Medium Series projections and both forecasts reflect an upward adjustment from the previous series.

In 2017, OFM released supplemental information to extend the GMA projections from 2040 to 2050:

OFM Forecast Series	Projected Regional Population Growth 2017–2050
Low Series	700,000
Medium Series	1,448,000
High Series	2,542,000

These projections are meant to provide data for counties that need to establish their population growth targets beyond 2040 but do not represent the official OFM GMA population projections mandated by state statutes. Compared to the Regional Macroeconomic Forecast, OFM has projected slightly lower amounts of overall regional growth in its Medium Series for 2050, though the Medium Series is the closest to the regional forecast within their published range.

The VISION 2050 scoping notice and adopted scoping report assume a baseline growth forecast of 1.8 million people and 1.2 million additional jobs by 2050. A variety of factors could affect the actual amounts of population and employment in the region by 2050. Those could include local and national economic conditions, climate change or other environmental

factors, and housing affordability, any of which could increase or decrease the overall population and employment in the region by 2050. While the plan assumes a baseline amount of growth, this is an assumption based on the best information available today and does not represent an overall goal or policy statement of optimal levels of population and employment. Historical growth trends indicate that the region will continue to attract new residents and will achieve forecasted levels of growth by approximately 2050, which is the operating assumption of this environmental analysis. Fulfillment of the growth projections could occur somewhat sooner or take somewhat longer and growth is anticipated to continue after 2050.

3.1 How the Alternatives Were Developed

3.1.1 Process for Developing Alternatives

VISION 2040 included a Regional Growth Strategy that used seven separate geographic categories as a means to allocate the anticipated regional population and employment growth from 2000 to 2040. The seven geographic categories were: Metropolitan Cities, Core Cities, Larger Cities, Small Cities, Unincorporated Urban Growth Areas, Rural Areas, and Natural Resource Areas (containing Forest, Agriculture, and Mineral Resources). These categories reflected past population and employment distribution, growth anticipated in plans at that time, and the roles areas were expected to play in the region's future.

The VISION 2040 FEIS provided a robust analysis of a range of growth pattern alternatives formed around those geographic categories, including:

- Preferred Growth alternative, which became the adopted Regional Growth Strategy and represented a hybrid approach to accommodating future growth in a compact regional pattern
- Metropolitan Cities alternative, which focused the largest share of growth into the five Metropolitan Cities
- Larger Cities alternative, which assumed suburban cities in the region would accommodate the bulk of future population and employment growth
- Smaller Cities alternative, which was the most dispersed growth pattern with Small Cities and Unincorporated Urban Growth areas receiving a sizable amount of population and employment growth

VISION 2050 will extend the growth strategy an additional 10 years and consider adjustments that may account for changes to the region, growth patterns, and new policy direction. This Draft SEIS considers two new growth pattern alternatives, in addition to a no action alternative, that provide distinct options for analysis and consideration, while falling within the range of growth alternatives considered in the VISION 2040 FEIS.

The no action and two new growth pattern alternatives were developed by the Growth Management Policy Board after consideration of public comments on scoping, the Taking

Stock 2016 report (PSRC 2017b), input from PSRC staff and the Regional Staff Committee, and multiple board meetings held from late 2017 to November 2018.

Assumptions Guiding the Environmental Review

- Forecasts. VISION 2050 seeks to accommodate continued growth through the year 2050. The alternatives are based on the same regional forecasts for population and employment growth through the year 2050. These forecasts, based on widely accepted practices, anticipate that the region will grow to 5.8 million people and 3.4 million jobs by the year 2050.
- Build on VISION 2040. In order to comply with the objectives and mandates of the state GMA and to fulfill the purpose and need for action, VISION 2050 builds on the base of the policies and actions and Regional Growth Strategy adopted in VISION 2040. The focus of the update is to clarify aspects of the vision and make improvements that reinforce a common regional vision of greater environmental sustainability, access to prosperity, and a high quality of life. VISION 2050 is anticipated to continue to reflect GMA's objectives of containing the expansion of urban areas; conserving farmlands, forests, and open spaces; supporting more compact, people-oriented living and working places; and focusing a significant amount of new employment and housing into cities with vibrant urban centers.
- Regional Transportation Plan. The growth alternatives are being analyzed to determine (among other things) which is best served by the Regional Transportation Plan (adopted 2018). In a separate planning process that will follow the adoption of VISION 2050, the Regional Transportation Plan will be extended to 2050 and amended to address the preferred growth alternative selected in VISION 2050.

Selection of Growth Alternatives for Supplemental EIS Review

PSRC's Growth Management Policy Board acted on November 1, 2018, to identify three growth pattern alternatives to be included in the VISION 2050 Draft SEIS. The Growth Management Policy Board, Regional Staff Committee, Regional Staff Committee Co-Chairs Working Group, and Land Use Technical Advisory Committee contributed to development of the alternatives over the course of several months. The board and committees developed and reviewed preliminary growth scenarios, which were refined and narrowed down to alternatives for study. The overall timeline for alternatives development is shown in Table 3.1-1.

Table 3.1-1. Timeline for Alternatives Development

Month	Development Stage
December 2017	Regional Staff Committee discusses the Regional Growth Strategy and growth trends
January 2018	Growth Management Policy Board authorizes release of SEPA scoping notice Executive Board discusses draft 2050 Macroeconomic Forecast
February 2018	SEPA scoping period
March 2018	Growth Management Policy Board discusses regional growth trends and Regional Growth Strategy update
April 2018	Growth Management Policy Board reviews scoping comments
May 2018	Land Use Technical Advisory Committee reviews use of the UrbanSim model and the no action methodology Regional Staff Committee discusses regional geographies and objectives
June 2018	Growth Management Policy Board adopts scoping report, holds extended session to discuss the Regional Growth Strategy Regional Staff Committee discusses regional geographies and growth scenarios Land Use Technical Advisory Committee discusses UrbanSim model, reviews no action methodology
July 2018	Land Use Technical Advisory Committee discusses county shares, employment inputs for modeling Regional Staff Committee discusses regional geographies, growth scenarios, and screening factors to evaluate growth scenarios
September 2018	Growth Management Policy Board, Land Use Technical Advisory Committee, Regional Staff Committee, and the Regional Transit-Oriented Development Advisory Committee discuss draft growth scenarios and screening factor results, county shares, and goals for transit-oriented development
October 2018	Growth Management Policy Board and Regional Staff Committee review refined growth scenarios and model results
November 2018	Growth Management Policy Board selects alternatives for study

Source: PSRC

Comments during the VISION 2050 scoping process encouraged considering a range of factors in distributing planned 2050 growth throughout the region, including:

- Recent historical growth and development trends, including trends that have supported the Regional Growth Strategy and trends that have diverged from the Regional Growth Strategy
- Local land use and infrastructure capacity to accommodate growth
- Levels of transportation accessibility, with a focus on current and future transit connections

- Transit-oriented development, with a focus on opportunities to leverage regional investments in high-capacity transit
- Designated centers, particularly regional growth centers and manufacturing/industrial centers, but also other types of centers
- Jobs-housing balance within counties, other sub-regions, and localities, with a focus on impacts on transportation, economic development, and housing affordability
- Market conditions that indicate current and potential growth potential and challenges

VISION 2040's objectives for the Regional Growth Strategy are anticipated to continue to guide VISION 2050, including focusing the vast majority of growth in the urban growth area, in cities, and within centers, while seeking to maintain rural and resource lands and protect the environment.

3.1.2 How Regional Growth was Allocated

Regional Geographies

The Regional Growth Strategy implements the goals and policies of VISION 2040 by distributing planned growth using "regional geographies" that classify cities and unincorporated areas by roles and types. Grouping cities and other place types provides flexibility to counties and cities to identify appropriate growth targets for individual cities in each category, while acknowledging differing roles for accommodating growth. Within counties, the geographies are a starting point for countywide processes to allocate GMA growth targets in a more detailed way to individual jurisdictions.

PSRC reviewed issues raised during scoping and identified the following modifications to the regional geography classification system currently provided in VISION 2040:

- Differentiate current Small and Larger cities by existing and planned high-capacity transit (includes light rail, bus rapid transit, commuter rail, ferry, and streetcar)
- Identify urban unincorporated areas with high-quality transit service and planned incorporation or annexation
- Recognize Major Military Installations

Based on scoping comments, PSRC identified changes to the regional geographies and developed an updated classification of cities and urban unincorporated areas. Changes are intended to clarify different types of places, particularly for urban unincorporated areas and areas identified for transit-oriented development. Table 3.1-2 lists the classification of the region's cities and other areas according to these geographic categories. Figure 3.1-1 shows the distribution of the regional geographies.

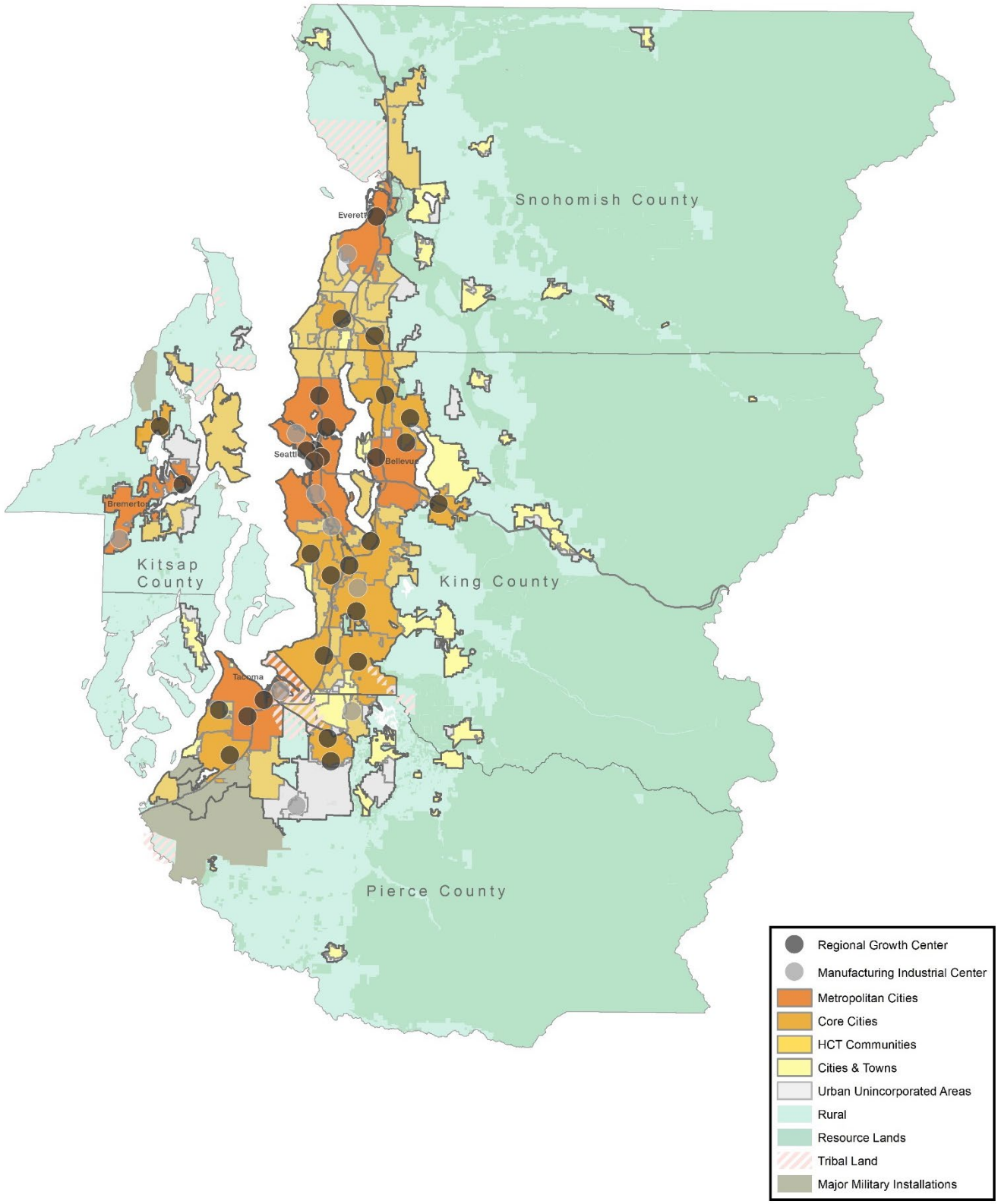
Table 3.1-2. Description of Regional Geographies

Regional Geographies				
Metropolitan Cities | Central cities in the county that serves as civic, cultural, economic, and transportation hubs and have at least one regional growth center				
Bellevue	Bremerton	Everett	Seattle	Tacoma
Core Cities | Major cities and urban areas with transit and designated regional growth centers				
Auburn	Issaquah	Lynnwood	SeaTac	
Bothell	Kent	Puyallup	Silverdale	
Burien	Kirkland	Redmond	Tukwila	
Federal Way	Lakewood	Renton	University Place	
HCT Communities | Other cities and unincorporated urban areas (planned for annexation or incorporation) with high-capacity transit. High-capacity transit is defined as existing or planned light rail, commuter rail, ferry, streetcar, and/or bus rapid transit.				
Arlington	Everett MUGA	Lynnwood MUGA	Mukilteo MUGA	Sumner
Bainbridge Island	Federal Way PAA	Marysville	Newcastle	Tacoma PAA
Bothell MUGA	Fife	Mercer Island	North Highline	Woodinville
Des Moines	Fircrest	Mill Creek	Renton PAA	
DuPont	Kenmore	Mill Creek MUGA	Port Orchard	
Edmonds	Lake Forest Park	Mountlake Terrace	Poulsbo	
Edmonds MUGA	Larch Way Overlap	Mukilteo	Shoreline	
Cities & Towns | Cities and towns with local transit access or without fixed-route transit				
Algona	Covington	Hunts Point	Orting	Stanwood
Beaux Arts	Darrington	Index	Pacific	Steilacoom
Black Diamond	Duvall	Lake Stevens	Roy	Sultan
Bonney Lake	Eatonville	Maple Valley	Ruston	Wilkeson
Brier	Edgewood	Medina	Sammamish	Woodway
Buckley	Enumclaw	Milton	Skykomish	Yarrow Point
Carbonado	Gig Harbor	Monroe	Snohomish	
Carnation	Gold Bar	Normandy Park	Snoqualmie	
Clyde Hill	Granite Falls	North Bend	South Prairie	
Urban Unincorporated Areas | Urban areas without high-capacity transit and/or not affiliated for annexation or planned for incorporation				
All Remaining Unincorporated Areas				
Rural | Designated Rural Lands				
All Designated Rural Areas				
Resource Lands | Designated agricultural, mineral, and forest resource lands				
All Designated Resource Lands				
Major Military Installations | Installations with more than 5,000 enlisted and service personnel				
Joint Base Lewis McChord Naval Base Kitsap – Bangor Naval Base Kitsap – Bremerton Naval Station Everett				

Source: PSRC

MUGA = Municipal Urban Growth Area; PAA = Potential Annexation Area

Figure 3.1-1. Regional Geographies



Source: PSRC

Similar to Natural Resource lands, Major Military Installations are assumed to maintain existing levels of population and employment across all alternatives. PSRC does not forecast change on military bases, given their growth forecasts are dependent on national and international circumstances. Military installations in central Puget Sound vary greatly in size, activity, role, and urban form. Some are located within cities, while others are located within urban unincorporated areas or in the rural area. Per the updated Regional Centers Framework (PSRC 2018i), the VISION 2050 geographies identify the largest facilities with more than 5,000 enlisted and service personnel. Military installations are not subject to planning requirements under GMA or VISION 2040, although Joint Land Use studies have been prepared for some installations in cooperation with surrounding jurisdictions.

As sovereign nations, Tribes are not required to plan under GMA. Generally, for planning requirements, Tribes are governed by the prevailing federal standard set by the U.S. Department of the Interior and U.S. Department of Transportation. However, GMA recognizes the importance of coordination and cooperation with Tribes regarding environmental planning, land use, economic development, transportation, the provision of services, and other areas with mutual concerns (such as historic preservation). GMA planning does not preclude or change a Tribe's participation abilities or rights. Counties take differing approaches to account for growth on tribal lands; therefore, tribal lands are not allocated specific levels of growth under the Regional Growth Strategy. The alternatives do not specifically identify tribal lands as a regional geography, though like military lands, tribal lands are identified and mapped and will likely see growth and change over time.

County Shares

Once a framework for regional geographies was established, the next step for developing the action alternatives was to determine the shares of growth for each county. PSRC reviewed the Medium Series of the supplemental 2050 GMA population projections developed by OFM. Using the Medium Series, the percentage share to each county was applied to PSRC's Macroeconomic Forecast to determine the relative shares of growth to each county (Table 3.1-3). Compared to the updated shares used in the action alternatives, Stay the Course and previous projections from OFM anticipated lower shares of regional growth to King County and relatively higher shares to Kitsap, Pierce, and Snohomish counties. This shift of population growth represents an important difference, with approximately 200,000 more people in King County under the action alternatives than under Stay the Course (Table 3.1-4).

Table 3.1-3. Actual and Forecast Population Growth Shares by County

	2000–2017 Population % Shares (Actual)	2010–2017 Population % Shares (Actual)	2000–2040 Population % Shares (Stay the Course)	2017–2050 Population % Shares (Action Alternatives)
King County	53%	59%	42%	50%
Kitsap County	4%	4%	9%	5%
Pierce County	20%	17%	23%	21%
Snohomish County	23%	20%	26%	24%
Region Total	**100%**	**100%**	**100%**	**100%**

Source: PSRC

Table 3.1-4. Population Growth by County by Alternative, 2017–2050

	Stay the Course	Transit Focused Growth	Reset Urban Growth
King County	661,000	872,000	872,000
Kitsap County	189,000	97,000	97,000
Pierce County	426,000	364,000	364,000
Snohomish County	480,000	424,000	424,000
Region	**1,756,000**	**1,756,000**	**1,756,000**

Source: PSRC

For employment, PSRC used county-level population-to-job ratios derived from present conditions to convert the revised baseline county population assumptions to employment. This approach assumes the current distributional pattern of population and jobs across the region today will carry into the future (Table 3.1-5). PSRC boards and committees provided guidance that the employment shares should be adjusted to encourage additional employment growth in Kitsap, Pierce, and Snohomish counties. As a result, the employment shares for the action alternatives reflect a 5 percent shift of employment from the original PSRC Baseline version (Table 3.1-6) from King County to Kitsap (+1 percent), Pierce (+2 percent), and Snohomish (+2 percent) counties.

Table 3.1-5. Actual and Forecast Employment Growth Shares by County

	2000–2017 Employment % Shares (Actual)	2010–2017 Employment % Shares (Actual)	2000–2040 Employment % Shares (Stay the Course)	2017–2050 Employment % Shares (PSRC Baseline)	2017–2050 Employment % Shares (Action Alternatives)
King County	57%	73%	57%	64%	59%
Kitsap County	4%	2%	5%	4%	5%
Pierce County	17%	11%	17%	15%	17%
Snohomish County	22%	14%	20%	17%	19%
Region Total	**100%**	**100%**	**100%**	**100%**	**100%**

Source: PSRC

Table 3.1-6. Employment Growth by County by Alternative, 2017–2050

	Stay the Course	Transit Focused Growth	Reset Urban Growth
King County	662,000	682,000	682,000
Kitsap County	66,000	57,000	57,000
Pierce County	203,000	195,000	195,000
Snohomish County	228,000	225,000	225,000
Region	**1,158,000**	**1,158,000**	**1,158,000**

Source: PSRC

3.2 Stay the Course (No Action Alternative)

The Stay the Course alternative is a direct extension of the VISION 2040 Regional Growth Strategy and assumes a compact growth pattern, focused in the largest and most transit-connected cities in the region with designated regional growth centers. The alternative serves as the required no action alternative that must be evaluated in accordance with SEPA.

The Stay the Course alternative continues to direct the largest shares of the region's future growth to the region's five major Metropolitan Cities: Seattle, Bellevue, Everett, Bremerton, and Tacoma. Growth is also focused into the region's Core Cities—those other cities with regional growth centers that are regional concentrations of growth and serve as economic and transportation hubs for the region.

In this alternative, considerable redevelopment would occur in the region's Metropolitan and Core Cities, with most new jobs reinforcing these areas as major regional employment centers. Job growth would be accompanied by a significant concentration of new residential growth, often in the form of new high-rise and midrise apartments, condominiums, and townhouses built near job centers and in areas close to high-capacity transit systems.

Under Stay the Course, planned growth would continue be focused inside the urban area and, within the urban area, in cities with regional and subregional centers. Compared to historical trends, this alternative allocates less growth in urban unincorporated and rural areas and more growth in cities. Growth in unincorporated urban growth areas is envisioned as occurring in affiliated annexation areas, and growth in rural areas is minimized as compared to past trends.

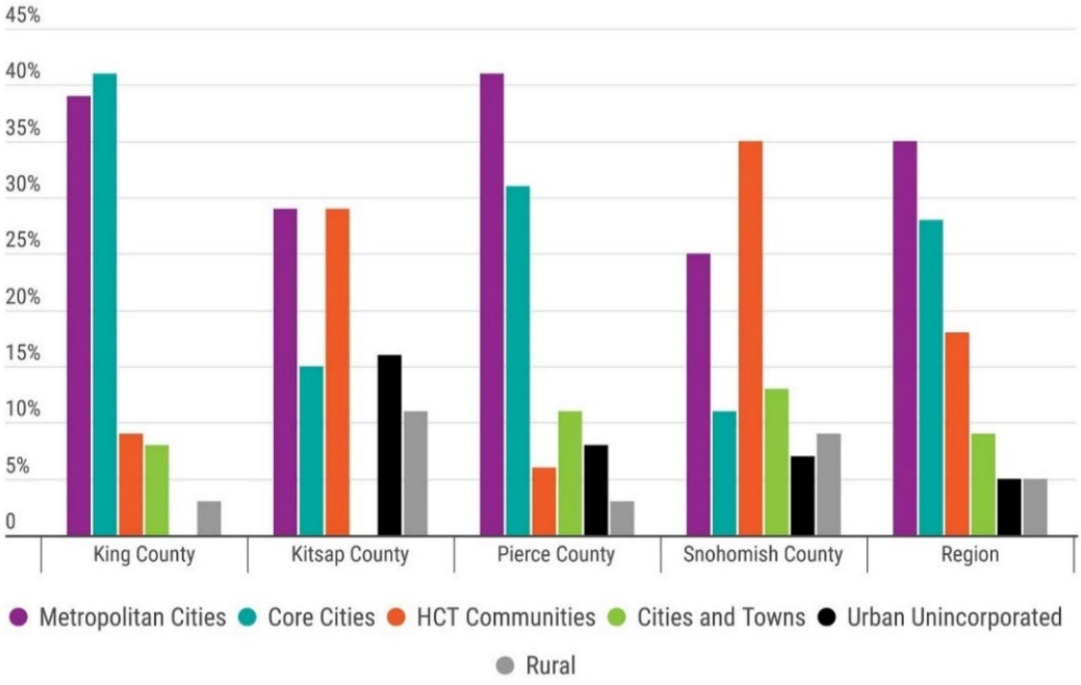
The alternative would continue to encourage a closer jobs-housing balance between the counties relative to 2000. As a direct extension of VISION 2040, Stay the Course would maintain the county growth shares in the current Regional Growth Strategy, including policy direction to increase employment distribution to Kitsap, Pierce, and Snohomish counties and increase population distribution to Kitsap and King counties, compared to the 2000 base year.

Stay the Course population and employment distribution for each regional geography is shown for the years 2017 to 2050 in Figure 3.2-1. This depicts the amount of growth remaining to achieve the shares adopted in VISION 2040. In some cases, actual growth patterns from 2000 to 2017 mean that some regional geographies are ahead of or behind the expected growth shares in VISION 2040. The shares of growth for Stay the Course assume all geographies meet the shares established in VISION 2040 starting from a 2000 base year; therefore, some growth shares may be lower or higher than shown in the adopted VISION 2040 plan to account for growth needed to achieve the plan during the remaining time period. The shares of growth in Stay the Course have also been updated to account for annexation and reclassification of some jurisdictions by PSRC's Executive Board.

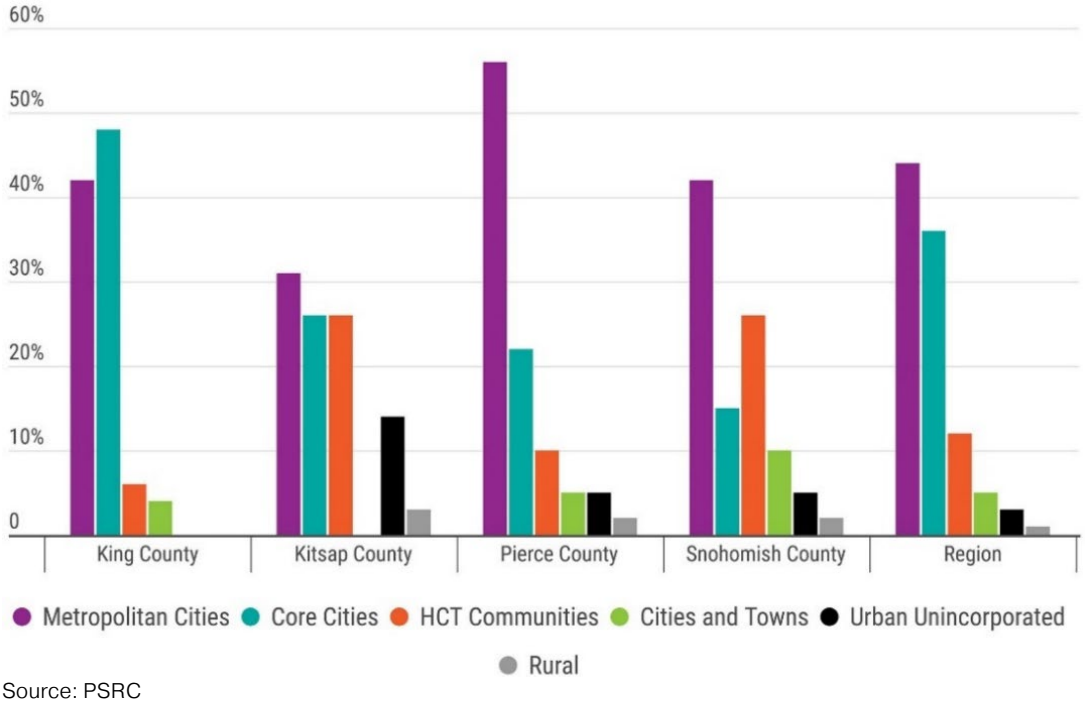
This alternative maintains the current Regional Growth Strategy allocation for shares of growth. For the purpose of this analysis, Stay the Course and subsequent data measures use the revised regional geographies described in Section 3.1.2. PSRC modeled this alternative starting with the existing VISION 2040 regional geographies and then calculated the results based on the revised system of regional geographies. For comparison purposes, distribution of growth under Stay the Course using the current regional geographies adopted in VISION 2040 is also provided in Appendix C.

Figure 3.2-1. 2017–2050 Population and Employment Percentage Share by Regional Geography: Stay the Course

Population



Employment



Source: PSRC

3.3 Transit Focused Growth Alternative

The Transit Focused Growth alternative considers a compact growth pattern based on the VISION 2040 Regional Growth Strategy that assumes accelerated growth near the region's existing and planned transit investments.

The Transit Focused Growth alternative has an explicit goal for 75 percent of the region's population and employment growth to occur within regional growth centers and within a quarter-mile to a half-mile from current and planned investments in high-capacity transit, including light rail, bus rapid transit, commuter rail, ferries, and streetcar. This would result in the largest shares of growth to Metropolitan Cities, Core Cities, and HCT Communities (Figure 3.3-1).

This alternative assumes a greater role for areas served by high-capacity transit outside of Metropolitan and Core Cities. The remaining share of population and employment growth not identified for regional geographies with high-capacity transit would be distributed largely within the urban growth area among areas not served by high-capacity transit.

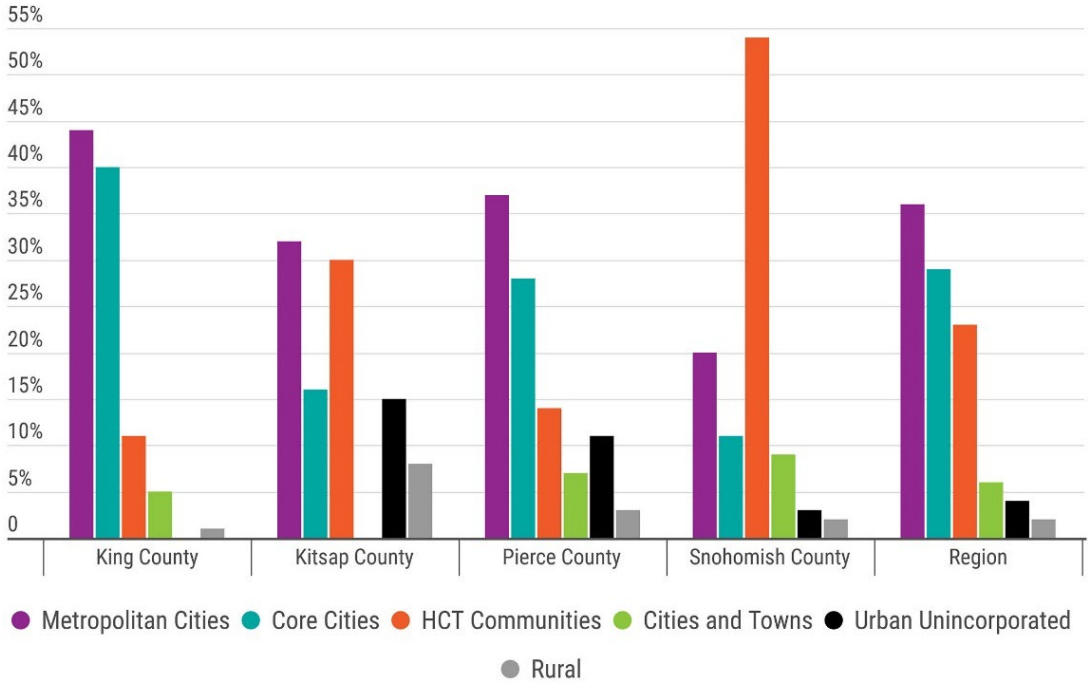
Growth in unincorporated urban growth areas with existing or planned high-capacity transit and planned for annexation or incorporation would be similar to cities with high-capacity transit.

Growth in rural areas would be the lowest of three growth alternatives, comprising just 2 percent of the region's population growth. Growth in unincorporated areas without access to high-capacity transit and unaffiliated unincorporated areas is the lowest in this alternative, with 4 percent of population growth and 2 percent of employment growth.

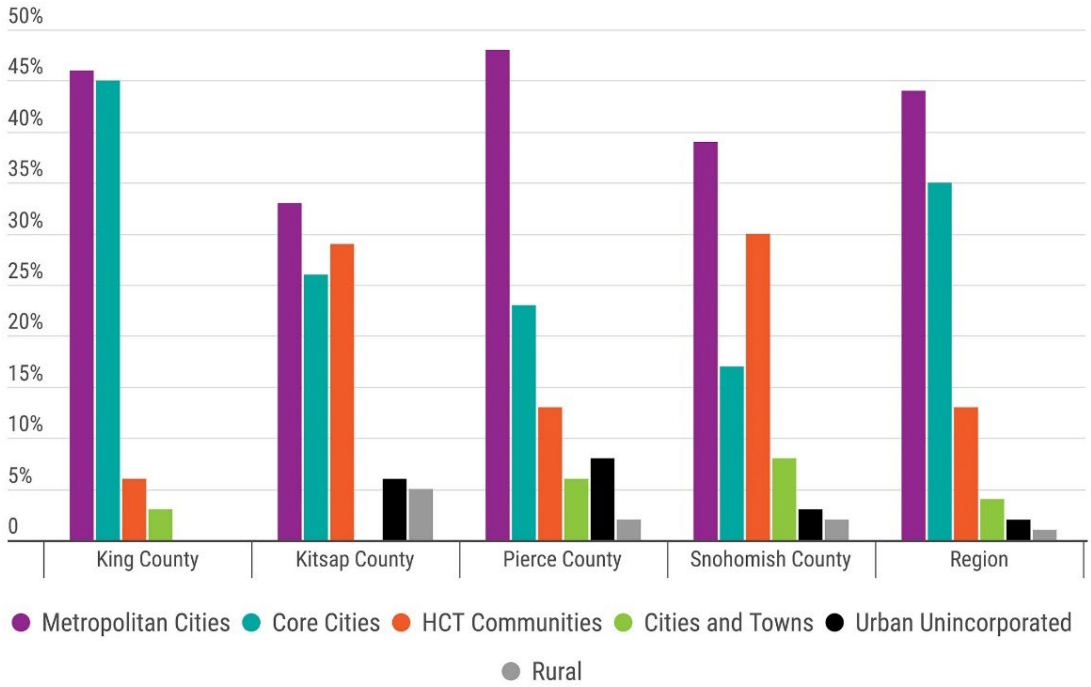
Unlike Stay the Course, this alternative assumes a county distribution of growth based on the 2017 OFM 2050 population projections, which generally assumes higher levels of growth in King County and comparatively lower shares of growth in Kitsap, Pierce, and Snohomish counties. The alternative also encourages more dispersed employment growth by assuming a 5 percent policy-based shift of regional employment growth from King County to Kitsap (+1 percent), Pierce (+2 percent), and Snohomish (+2 percent) counties.

Figure 3.3-1. 2017–2050 Population and Employment Percentage Share by Regional Geography: Transit Focused Growth

Population



Employment



Source: PSRC

3.4 Reset Urban Growth Alternative

The Reset Urban Growth alternative is based on VISION 2040 and shares similarities with actual growth patterns that occurred from 2000 to 2016 and assumes a more distributed growth pattern throughout the urban area.

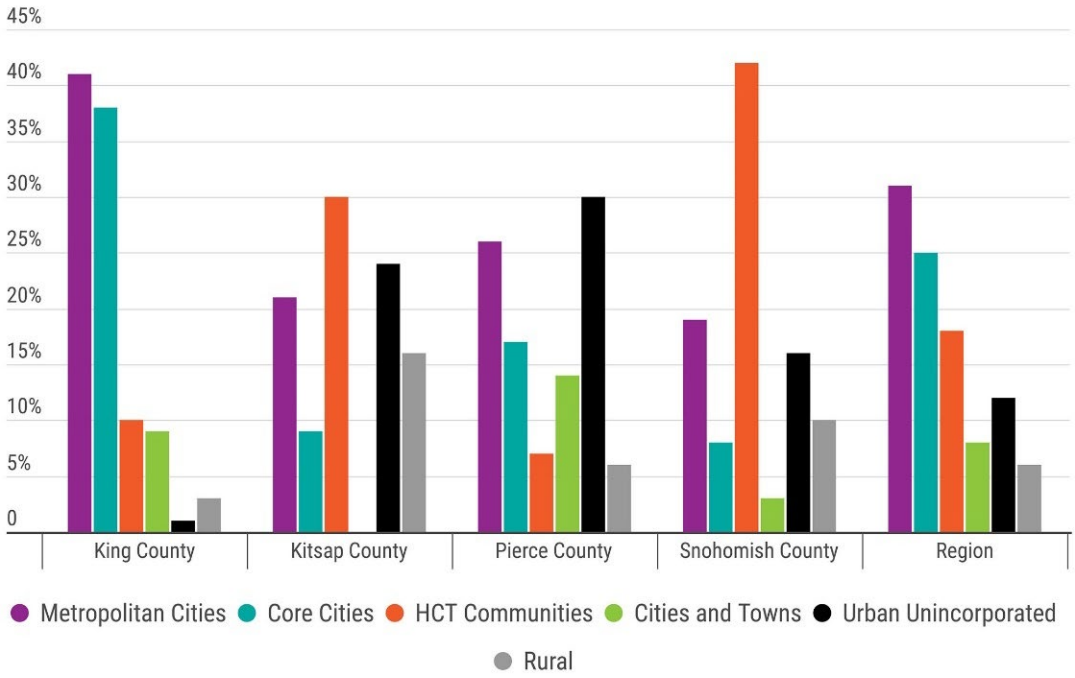
The Reset Urban Growth alternative would continue to allocate the largest shares of growth to Metropolitan Cities and Core Cities and follow a pattern similar to Stay the Course, although the overall growth to Metropolitan Cities, Core Cities, and HCT Communities would be less compared to Stay the Course or Transit Focused Growth (Figure 3.4-1).

This alternative assumes a growth pattern with greater growth in Cities & Towns and Urban Unincorporated areas, up to the point of currently planned land use capacity in those areas. The alternative uses Buildable Lands capacity, plus an additional 10 percent, to establish growth allocations for the Cities & Towns and Urban Unincorporated regional geographies. In using capacity to establish growth shares for Cities & Towns, the growth allocations are slightly lower than the Stay the Course alternative, which used other planning assumptions from VISION 2040. Growth in unincorporated areas without access to high-capacity transit and in unaffiliated unincorporated areas is the highest in this alternative, with 12 percent of population growth and 6 percent of employment growth. Growth in rural areas would be slightly higher than Stay the Course, at 6 percent of the region's population growth.

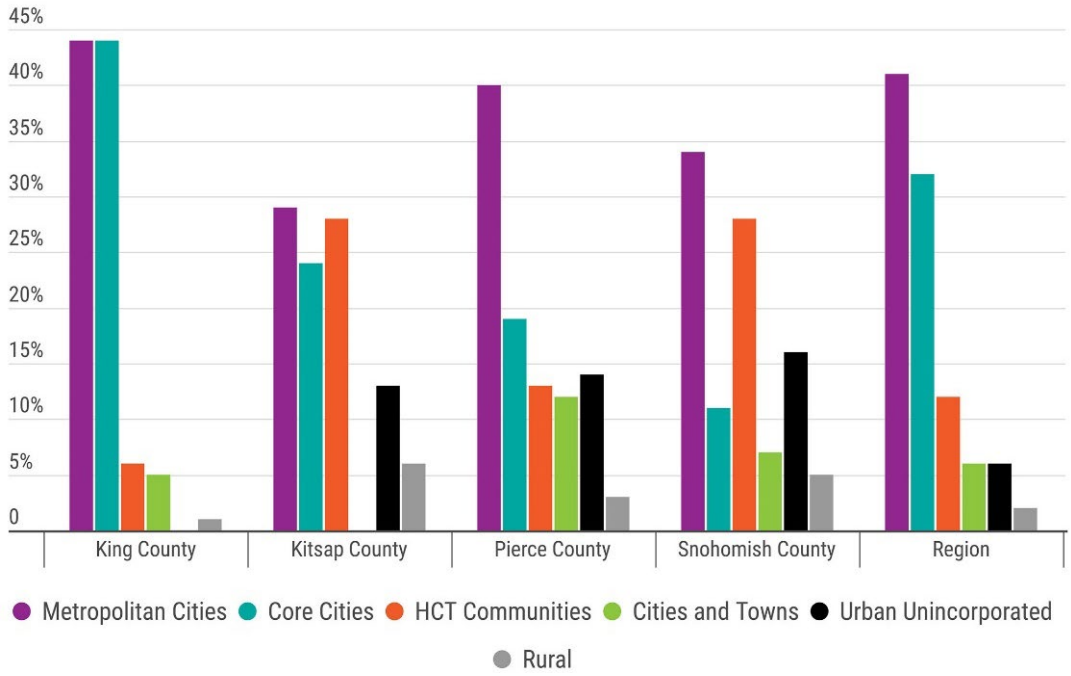
Unlike Stay the Course, this alternative assumes a county distribution of growth based on the 2017 OFM 2050 population projections, which generally assumes higher levels of growth in King County and comparatively lower shares of growth in Kitsap, Pierce, and Snohomish counties. The alternative also encourages more dispersed employment growth by assuming a policy-based 5 percent shift of regional employment from King County to Kitsap (+1 percent), Pierce (+2 percent), and Snohomish (+2 percent) counties.

Figure 3.4-1. 2017–2050 Population and Employment Percentage Share by Regional Geography: Reset Urban Growth

Population



Employment



Source: PSRC

3.5 Alternatives Comparison

A high-level summary comparing the alternatives is presented in Table 3.5-1. It describes the Stay the Course (no action) alternative, and then compares the Transit Focused Growth and Reset Urban Growth alternatives to Stay the Course. A comparison of population and employment growth by alternative for each regional geography is shown in Figure 3.5-1.

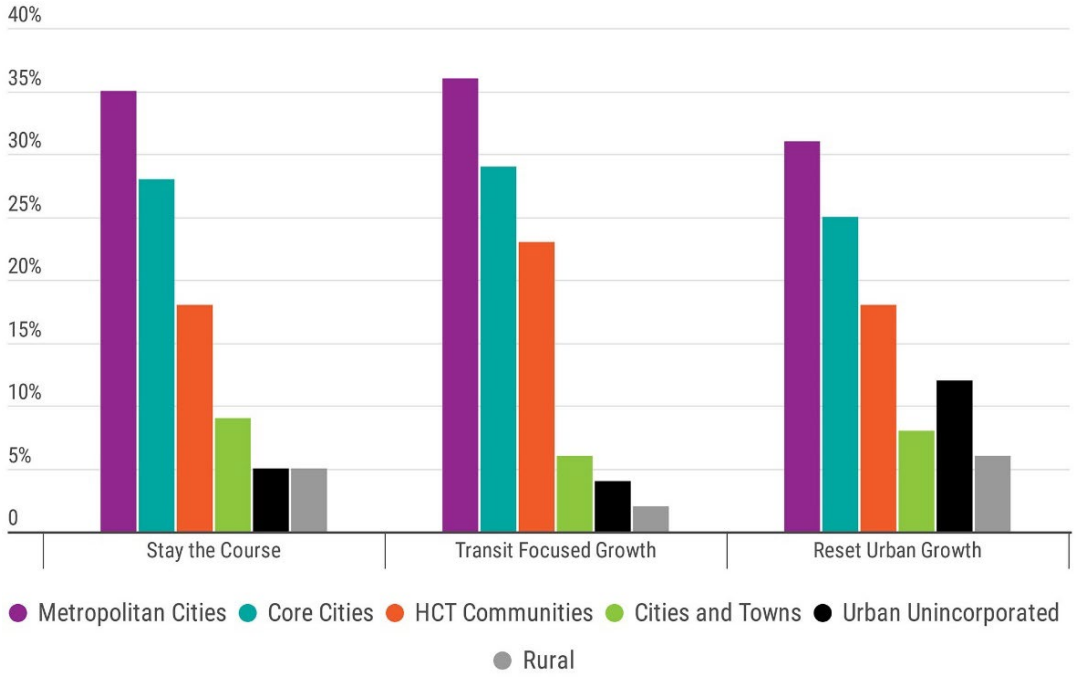
Each of the alternatives has a distinct distribution of population and employment growth throughout the region as described in Sections 3.2 through 3.4 above. Population growth for each alternative is depicted in Figures 3.5-2 through 3.5-4. Maps showing employment growth are in Appendix B.

Table 3.5-1. Summary Comparison of Alternatives to Stay the Course

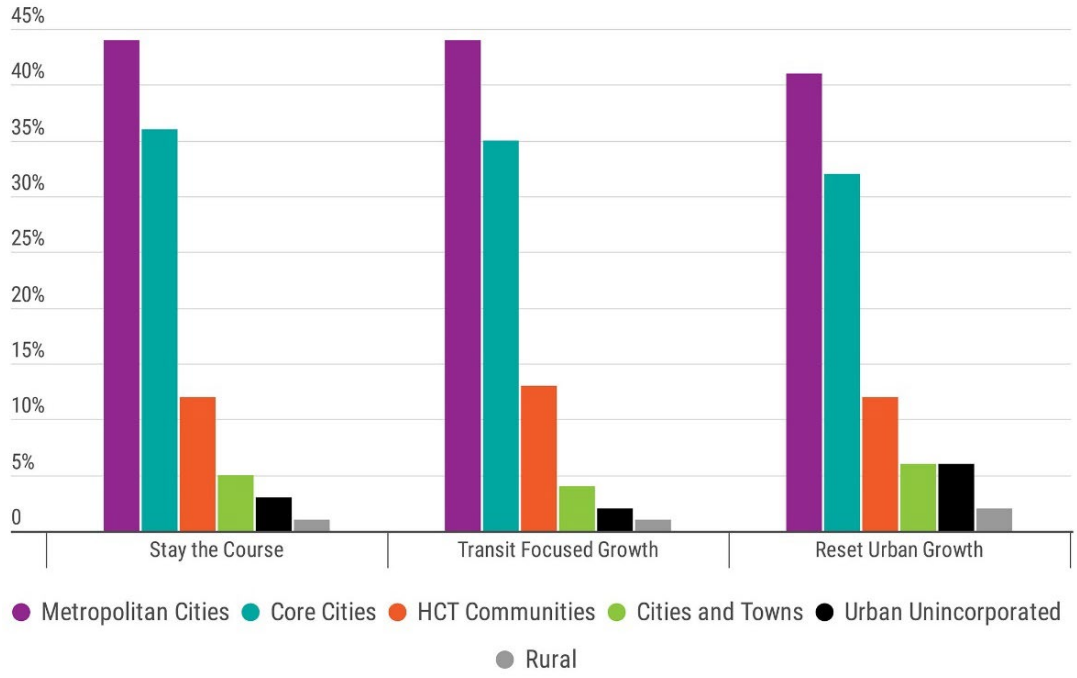
Topic	Stay the Course	Transit Focused Growth	Reset Urban Growth
What would the growth pattern look like?	Compact growth focused in Metropolitan and Core cities with regional growth centers. Extends current growth plan.	More compact growth focused in high-capacity transit areas in Metropolitan, Core and HCT Communities. Less growth in outlying areas.	Growth is more distributed throughout the urban growth area, while still assuming a large share of growth to Metropolitan and Core cities. More growth in outlying areas.
Where would population growth go?	**Metropolitan Cities:** 35% **Core Cities:** 28% **HCT Communities:** 18% **Cities & Towns:** 9% **Urban Unincorporated:** 5% **Rural:** 5%	**Metropolitan Cities:** 36% **Core Cities:** 29% **HCT Communities:** 23% **Cities & Towns:** 6% **Urban Unincorporated:** 4% **Rural:** 2%	**Metropolitan Cities:** 31% **Core Cities:** 25% **HCT Communities:** 18% **Cities & Towns:** 8% **Urban Unincorporated:** 12% **Rural:** 6%
Where would employment growth go?	**Metropolitan Cities:** 44% **Core Cities:** 36% **HCT Communities:** 12% **Cities & Towns:** 5% **Urban Unincorporated:** 3% **Rural:** 1%	**Metropolitan Cities:** 44% **Core Cities:** 35% **HCT Communities:** 13% **Cities & Towns:** 4% **Urban Unincorporated:** 2% **Rural:** 1%	**Metropolitan Cities:** 41% **Core Cities:** 32% **HCT Communities:** 12% **Cities & Towns:** 6% **Urban Unincorporated:** 6% **Rural:** 2%

Figure 3.5-1. Comparison of Growth Allocations by Alternative, 2017–2050

Population Growth

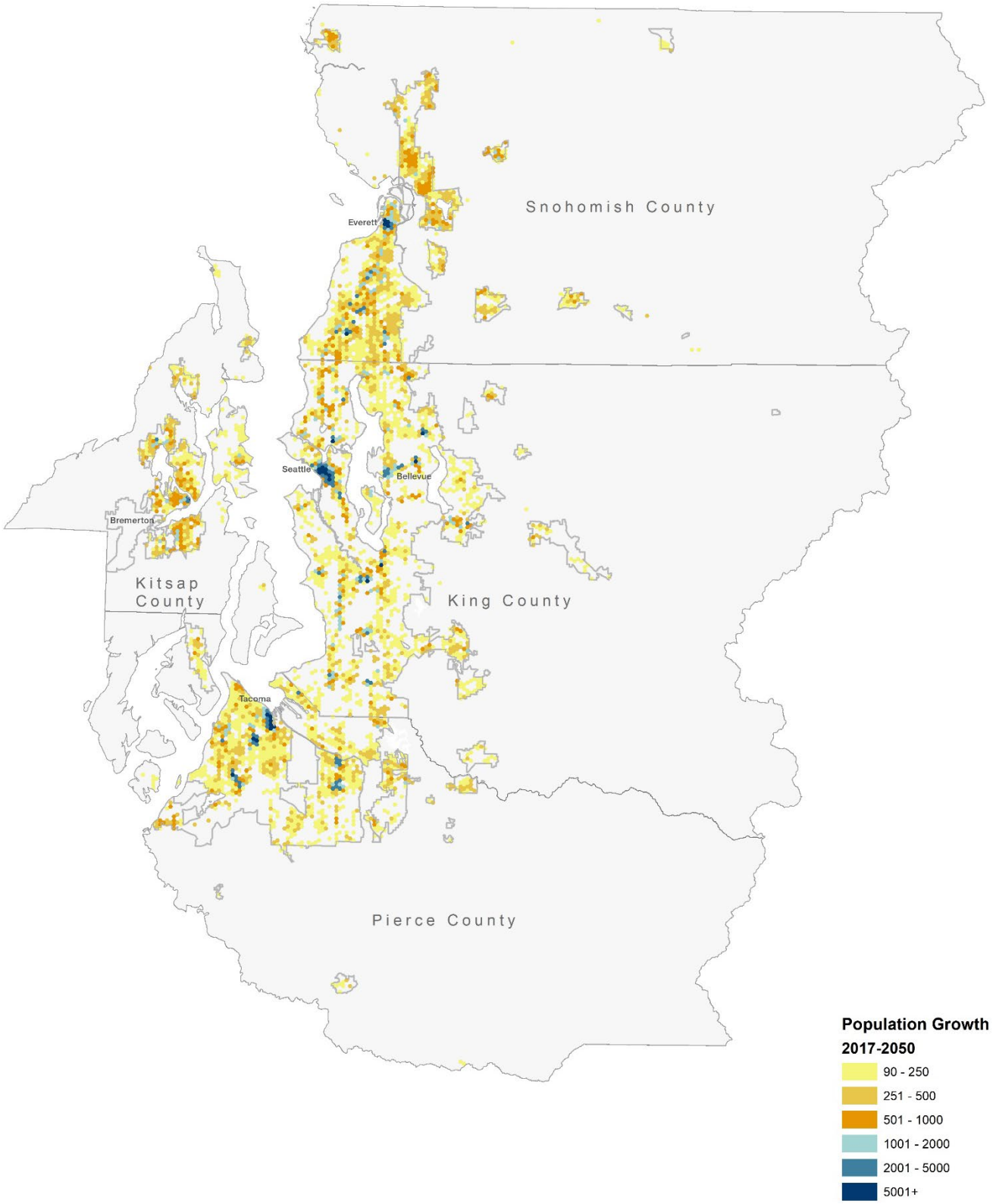


Employment Growth



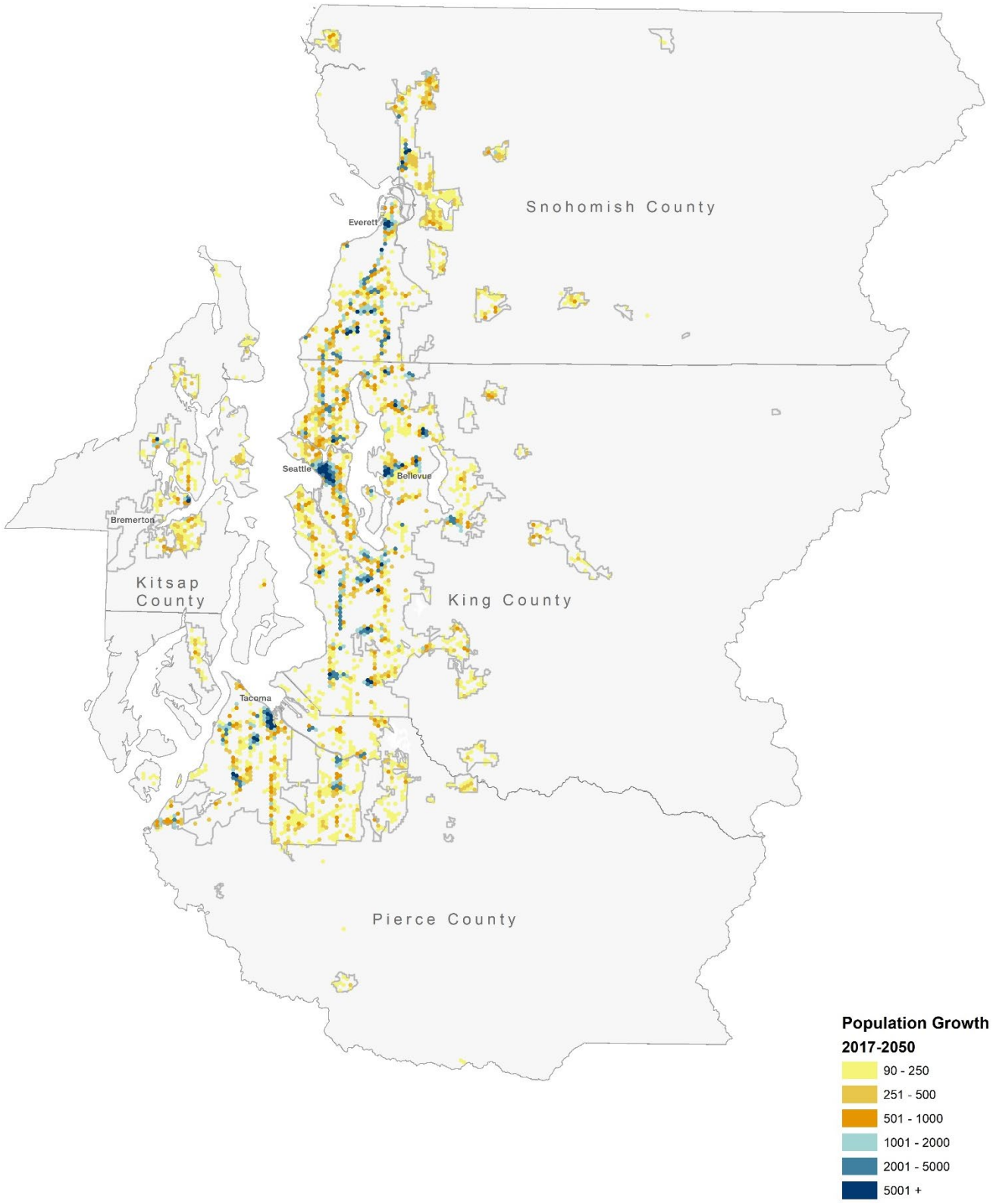
Source: PSRC

Figure 3.5-2. Stay the Course: Population Distribution, 2017–2050



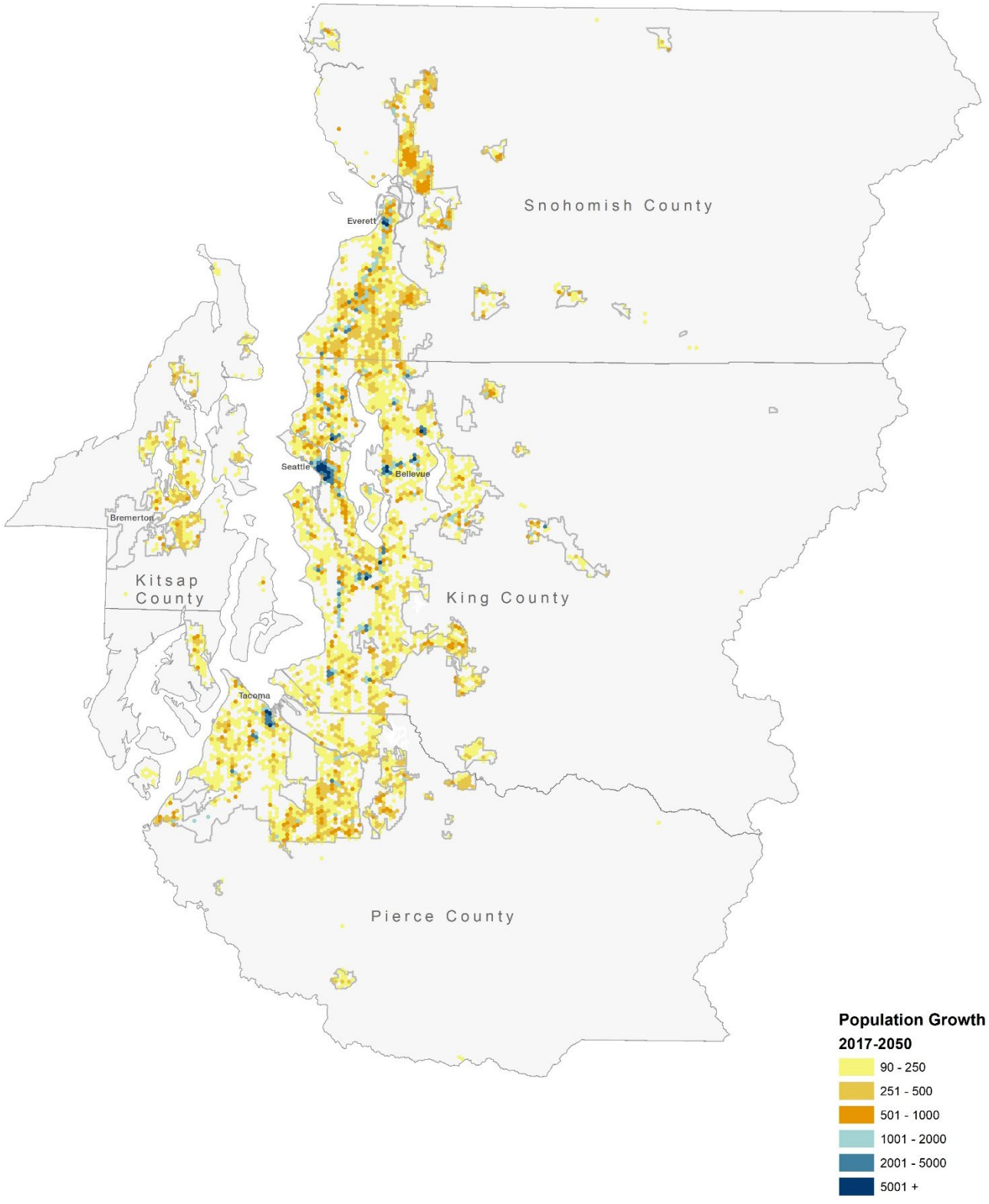
Source: PSRC

Figure 3.5-3. Transit Focused Growth: Population Distribution, 2017–2050



Source: PSRC

Figure 3.5-4. Reset Urban Growth: Population Distribution, 2017–2050



Source: PSRC

4. Environmental Effects and Mitigation

This chapter describes how the central Puget Sound region's built and natural resources could be affected by each of the regional growth alternatives. For each resource, the analysis describes:

- Impacts common to all alternatives
- Impacts for each of the alternatives—Stay the Course (no action), Transit Focused Growth, and Reset Urban Growth
- Cumulative effects of the alternatives with other changes in the region
- Potential measures to mitigate impacts
- Social equity considerations (as applicable)
- Significant unavoidable adverse impacts

Comprehensive data supporting the impact analysis can be found in Appendix B.

4.1 Population, Employment, and Housing

This section describes regional impacts of the population and employment growth likely to occur under each of the alternatives and updates in VISION 2040 FEIS Section 5.1.2.

All alternatives assume the same amount of regional growth in population and employment from 2017 to 2050—1.8 million additional people and 1.2 million additional jobs. The difference between alternatives is how the growth is allocated among the regional geographies—Metropolitan Cities, Core Cities, HCT Communities, Cities & Towns, Urban Unincorporated,

and Rural areas—and among the region's four counties (described in detail in Sections 3.2 through 3.4). These differences impact jobs-housing balance and housing densities. Additional related topics that are discussed in other sections, include:

- Growth in proximity to high-capacity transit (Section 4.2)
- Jobs accessible by transit, biking, and walking (Section 4.3)
- Growth in areas at risk of displacement (Section 5.5)

What are cumulative effects?

Cumulative effects are project-related environmental effects in combination with the effects of other past, present, and reasonably foreseeable projects in the vicinity. In other words, they are the combined individual effects of multiple projects over time. SEPA requires the evaluation of cumulative effects as part of the EIS analysis.

What are mitigation measures?

Mitigation measures are procedures or actions taken to avoid, minimize, and mitigate project effects. Mitigation in context of this Draft SEIS are potential measures that could be used to inform policies that will be developed to implement the Regional Growth Strategy. The VISION 2040 FEIS proposed mitigation measures, nearly all of which are still applicable. This Draft SEIS includes those mitigation measures and proposes additional supplemental measures based on new technologies, programs, and policies since publication of the FEIS.

What are social equity considerations?

Social equity considerations are provided for several elements where impacts can be differentiated between the entire regional population and social equity communities. Two "equity geographies" are considered:

1. Communities of color – Census tracts where over 50 percent of the residents are people of color.
2. Low-income communities – Census tracts where over 50 percent of the households earn less than 200 percent of the federal poverty level.

Chapter 5 contains maps showing locations of these census tracts. These identified areas have current concentrations of people with low incomes and people of color, but this analysis recognizes regional distribution of these populations may change by 2050. The measures presented here are one way to consider differential impact of alternatives on areas with a majority of people of color and people with low incomes. Additional details about environmental justice can be found in Chapter 5 and Appendix H.

4.1.1 Analysis of Alternatives

4.1.1.1 Impacts Common to all Alternatives

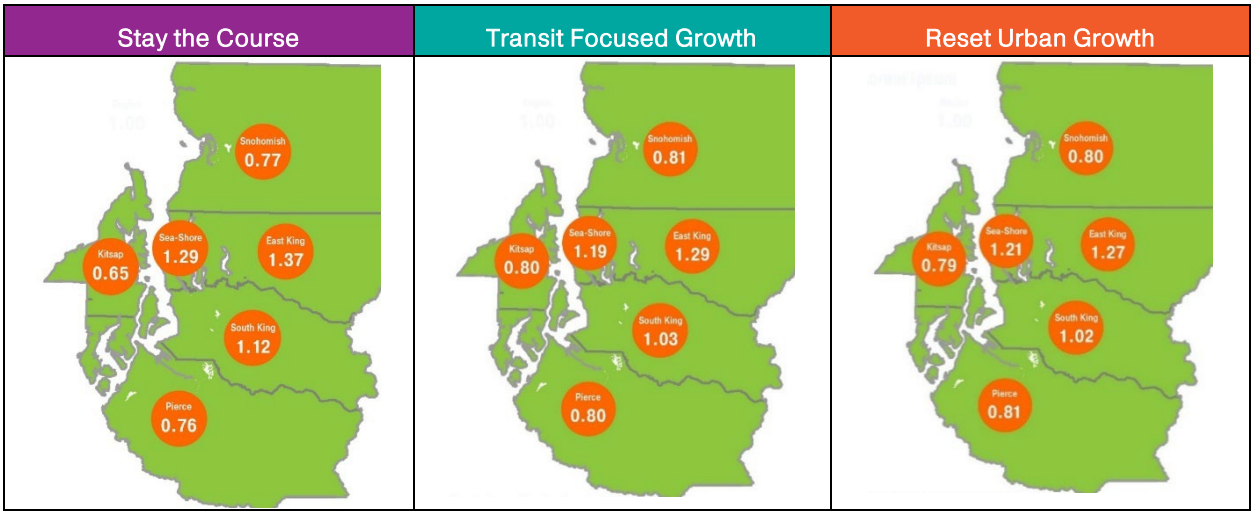
All regional geographies and counties will need to accommodate a share of regional population and employment growth. Growth directed toward built areas will increase density and encourage infill and redevelopment. Growth in less-developed and rural areas would result in lower-density land uses and development pressures on natural resource lands. Under all alternatives, low-income households in affordable urban neighborhoods have the potential to be displaced by higher income households unless adequate affordable housing opportunities or other supports are provided. As described in Section 2.3, moderate-density housing tends to provide more affordable housing choices than either low- or high-density housing options (PSRC 2018h).

4.1.1.2 Comparison of Alternatives

This section describes impacts for Stay the Course, Transit Focused Growth, and Reset Urban Growth and compares impacts among alternatives. Supporting data for jobs-housing balance and housing growth by density is shown in Figures 4.1-1 and 4.1-2. Jobs-housing balance indices for 2017 are shown in Figure 2.3-5.

Jobs-housing balance is a planning concept that advocates for housing and employment to be located close together. A jobs-housing ratio (here, indexed to the regional average) compares the number of jobs in relation to the number of housing units in a given area. A lack of housing, especially housing affordable to moderate- and low-income households close to job centers, will push demand for affordable homes to more distant areas, increasing commute times and development pressure outside of the urban growth area, which could lead to natural resource impacts and higher household transportation costs. A "balance" of jobs and housing is achieved when a community attains roughly the regional average ratio.

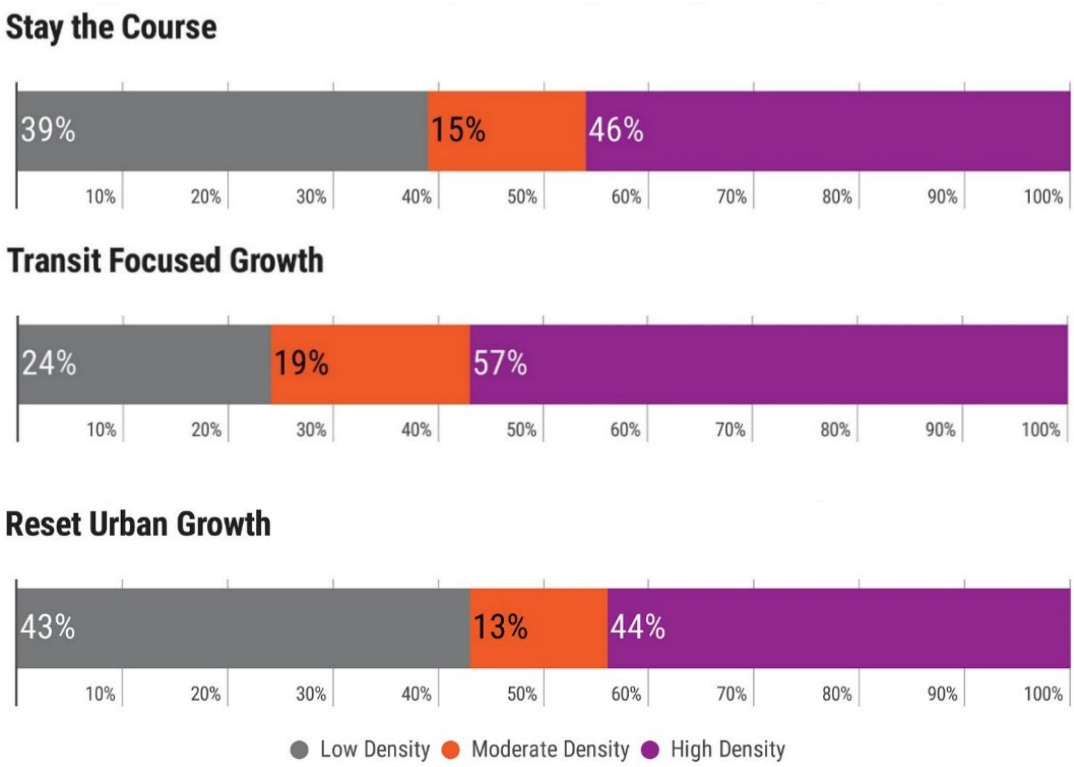
Figure 4.1-1. Jobs-Housing Index, 2050



Source: PSRC

Note: An index of 1.0 indicates a regional average ratio between jobs and housing. Subareas within King County include "Sea-Shore" (Seattle, Shoreline), "East King" (Mercer Island, Newcastle, and all cities north to the county line, east of Lake Washington), and "South King" (Renton, Tukwila, Burien, and all cities south to the county line). Jobs-housing ratios indexed to the regional average.

Figure 4.1-2. Regional Housing Growth in Areas Zoned for Low-, Moderate-, and High-Density Development, 2017–2050



Source: PSRC

Note: Low density is defined as less than 12 units/acre, moderate density as 12-49 units/acre, and high density as 50+ units/acre. These groupings generally translate to single-family development; duplex, triplex, townhome, and low-rise apartment/condo buildings; and high-rise apartment/condo buildings.

Summary of Key Differences

Jobs-Housing Balance – Counties and subareas under Transit Focused Growth and Reset Urban Growth have similar jobs-housing ratio indices and would see a better balance of jobs throughout the region compared to Stay the Course.

Housing Growth by Density – Regionwide, the proportion of moderate-density housing (defined as between 12 and 49 units per acre) would be highest for the Transit Focused Growth alternative (19 percent), followed by Stay the Course (15 percent), and Reset Urban Growth (13 percent). The proportion of high-density housing would be highest for the Transit Focused Growth alternative (57 percent), followed by Stay the Course (46 percent), and Reset Urban Growth (44 percent). The proportion of low-density housing would be highest for the Reset Urban Growth alternative (43 percent), followed by Stay the Course (39 percent), and Transit Focused Growth (24 percent).

4.1.1.3 Impacts of Stay the Course (No Action Alternative)

Stay the Course assumes compact growth in regional growth centers and strong growth in Metropolitan and Core Cities as described in Section 3.2. In addition, some growth is dispersed throughout other suburban communities and outlying areas. These patterns drive allocations of jobs/housing and housing densities.

Jobs-Housing Balance

The jobs-housing indices across the region with the Stay the Course alternative are depicted in Figure 4.1-1. All of the subareas within King County have a jobs-housing ratio indexed above an average of 1, and range from 1.12 to 1.37, indicating that they are employment-rich areas. The largest jobs-housing ratio index is 1.37 in East King County. Kitsap, Pierce, and Snohomish counties have jobs-housing ratio indices ranging from 0.65 to 0.77, which means these areas have more housing than jobs compared to the region overall. The lowest jobs-housing ratio index—0.65—is in Kitsap County. Additional background on jobs-housing balance is provided in Section 2.3.

Housing Growth by Density

Under Stay the Course, proportions of housing growth by density at the regional level are 46 percent high density, 15 percent moderate density, and 39 percent low density (Table 4.1-1). At a county level, there are several large deviations from the regional average:

- King County would produce the largest proportion of high-density housing and the lowest proportion of low- and moderate-density housing. Due to the large population allocated to King County, this trend drives the regional pattern.
- Kitsap County would produce the highest proportion of low-density housing and the lowest proportion of moderate- and high-density housing.

- Pierce and Snohomish counties would have similar distributions as the region, with most new housing growth occurring in low-density housing, followed closely by high-density housing. Moderate-density housing growth has the lowest proportions of growth for both counties.

Table 4.1-1. Housing Growth in Areas Zoned for Low-, Moderate-, and High-Density Development, 2017–2050, by County for Stay the Course

	High-Density	Moderate-Density	Low-Density
King County	60%	12%	28%
Kitsap County	8%	20%	71%
Pierce County	35%	21%	44%
Snohomish County	40%	16%	44%
Region	46%	15%	39%

Source: PSRC

4.1.1.4 Impacts of the Transit Focused Growth Alternative

As described in Section 3.3, this alternative assumes 75 percent of the region's population and employment growth will occur within a quarter- to a half-mile from current and planned high-capacity transit station areas, with the largest shares going to Metropolitan Cities, Core Cities, and HCT Communities. It minimizes growth in rural areas and assumes a greater role for areas served by high-capacity transit outside of Metropolitan and Core Cities. Under this alternative, a larger amount of population and employment growth would occur in King County. These patterns drive allocations of jobs-housing and housing densities.

Jobs-Housing Balance

The jobs-housing indices across the region are depicted in Figure 4.1-1. All of the subareas within King County would have a jobs-housing ratio indexed at or above 1.0, with the South King subarea at approximately 1.0 and the other King County subareas ranging from 1.17 to 1.29. The largest jobs-housing ratio index is 1.29 in the East King County subarea. Kitsap, Pierce, and Snohomish counties have jobs-housing ratio indices below 1.0, at either 0.80 or 0.81.

Housing Growth by Density

Proportions of residential housing growth from 2017 to 2050 under the Transit Focused Growth alternative are expected to consist of 57 percent high density, 19 percent moderate density, and 24 percent low density (Table 4.1-2). As shown in Table 4.1-2, at a county level:

- King County would have the largest proportion of high-density housing and the lowest proportion of low- and moderate-density housing compared to the other counties.

- Kitsap County would have the highest proportion of low-density housing and the lowest proportion of high- and moderate-density housing compared to the other counties.
- Pierce and Snohomish counties would both have larger proportions of high-density housing and lower proportions of low- and moderate-density housing.

Table 4.1-2. Housing Growth in Areas Zoned for Low-, Moderate-, and High-Density Development, 2017–2050, by County for Transit Focused Growth

	High-Density	Moderate-Density	Low-Density
King County	68%	15%	17%
Kitsap County	16%	23%	61%
Pierce County	44%	24%	33%
Snohomish County	54%	22%	24%
Region	57%	19%	24%

Source: PSRC

4.1.1.5 Impacts of the Reset Urban Growth Alternative

As described in Section 3.4, the Reset Urban Growth alternative would result in increased growth to outlying areas. Under this alternative, and similar to Transit Focused Growth, a larger amount of population and employment growth would occur in King County. The location of population and employment would be more dispersed throughout the urban growth area. These patterns drive allocations of jobs/housing and housing densities.

Jobs-Housing Balance

The expected jobs-housing indices across the region for the Reset Urban Growth alternative are depicted in Figure 4.1-1. All of the subareas within King County are expected to have a jobs-housing ratio index at or above an average of 1.0, with the South King subarea at approximately a regional average index of 1.0 and the other King County subareas ranging from 1.21 to 1.27. The highest jobs-housing ratio index is 1.27 in the East King County subarea. Kitsap, Pierce, and Snohomish counties would have jobs-housing ratio indices ranging from 0.79 to 0.81.

Housing Growth by Density

Distribution of residential housing growth from 2017 to 2050 under the Reset Urban Growth alternative is expected to consist of 44 percent high density, 13 percent moderate density, and 43 percent low density (Table 4.1-3). At a county level (Table 4.1-3):

- King County would produce the largest proportion of high-density housing and the lowest proportion of low- and moderate-density housing of all the counties.

- Kitsap County would produce the highest proportion of low-density housing and the lowest proportion of high- and moderate-density housing of all the counties.
- Pierce and Snohomish counties would both have larger proportions of low-density housing compared to other housing types and lower proportions of moderate- and high-density housing.

Table 4.1-3. Housing Growth in Areas Zoned for Low-, Moderate-, and High-Density Development, 2017–2050, by County for Reset Urban Growth

	High-Density	Moderate-Density	Low-Density
King County	56%	11%	33%
Kitsap County	4%	18%	79%
Pierce County	33%	16%	51%
Snohomish County	34%	15%	51%
Region	44%	13%	43%

Source: PSRC

4.1.2 Cumulative Effects

Cumulative effects for all of the alternatives on population, employment, and housing are expected to be similar to those described in VISION 2040 FEIS Section 4.1.3. Growth patterns in jurisdictions outside of the four-county region may impact the concentrations of employment and housing within the region. In addition, growth could occur at varying rates throughout the region and may not be as balanced as desired.

Other external factors that could affect population and employment levels include localized and larger-scale economic trends. The price of land, housing affordability, and lending rates related to market factors could affect the supply and distribution of housing and employment in the region. Economic downturns, major changes in employment sectors, or rapid economic increases could also affect the rate of development and demand for housing, and the availability of jobs.

Overall, increases in population and employment will contribute to climate change as increased demand for energy, goods, and services and increased development of currently forested lands results in higher greenhouse gas emissions. Although these impacts are similar for all alternatives, the contribution of growth to climate change is inversely proportional to the compactness and density of new development.

4.1.3 Potential Mitigation Measures

Mitigation measures described in the VISION 2040 FEIS remain relevant and are summarized in Table 4.1-4, which also includes new mitigation measures. Comprehensive and detailed mitigation strategies on affordable housing can be found in the Housing Background Paper (PSRC 2018g).

Table 4.1-4. Potential Mitigation Measures: Housing and Employment

Topic: Preserve and Encourage the Creation of Affordable Housing
Potential Mitigation Measures: • Encourage planning practices to analyze and track housing issues and needs* • Pursue design guidelines and design approaches for small-lot development, zero lot line development, and reduced setback requirements* • Encourage regulatory approaches such as zoning changes, minimum density ordinances, performance zoning, and inclusionary zoning* • Provide financial incentives such as fee exemptions, density bonuses, tax credits, or transfer of development rights programs* • Develop consistent definitions for “affordable,” “low-income,” and “moderate-income” among jurisdictions* • Encourage the adoption of affordable housing targets by local jurisdictions* • Establish housing targets specific to identified regional growth centers* • Perform regular review and updates to local land use regulations to ensure consistency with affordable housing goals* • Prioritize regional funding for transportation projects that support affordable housing • Rezone for increased density near transit and services • Expand housing diversity, particularly moderate-density housing • Increase housing supply with access to employment • Streamline regulations and reduce development restrictions, such as minimum parking requirements • Increase funding available for affordable housing through federal low-income housing tax credit, local or countywide housing levy, or other similar measures • Prevent displacement and preserve “naturally occurring” affordable housing through sales tax waiver, low-interest loans/revolving loan fund for preservation, and code enforcement • Pursue tenant protections by providing multi-jurisdiction support for local enforcement of codes and affordability, support local implementation and enforcement to prevent source of income discrimination, and create legal defense fund for local jurisdictions • Assess, monitor, and report housing data and trends • Encourage wider range of affordable housing for seniors and special needs populations, and housing that accommodates a variety of family sizes

Table 4.1-4. Potential Mitigation Measures: Housing and Employment (continued)

Topic: Support Regional Economy and Employment
Potential Mitigation Measures: • Preserve adequate land at reasonable cost for land-intensive commercial industries* • Direct growth and development away from lands that could be used for specific industries* • Mitigate transportation impacts to promote economic prosperity and quality of life* • Support established and emerging industry clusters • Support businesses, ports, and agencies involved in trade-related activities • Provide a supportive environment for business startups, small businesses, and locally owned businesses • Encourage regionwide and statewide collaboration among business, government, education, military, and others • Invest in infrastructure that connects designated centers • Promote economic activity and employment growth that sustains diversity of family wage jobs • Support a high-quality education system and training programs • Use incentives and investments to create a closer balance between jobs and housing • Implement Amazing Place (PSRC 2017a) strategy • Support economic activity and employment in rural and natural resources areas compatible with those lands

*Denotes measure from the VISION 2040 FEIS

4.1.4 Social Equity Considerations

Social equity considerations were analyzed for several of the measures described above. Data for each alternative specific to census tracts that were greater than 50 percent people of color and people with low incomes can be found in Appendix B.

Jobs-housing balance – The jobs-housing indices show an increase in balance from 2017 under all alternatives. Census tracts that are greater than 50 percent people with low incomes and people of color are estimated to be jobs-rich areas in 2050, with jobs-housing indices well over the regional average of 1.0. A high jobs-housing index indicates that an area offers greater employment opportunities, but also that housing for these communities may be unaffordable or unavailable and could lead to housing affordability challenges and displacement risk. The jobs-housing index for census tracts that are greater than 50 percent people of color and people with low incomes show the most improvement towards balance under Transit Focused Growth compared to Stay the Course. Under Reset Urban Growth, the jobs-housing index becomes more balanced for census tracts that are greater than 50 percent people of color and less balanced for census tracts that are greater than 50 percent people with low incomes compared to Stay the Course.

Housing density – Census tracts that are greater than 50 percent people with low incomes and people of color have relatively large proportions of moderate-density housing in 2017 compared to the region as a whole. By 2050 it is anticipated that the strong growth in high-density housing may decrease the overall proportion of moderate-density housing. As described in Section 2.3, moderate-density housing tends to be more affordable than either low- or high-density housing options (PSRC 2018h). Large amounts of growth in high-density

housing and nominal growth in moderate-density housing in census tracts that are greater than 50 percent people of color and people with low incomes could indicate pressure on the availability of lower cost housing and the risk of displacing communities of color and households with lower incomes.

4.1.5 Significant Unavoidable Adverse Impacts

As described in Section 5.1.5 of the VISION 2040 FEIS, population and employment growth would result in increased demand for housing and employment-related land uses, which could preclude other uses on currently undeveloped land and lead to a lack of affordable housing or commercial space. Additional planning for accommodating growth in some areas while limiting it in others would be required in many of the region's jurisdictions. Implementation of the mitigation measures listed in Section 4.1.3 of this Draft SEIS would help avoid or reduce population, employment, and housing impacts.

4.2 Land Use

This section describes regional impacts to land use as a result of the population and employment growth likely to occur under each of the regional growth alternatives. This section updates VISION 2040 FEIS Section 5.2.2.

4.2.1 Analysis of Alternatives

4.2.1.1 Impacts Common to All Alternatives

Land use impacts common to all alternatives are similar to those described in the VISION 2040 FEIS, and include:

- General: At a regional level, all alternatives would generally be consistent with regional planning efforts; however, some cities and counties may require updates to policies and regulations to accommodate the action alternatives or achieve the growth pattern in Stay the Course. The actual changes in land use and development patterns that could occur with each alternative are complex and could be affected by the economy, transportation infrastructure, political leadership, and public input.
- Urban Land: Under all alternatives, the region's urban area would become denser. Increased density of the urban environment, while providing benefits through increased access to transit and less reliance on vehicles, could result in more crowding and noise and decreased air quality (described further in Sections 4.3, 4.4, and 4.14). Increased density in some areas could promote gentrification and increase the risk for displacement of people with low incomes (see Sections 5.4 and 5.5). If the increased density occurs through lower-density suburban development in areas that are currently minimally developed, infrastructure challenges such as delivery of water and sewer services may result and could lead to increased impacts to water and ecosystem

resources (described further in Sections 4.5 through 4.7). Increased density could also lead to increased traffic congestion if located in areas further from employment opportunities.

- Rural Land: The anticipated growth under all alternatives could potentially impact existing rural character if not properly sited or if it includes uses inconsistent with rural-based economic development, such as local services, farm, livestock, food processing, or other natural resource-based uses. Without adequate mitigation measures in place, development of the large number of existing vacant rural parcels in the region could undermine the Regional Growth Strategy, reducing growth in more urban areas, increasing transportation impacts, and increasing environmental impacts in rural areas.
- Natural Resource Land: Although none of the alternatives encourages growth in natural resource lands, growth close to natural resource lands can have environmental impacts and create pressure for conversion to other land use types. Alternatives that minimize growth close to natural resource lands are less likely to create potential conflicts between incompatible land uses and impacts to water resources, ecosystems, and infrastructure.
- Critical Areas: Similar to natural resource lands, growth close to critical areas can create pressure for conversion and potentially impact floodplains, steep slopes, wetlands, and streams.

4.2.1.2 Comparison of Alternatives

This section describes impacts for Stay the Course, Transit Focused Growth, and Reset Urban Growth and compares impacts among alternatives for acres of developed land, proximity of growth near the urban growth boundary, and growth in proximity to transit. Supporting data for these measures are depicted in Figures 4.2-1 to 4.2-3.

Summary of Key Differences

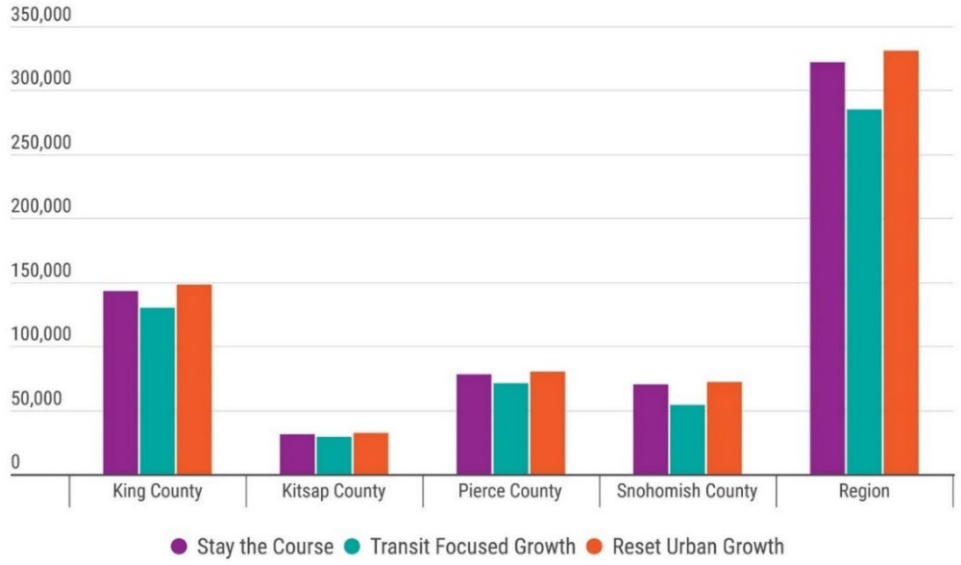
General – Stay the Course is characterized by compact growth and considerable redevelopment and increased densities in urban areas. While much less growth is identified for rural areas, there are some potential impacts to natural resource lands and critical areas. Transit Focused Growth is similar to Stay the Course, but with a more compact development pattern around transit station areas and the least growth in rural areas. As a result of having the most compact growth pattern overall, there would be fewer potential impacts to rural areas, natural resource lands, and critical areas under Transit Focused Growth. Reset Urban Growth has the most dispersed development pattern and the most growth in rural areas. This alternative would have the most potential impacts to rural areas, natural resource lands, and critical areas as a result of more land-consumptive growth patterns and more growth in closer proximity to rural and natural resource lands.

Acres of Developed Land – Regionwide, Transit Focused Growth would require the least amount of land to be developed or redeveloped—285,000 acres. Reset Urban Growth would require the most acreage to be developed or redeveloped (331,000 acres) followed by Stay the Course (322,000 acres).

Proximity to Transit – Growth in proximity to high-capacity transit service would be substantially increased under the Transit Focused Growth alternative, with 75 percent of the added population and employment occurring in these areas at a regional level. Growth in proximity to high-capacity transit service would decrease under both Stay the Course and Reset Urban Growth, with 48 percent and 44 percent of growth occurring in proximity to high-capacity transit, respectively, at a regional level.

Proximity to Urban Growth Area Boundary – The Transit Focused Growth alternative would have the least amount of growth in proximity to the urban growth area boundary (6 percent) and therefore would have the least potential impacts to rural and natural resource lands. Both Reset Urban Growth and Stay the Course have larger amounts of growth in proximity to the urban growth boundary (9 percent and 10 percent, respectively) which would increase potential impacts to rural and natural resource lands.

Figure 4.2-1. Total Acres of Land Developed or Redeveloped, 2017–2050



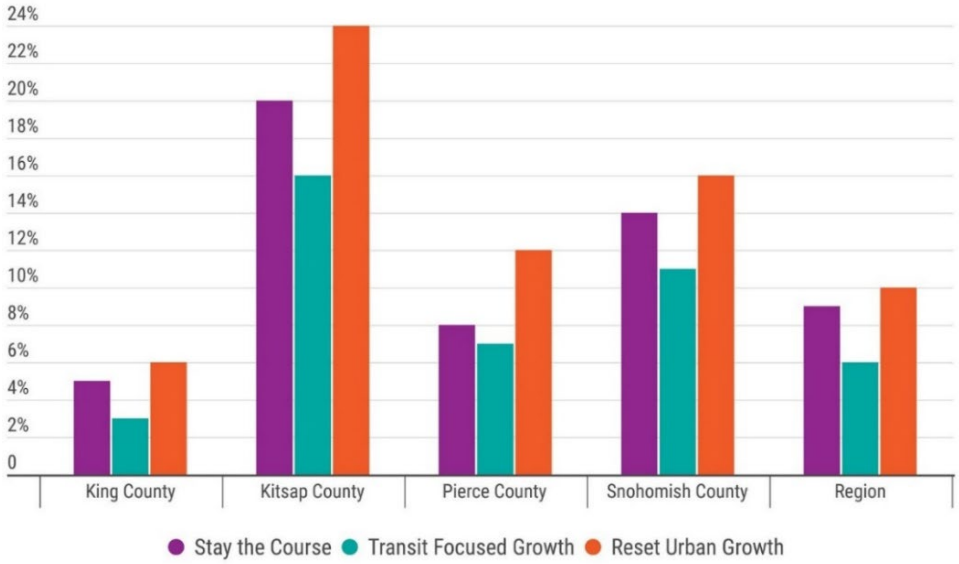
Source: PSRC
Note: Most of the acreage developed is vacant land, but a portion includes redevelopment of previously developed land

Figure 4.2-2. Population and Employment in Proximity to High-Capacity Transit Service, 2017–2050

Source: PSRC

Note: Proximity to transit service is defined as within one-half mile of light rail stations, commuter rail stations, and ferry terminals, and within one-quarter mile of bus rapid transit within the urban growth area

Figure 4.2-3. Population and Employment Within One-Quarter Mile of Urban Growth Area Boundary, 2017–2050



Source: PSRC

Note: Proximity is defined as within one-quarter mile of either side (inside/outside) of the urban growth area boundary

4.2.1.3 Impacts of Stay the Course (No Action Alternative)

As described in Section 3.2, Stay the Course is characterized by substantial population and employment growth in the region's Metropolitan Cities, Core Cities, and HCT Communities. Less growth would occur in Urban Unincorporated and Rural areas. For land use, this alternative is expected to result in:

- Considerable redevelopment and increased densities in urban areas. By concentrating population and employment growth in Metropolitan Cities and Core Cities, and, to a lesser extent, HCT Communities, these urban geographies would see increased densities as mixed uses containing housing, jobs, services, and retail are directed into these areas. To accommodate increased density, considerable amounts of redevelopment would occur, along with a significant concentration of new residential growth that would likely be accommodated by moderate and higher-density housing built near employment centers and high-capacity transit facilities. Increased growth and density at high-capacity transit station areas would encourage transit-oriented development. The smaller amounts of growth directed to Cities & Towns and Urban Unincorporated areas would likely result in smaller increases in population density and commercial uses in and around city centers in those regional geographies, as well as additional lower-density residential development in outlying areas.

- Less development in rural areas. Under Stay the Course, 5 percent of population growth and 1 percent of employment growth would occur in Rural geographies. This growth would likely occur in the form of lower-density residential uses to accommodate added population and minor commercial development to serve population growth.
- Some potential impacts to natural resource lands and critical areas. While no growth is planned within natural resource lands and critical areas, growth occurring in proximity to the urban growth area boundary, particularly growth associated with Rural and Urban Unincorporated geographies, may have the potential to impact adjacent and nearby natural resource land (as discussed in greater detail below). Critical areas are present throughout urban, rural, and natural resources areas. Growth, particularly in Rural areas (and to some extent Unincorporated Urban areas), increases the potential for impacts since these areas tend to be minimally developed or undeveloped. Growth in these areas should be minimal and subject to Critical Areas Regulations in order to minimize potential impacts.

Acres of Developed Land

Planned growth is estimated to result in approximately 320,000 acres of development, including redevelopment, throughout the region by 2050 (Figure 4.2-1). The largest amount of development, 143,000 acres, would occur in King County. Between 70,000 and 78,000 acres would be developed or redeveloped in both Pierce and Snohomish counties, and 31,000 acres in Kitsap County.

Proximity to Transit

Growth around existing and planned[4] high-capacity transit—light rail, commuter rail, bus rapid transit, and ferry terminals—can encourage transit-oriented development. When the zoning, streets, sidewalks, and local transit are in place to support transit-oriented development, it could result in numerous benefits such as reducing vehicle use, promoting walking and biking, and reducing sprawl. Additional benefits are described in Section 2.4.3. (This analysis looks at the regional growth pattern, but does not account for local zoning or access improvements that may be necessary to support transit-oriented development.

From 2017 to 2050, about 48 percent of the added population and employment would live and work near high-capacity transit under the Stay the Course alternative (Figure 4.2-2). In the same time period, King County would have the highest proportion of added population and employment located near high-capacity transit (64 percent), while Kitsap would have the lowest proportion (22 percent). Pierce and Snohomish counties would fall in the middle of this range, with approximately 47 percent and 28 percent of the added population living and working in proximity to high-capacity transit, respectively.

[4] Planned transit investments included those anticipated in the Regional Transportation Plan adopted in 2018.

Proximity to the Urban Growth Area Boundary

As described above, growth occurring close to the urban growth area boundary could impact adjacent and nearby natural resource lands. Under the Stay the Course alternative, regional planned growth would be focused within the urban growth area, with 9 percent of population and employment growth occurring in proximity to the urban growth area boundary (Figure 4.2-3). King County and Pierce County would have the smallest share of growth in proximity to the urban growth boundary, at 5 percent and 8 percent, respectively. Kitsap and Snohomish counties are expected to experience a greater level of future growth near the urban growth boundary at 20 percent and 14 percent, respectively.

4.2.1.4 Impacts of the Transit Focused Growth Alternative

As described in Section 3.3, Transit Focused Growth is characterized by substantial population and employment growth in the region's Metropolitan Cities, Core Cities, and HCT Communities, with accelerated growth near the region's existing and planned transit investments. The land use impacts as a result of this growth pattern in Metropolitan Cities, Core Cities, and HCT Communities would be similar to those described for Stay the Course, but with the following key differences:

- More compact development patterns would be present near high-capacity transit throughout the region
- Less development would occur in Cities & Towns, Urban Unincorporated, and Rural geographies as well as in proximity to natural resource lands and critical areas

Acres of Developed Land

Planned growth under this alternative is estimated to result in the development or redevelopment of approximately 285,000 acres throughout the region (about 35,000 acres less than Stay the Course). The largest amount of development, 130,000 acres, would occur in King County. Approximately 71,000 acres would be developed or redeveloped in Pierce County, 54,000 acres in Snohomish County, and 31,000 acres in Kitsap County (Figure 4.2-1).

Proximity to Transit

From 2017 to 2050, 75 percent of the region's added population and employment would be living and working in proximity to high-capacity transit (Figure 4.2-2). During this time period, King County would have the highest proportion of people added in proximity to high-capacity transit (84 percent), while Kitsap would have the lowest proportion (38 percent). Pierce and Snohomish counties would fall in the middle of this range, with approximately 66 percent of the added population living and working in proximity to high-capacity transit.

Proximity to the Urban Growth Area Boundary

Under Transit Focused Growth, approximately 6 percent of population and employment growth would occur in proximity to the urban growth area boundary (Figure 4.2-3). King and Pierce

counties would have the smallest share of growth in proximity to the urban growth boundary, at 3 percent and 7 percent, respectively. Kitsap and Snohomish counties show a greater level of future growth occurring near the urban growth boundary at 16 percent and 11 percent, respectively.

4.2.1.5 Impacts of the Reset Urban Growth Alternative

As discussed in Section 3.4, the Reset Urban Growth alternative is characterized by substantial population and employment growth in the region's Metropolitan Cities, Core Cities, and HCT Communities, as well as increased growth in Urban Unincorporated and Rural areas. The land use impacts resulting from this growth pattern in Metropolitan Cities, Core Cities, and HCT Communities would be similar to those described for Stay the Course, but with the following key differences:

- Slightly reduced densities throughout Metropolitan Cities, Core Cities, and HCT Communities
- More growth in Cities & Towns and Unincorporated Urban areas, resulting in a more dispersed development pattern throughout the region
- Increased proximity of development to Rural and natural resource lands and critical areas, potentially resulting in adverse impacts on those areas

Acres of Developed Land

Planned growth is estimated to result in the development or redevelopment of approximately 331,000 acres throughout the region (about 11,000 acres more than Stay the Course). The largest amount of development (148,000 acres) would occur in King County. Approximately 80,000 acres would be developed or redeveloped in Pierce County, 72,000 acres in Snohomish County, and 32,000 acres in Kitsap County (Figure 4.2-1).

Growth in Proximity to Transit

From 2017 to 2050, 44 percent of the region's added population and employment would be anticipated to live and work in proximity to high-capacity transit under the Reset Urban Growth alternative (Figure 4.2-2). King County would have the largest number of added people located near high-capacity transit (61 percent of the population), while Kitsap County would have the least (14 percent of the population). Pierce and Snohomish counties would fall in the middle of this range with approximately 30 and 23 percent, respectively, of the added population in proximity to high-capacity transit.

Growth Near the Urban Growth Area Boundary

Under the Reset Urban Growth alternative, approximately 10 percent of population and employment growth would occur in proximity to the urban growth area boundary (Figure 4.2-3). King and Pierce counties would have the smallest share of growth in proximity to the urban growth boundary, at 6 percent and 12 percent, respectively. Kitsap and Snohomish counties

show a greater level of future growth occurring near the urban growth boundary at 24 percent and 16 percent, respectively.

4.2.2 Cumulative Effects

Cumulative effects for land use would be similar to those described in VISION 2040 FEIS Section 5.2.3. PSRC's land use model incorporates cumulative impacts into the modeling of land use, population, employment, and housing by predicting the distribution of future growth under each alternative (Appendix C).

As noted in the VISION 2040 FEIS, local jurisdictions may face challenges in improving their transportation and other infrastructure and facilities to accommodate planned growth. They also may face challenges with updating land use plans and regulations to support the anticipated growth pattern. If adequate infrastructure is not provided, this growth may lead to increased low-density development outside of the urban areas and into rural areas. If adequate levels of affordable housing are not provided in urban areas, this could also lead to undesired sprawl in rural areas. Likewise, if adequate zoning capacity to support growth is not available in urban areas, it may lead to greater development outside of the urban area. If Rural and Resource Land geographies lack land use protections, greater development of those lands than anticipated by the growth alternatives may occur.

4.2.3 Potential Mitigation Measures

As noted in Section 4.1, land use changes consistent with regional planning do not constitute adverse impacts. However, PSRC has identified a number of tools that can facilitate the planned changes. The potential mitigation measures for land use impacts described in the VISION 2040 FEIS are still applicable and are summarized in Table 4.2-1, which also includes new mitigation measures.

Table 4.2-1. Potential Mitigation Measures: Land Use

Topic: General Land Use
• Local jurisdictions comply with GMA to identify imbalances between growth and infrastructure needs and identify discrete actions to mitigate impacts* • Encourage "green" building practices*
Topic: Urban Lands
• Implement centers development to accommodate growth* • Retain and increase the supply of industrial lands* • Promote design standards to make dense development more attractive and compatible with existing development* • Work with jurisdictions to properly phase growth* • Improve long-range planning for unincorporated areas* • Site schools and institutions in a way that reinforces growth management objectives* • Promote transportation investments that serve increased population and employment*

Table 4.2-1. Potential Mitigation Measures: Land Use (continued)

Topic: Urban Lands (continued)
• Promote higher densities near transit and encourage transit-oriented development • Develop center and transit-station subarea plans • Integrate environmental review and mitigation into the subarea planning process • Conduct community participation and visioning exercises to help guide planning, development, and investments • Provide amenities such as parks, plazas, trails, waterfront access, and cultural centers in denser areas to increase livability • Pursue measures that increase residential capacity (e.g., permit Accessory Dwelling Units, provide multifamily housing tax credits and density bonuses to developers, allow additional housing types in single-family zones) • Encourage infill and redevelopment • Develop or strengthen brownfields programs • Apply development standards that limit and mitigate car-dependent land uses • Incorporate design standards that enhance walkability and character • Encourage developers to reduce off-street surface parking • Locate civic buildings in existing communities rather than in greenfield areas
Topic: Rural Lands, Resource Lands, and Critical Areas
• Promote programs that support rural-based economic development consistent with rural character* • Where growth occurs, increase development densities and clustered development in rural areas to reduce conversion of rural land* • Recognize subareas within rural lands throughout the four counties and provide flexibility and regional guidance to address the differences that exist between these areas* • Design facilities and infrastructure according to rural standards that do not impact rural character or provide opportunities for increased development* • Address level-of-service standards for all services in rural areas* • Provide regional guidance on siting special-purpose district facilities* • Use Transfer of Development rights programs to encourage compact and clustered development* • Establish rural population and employment targets on allowable rural development* • Consider programs, such as Transfer/Purchase of Development rights, to preserve rural and resource lands* • Develop revenue sources to conserve lands* • Provide for agricultural-related accessory uses on agricultural lands* • Promote programs such as farmers markets to increase consumption of locally grown products* • Provide for programs to acquire designated critical areas as public lands* • Reduce allowed densities in rural areas outside of clustered development and areas where growth is desired • Implement the Regional Open Space Conservation Plan to protect farms, forests, and other high-value conservation lands in the regional open space network • Partner with nongovernmental organizations to preserve natural resource lands

*Denotes mitigation measure from the VISION 2040 FEIS

4.2.4 Social Equity Considerations

Census tracts that have more than 50 percent people of color and people with low incomes have a larger percentage of population and employment located in proximity to high-capacity transit compared to the region as a whole. This indicates that residents in these communities would have improved access to transit but also could experience an elevated risk of displacement. Under Transit Focused Growth, census tracts that have more than 50 percent people of color and people with low incomes would see the largest increase of growth in proximity to transit. Supporting data can be found in Appendix B.

4.2.5 Significant Unavoidable Adverse Impacts

As described in Section 5.2.5 of the VISION 2040 FEIS, significant unavoidable adverse impacts on land use may vary depending on the alternative. Regional and city plans, policies, and regulations may need to change to accommodate future growth as described in Section 4.2.1.1. Implementation of the mitigation measures listed in Section 4.2.3 of this Draft SEIS would help avoid or reduce land use impacts.

4.3 Transportation

With continued regional population and employment growth between now and 2050, increased demand will be placed on the transportation system. To model travel behavior in 2050, all investments planned in the Regional Transportation Plan (PSRC 2018c) are assumed to be in place. This provides a backdrop for comparing effects of each regional growth alternative. The following sections describe transportation system performance for the following measures:

- Average daily vehicle miles and minutes – how far the average person is traveling each day by car and how much time is spent in a car for both commuting and personal trips
- Average annual vehicle delay – the amount of time the average person spends in congestion each year
- Transit ridership – the total number of times people use transit per year
- Transportation mode share – the percentage of trips made by people driving alone, carpooling, using transit, walking, or biking
- Jobs accessible by transit, biking, and walking – number of jobs located within a 45-minute transit trip, a one-mile walk trip, or a three-mile bike trip

This section updates VISION 2040 FEIS Section 5.3.2.

4.3.1 Analysis of Alternatives

4.3.1.1 Impacts Common to all Alternatives

By 2050, the region will have added 1.8 million people and 1.2 million jobs, resulting in more dense and concentrated land use. Consistent with the adopted Regional Transportation Plan, all alternatives assume that by 2050 the transportation system is managed and financed through a system of express toll lanes on the highway network and the implementation of a road usage charge that varies by time of day, with the understanding that the Washington State Legislature must advance road usage charge laws and policies. The effects of road pricing are discussed in the Transportation 2040 FEIS (PSRC 2010). This growth, coupled with substantial increases in high-capacity transit service, an assumed peak/off peak road usage charge to replace the state gas tax, and changing travel behavior, would result in impacts to the regional transportation system.

The following summarizes impacts common to all alternatives for key transportation measures. Additional data supporting these conclusions can be found in Appendix B. Compared to the baseline year of 2014[5], it is anticipated that by 2050:

- The average distance people drive and the amount of time spent in a vehicle each day would be lower. These trip distance and time reductions result from more compact land uses, an increase in walking and biking, and peak/off peak road usage charges.
- The average time people spend in congestion each year is forecast to increase. Even though average distances and time spent driving each day are decreasing, regional congestion is anticipated to increase as a result of the added 1.8 million people and 1.2 million jobs.
- Overall transit ridership is forecast to more than double. Major high-capacity transit expansion including light rail, commuter rail, bus rapid transit, and fast ferry service, coupled with added population and employment located in proximity to high-capacity transit, would drive this growth in ridership.
- For work-related travel (commuting trips), the percentage of trips made by driving alone would decrease substantially while walking, biking, and transit use would increase. This is a result of expanded transit infrastructure and more concentrated land use patterns.
- For personal (non-commute) trips, the percentage of trips made by driving alone or carpooling would decrease, walk trips would increase, and transit and bike trips

[5] The current SoundCast travel model operates on a 2014 base year, with key variables validated against PSRC's 2014 regional household travel survey. The analysis of alternatives is not significantly impacted by the use of 2014 as the base year (versus 2017) since any differences would be small compared to the expected change by the year 2050.

would increase slightly. Similar to commuting trips, this is a result of expanded transit infrastructure and more concentrated land use patterns.

- Large increases would occur in the number of jobs accessible by transit, walking, or biking. Accessibility increases over time due to continued job growth in the region, expanded transit, and a better jobs-housing balance.

The following geographic trends are similar across all alternatives. Supporting data for all transportation measures for all counties and regional geographies can be found in Appendix B. Compared to the baseline year of 2014[6], it is anticipated that by 2050:

- Residents of Pierce and Snohomish counties generally travel the furthest distances in a car per day, spend the most time in a car per day, and spend the most amount of time per year in traffic congestion. Pierce and Snohomish county residents who work in major employment centers travel further on regional freeways and experience the highest amounts of delay.
- Residents of Kitsap and King counties travel the shortest distances in a car per day, spend less time in a car per day, and spend the least amount of time per year in congestion. Kitsap County's lower daily miles and time spent in a car per person is in part due to generally lower levels of traffic congestion and increased ferry use. King County's lower daily miles and time spent in a car per person is due to greater access to jobs and more concentrated urban areas.
- People who live in Metropolitan and Core Cities regional geographies drive the shortest distances, spend less time in a car each day, and spend the least amount of time per year in congestion in part because of proximity to amenities, access to jobs, and higher transit ridership.
- People who live in Cities & Towns and Rural regional geographies travel the longest distances, spend the most time in a car each day, and spend the most time per year in congestion. This is due to dispersed land development patterns in these areas, greater distances to major job centers, and reduced access to transit.

4.3.1.2 Comparison of Alternatives

This section describes impacts for Stay the Course, Transit Focused Growth, and Reset Urban Growth and compares impacts for key transportation topics. Supporting data for these measures are depicted in Table 4.3-1 and 4.3-2, and in Appendix B, including more detail by corridor. For reference, the baseline year of 2014 is included to provide additional context on the magnitude of change from 2014 to 2050.

[6] The current SoundCast travel model operates on a 2014 base year, with key variables validated against PSRC's 2014 regional household travel survey. The analysis of alternatives is not significantly impacted by the use of 2014 as the base year (versus 2017) since any differences would be small compared to the expected change by the year 2050.

Table 4.3-1. Comparison of Key Regional Travel Measures

	Baseline (2014)	Stay the Course (2050)	Transit Focused Growth (2050)	Reset Urban Growth (2050)
Average Daily Vehicle Miles, per resident	16.1	13.4	12.8	13.6
Average Daily Vehicle Minutes, per resident	38	35	33	35
Average Annual Vehicle Delay Hours, per resident	21	31	29	32
Annual Transit Boardings	194 Million	476 Million	502 Million	490 Million
Mode Share, for work trips	Drive alone: 71% Carpool:14% Transit: 6% Walk: 6% Bike: 3%	Drive alone: 64% Carpool:13% Transit: 9% Walk: 10% Bike: 4%	Drive alone: 62% Carpool:13% Transit: 10% Walk: 11% Bike: 5%	Drive alone: 64% Carpool:13% Transit: 9% Walk: 10% Bike: 4%
Mode Share, for personal trips (non-commute weekday)	Drive alone: 33% Carpool:42% Transit: 5% Walk: 18% Bike: 1%	Drive alone: 29% Carpool:40% Transit: 6% Walk: 23% Bike: 2%	Drive alone: 28% Carpool:39% Transit: 6% Walk: 25% Bike: 2%	Drive alone: 30% Carpool:40% Transit: 6% Walk: 23% Bike: 2%

Table 4.3-2. Average Jobs Accessible Per Resident by Travel Mode, by County

	Baseline (2014)	Stay the Course (2050)	Transit Focused Growth (2050)	Reset Urban Growth (2050)
King County				
Jobs within 45-minute Transit Trip*	192,600	409,800	445,300	414,800
Jobs within 1-mile Walk Trip	11,400	27,800	28,900	28,800
Jobs within 3-mile Bike Trip	64,900	121,300	125,600	123,800
Kitsap County				
Jobs within 45-minute Transit Trip*	4,200	18,500	17,200	14,400
Jobs within 1-mile Walk Trip	1,300	3,600	3,300	2,200
Jobs within 3-mile Bike Trip	7,900	17,000	15,300	13,500
Pierce County				
Jobs within 45-minute Transit Trip*	20,100	87,600	92,400	63,300
Jobs within 1-mile Walk Trip	2,200	8,600	8,800	5,600
Jobs within 3-mile Bike Trip	16,400	41,000	40,100	30,600
Snohomish County				
Jobs within 45-minute Transit Trip*	25,800	95,600	113,800	89,000
Jobs within 1-mile Walk Trip	2,000	6,200	7,900	4,700
Jobs within 3-mile Bike Trip	19,200	37,300	40,400	34,000

Note: Values represent the average number of jobs accessible per capita (resident) by home location
*A 45-minute transit trip includes walk, wait, and in-transit time

Summary of Key Differences

The following summarizes the differences between alternatives for key indicators in regional transportation system performance for the year 2050:

- Transit Focused Growth, where growth would be in greater proximity to transit stations, has the lowest distance driven per day (12.8 miles) and least amount of time spent in a vehicle per day (33 minutes) of the alternatives. Stay the Course and Reset Urban Growth have slightly increased distances and times at 13.4 miles and 35 minutes for Stay the Course, and 13.6 miles and 35 minutes for Reset Urban Growth.
- Compared to the baseline, the average time spent in congestion increases the least under Transit Focused Growth at 29 hours annually per person. Stay the Course and Reset Urban Growth see a further increase in time spent in congestion annually at 31 hours and 32 hours, respectively.
- The number of trips taken using transit would be the highest under Transit Focused Growth at 502 million transit trips annually. Stay the Course would see the fewest trips at 476 million and Reset Urban Growth would fall in the middle of the range at 490 million trips. Future boardings would be higher in locations that plan for transit-oriented development and enhance station access. Transit Focused Growth would provide the greatest support for transit-oriented development.
- Generally, Transit Focused Growth would result in the largest number of jobs accessible by walking, biking, or transit, with the exception of Kitsap County. Stay the Course would have the most access to jobs in Kitsap County of all the alternatives. Reset Urban growth would have the least access to jobs in Kitsap, Pierce, and Snohomish counties of all the alternatives.
- At a regional level, mode share would be similar for all alternatives with slightly higher shares of transit, walking, and biking under Transit Focused Growth compared to the other alternatives.

4.3.1.3 Impacts of Stay the Course (No Action Alternative)

The following summarizes key indicators for regional transportation system performance for the year 2050 for Stay the Course:

- Average daily vehicle miles traveled per person: 13.4 miles
- Average daily vehicle minutes traveled per person: 35 minutes
- Average annual vehicle delay: 31 hours
- Annual transit ridership: 476 million boardings

These indicators are a result of the compact growth pattern focused around designated regional growth centers associated with the Stay the Course alternative, and the distribution of growth from county and regional geographies adopted in VISION 2040.

4.3.1.4 Impacts of the Transit Focused Growth Alternative

The following summarizes key indicators for regional transportation system performance for the year 2050 for Transit Focused Growth:

- Average daily vehicle miles traveled per person: 12.8 miles
- Average daily vehicle minutes traveled per person: 33 minutes
- Average annual vehicle delay: 29 hours
- Annual transit ridership: 502 million boardings

These indicators are driven by this alternative's focus on more compact land use with specific emphasis on locating population and employment in proximity to high capacity transit and larger population allocation to King County compared to Stay the Course.

4.3.1.5 Impacts of the Reset Urban Growth Alternative

The following summarizes key indicators for regional transportation system performance for the year 2050 for Reset Urban Growth:

- Average daily vehicle miles traveled per person: 13.6 miles
- Average daily vehicle minutes traveled per person: 35 minutes
- Average annual vehicle delay: 32 hours
- Annual transit ridership: 490 million boardings

These indicators are the result of the more dispersed growth pattern that characterizes Reset Urban Growth, as well as greater population allocated to King County compared to Stay the Course.

4.3.2 Cumulative Effects

The transportation modeling performed for this Draft SEIS is a cumulative analysis based on results of travel demand modeling for the year 2050 and incorporates past actions as well as projected population and employment growth. In addition, the analysis includes specific major transportation investments through the year 2040 as described in the Regional Transportation Plan (PSRC 2018c), which was updated in May 2018. The model does not account for anticipated plan and zoning updates required under GMA and that may be expected at transit station areas to support transit-oriented development. The travel demand modeling results are reported for trips internal to the region; trips external to the region (a small percentage of trips where either the origin or destination is outside the region) are excluded. The travel demand modeling description can be found in Appendix C.

4.3.3 Potential Mitigation Measures

As described in the VISION 2040 FEIS, all alternatives could result in substantial increases in delay (congestion) in the region by 2050. Transportation infrastructure improvements may be needed beyond those currently contemplated in the Regional Transportation Plan (PSRC 2018c) to support regional mobility and the impacts of growth on transportation infrastructure.

The potential mitigation measures for transportation described in the VISION 2040 FEIS are still applicable and are summarized in Table 4.3-3, which also includes new mitigation measures.

Table 4.3-3. Potential Mitigation Measures: Transportation

Topic: General Transportation
• Install new traffic signal systems or improve existing ones* • Promote additional transit service including vanpool and carpool* • Expand incident response systems* • Adopt and implement policies that reduce the impacts of growth* • Adopt policies to ensure preservation of freight intermodal sites and corridors* • Ensure that the next Regional Transportation Plan update is in alignment with the Preferred Growth Alternative* • Consider new and more frequent transit • Encourage dedicated transit lanes • Build out and promote a regional trail network • Promote the Orca Lift program and raise income level threshold so additional people with low incomes are eligible • Expand and improve current Transportation Demand Management programs (detailed recommendations in Appendix F of the Regional Transportation Plan [PSRC 2018c]) • Implement the Active Transportation Plan (detailed recommendations in Appendix L of the Regional Transportation Plan [PSRC 2018c]) • Leverage data to improve understanding of system performance, resources, and program benefits • Continue to support and implement established Intelligent Transportation System technologies • Foster emerging technologies consistent with the region's policy goals and prepare for potential disruptions • Encourage cooperation between transit agencies and shared mobility providers (e.g., Uber, Lyft, Car2Go, and ReachNow) to improve first- and last-mile connections and expand mobility • Promote traveler information tools that allow travelers to make informed transportation decisions and travel more efficiently • Encourage jurisdictions to integrate technology-based mobility options (including connected and autonomous vehicles) into existing transportation systems and plans • Promote land use development patterns—such as transit-oriented development—that shift trips from driving alone to transit, walking, or biking • Where the street grid is not connected, add nonmotorized connections where possible

*Denotes mitigation measure from the VISION 2040 FEIS

4.3.4 Social Equity Considerations

Under all alternatives and compared to the region as a whole, residents in census tracts that are greater than 50 percent people with low incomes and people of color drive less and spend less time in traffic.

Residents of census tracts that are greater than 50 percent people with low incomes drive alone less and walk more for both work and personal trips compared to the region as a whole. Residents of census tracts that are greater than 50 percent people of color have a similar mode share compared to the region as a whole.

Residents of census tracts that were greater than 50 percent people with low incomes have greater access to jobs via walking, biking, or transit than residents who live in the rest of the region. Residents of census tracts that are greater than 50 percent people of color have greater access to more jobs via transit and biking, but not walking.

4.3.5 Significant Unavoidable Adverse Impacts

Implementation of the mitigation measures listed in Section 4.3.3 of this Draft SEIS and required mitigation measures for project-level actions would help avoid or reduce transportation impacts. No significant unavoidable adverse impacts are anticipated.

4.4 Air Quality

This section updates VISION 2040 FEIS Section 5.4.2 and discusses vehicle pollutant emissions and greenhouse gases. The emission estimates described in this section were developed using EPA's MOVES 2014a model (described in Appendix C), which is based on pollutant emissions from vehicles.

4.4.1 Analysis of Alternatives

4.4.1.1 Impacts Common to all Alternatives

Pollutant emissions in the central Puget Sound region have continued to decline over the last two decades. Projections for 2050 show a marked reduction in all pollutants across all alternatives (Table 4.4-1). This reduction is largely due to improved vehicle fuel economy. To illustrate the magnitude of this change, base year (2014) pollutant emissions are also included.

Table 4.4-1. Projected Pollutant Emissions (Tons Per Day)

	Base Year (2014)	Stay the Course (2050)	Transit Focused Growth (2050)	Reset Urban Growth (2050)
Carbon Monoxide	866.5	206.5	203.5	207.4
NO_X	150.1	21.8	21.3	21.9
Volatile Organic Compounds	50.5	6.4	6.3	6.4
CO_2e	47,200	41,000	39,600	41,400
PM_{10}	8.70	7.85	7.50	7.97
$PM_{2.5}$	5.27	1.62	1.56	1.64

All alternatives show a reduction in CO_2e, which is a measure used for reporting greenhouse gases. As described in Section 2.6, on-road vehicles were the largest source—35 percent—of greenhouse gas emissions in the region in 2015 (PSCAA 2018c). Since energy-related CO_2 emissions are projected to remain relatively flat to 2050 (EIA 2018b), it can be assumed that a reduction in greenhouse gases from vehicle sources would contribute to an overall reduction in greenhouse gases throughout the region.

4.4.1.2 Comparison of Alternatives

This section describes impacts for Stay the Course, Transit Focused Growth, and Reset Urban Growth and compares impacts for air quality emissions. Supporting data is shown above in Table 4.4-1.

Summary of Key Differences

Transit Focused Growth would have the lowest emissions and Reset Urban Growth would have the most emissions of the three alternatives. Stay the Course would fall in the middle of this range.

4.4.1.3 Impacts of Stay the Course (No Action Alternative)

A summary of pollutant emissions for this alternative is presented in Table 4.4-1. Pollutant emissions would decrease substantially compared to baseline conditions (2014).

4.4.1.4 Impacts of the Transit Focused Growth Alternative

Pollutant emissions for Transit Focused Growth are shown in Table 4.4-1. Transit Focused Growth shows a slight decrease in emissions compared to Stay the Course. This decrease is driven by the compact land development patterns associated with this alternative, which is a factor in decreasing total vehicle miles traveled throughout the region.

4.4.1.5 Impacts of the Reset Urban Growth Alternative

A summary of pollutant emissions for Reset Urban Growth is shown in Table 4.4-1. Reset Urban Growth would result in a slight increase in pollutant emissions compared to Stay the Course. The dispersed growth pattern that characterizes this alternative would lead to an increase in total vehicle miles traveled throughout the region, and a corresponding increase in pollutant emissions.

4.4.2 Cumulative Effects

Cumulative effects are similar to those described in VISION 2040 FEIS Section 5.4.3. At a localized level, cumulative effects could include increases in particulate and diesel emissions from construction of new development. At a larger scale, compact, transit-focused growth patterns would reduce vehicle miles traveled; therefore, the Transit Focused Growth alternative in particular would contribute to a small reduction in emissions of ozone precursors that contribute to global climate change. These larger scale impacts depend on actions taken both within and beyond the region.

4.4.3 Potential Mitigation Measures

Similar to the FEIS, each of the alternatives is estimated to result in reduced emissions for each pollutant; therefore, mitigation to reduce these emissions would not be required. However, given that climate change and localized emissions are issues of importance in the region, potential measures to improve air quality are included. Mitigation measures presented in the VISION 2040 FEIS would continue to be applicable. These measures, as well as other potential measures, are summarized in Table 4.4-2.

Table 4.4-2. Potential Mitigation Measures: Air Quality

Topic: Regional Emissions

• Continue the region's programs such as the state emissions check program, truck idling reduction program, and Clean Car Standards*
• Continue to pursue diesel retrofits*
• Advance fuel technology, such as natural gas, ultra-low-sulfur diesel, and biodiesel*
• Pursue strategies to reduce ferry emissions*
• Apply incentives to convert wood-burning devices*
• Implement interdisciplinary planning and programs to reduce vehicle dependence*
• Encourage alternative energy sources and cleaner technologies*
• Advance and implement PSRC's Four-Part Greenhouse Strategy (PSRC 2018c)
  – Implement VISION 2040, balance jobs and housing, focus growth in centers and provide for efficient communities, advance and encourage transit-oriented development
  – Transition the region to a user fee/roadway pricing system

Table 4.4-2. Potential Mitigation Measures: Air Quality (continued)

Topic: Regional Emissions (continued)
– Continue to provide travelers alternatives to the single-occupant vehicle, including walking, biking, transit, and carpooling – Support development of technology to dramatically reduce tailpipe emissions, including fleet electrification and fuel economy improvements • Promote energy-efficient buildings, equipment, and infrastructure • Purchase "green power" to reduce fossil fuel emissions and support alternative energy • Maintain and restore healthy forests, estuaries, and farmland to help with carbon sequestration • Encourage local jurisdictions to develop greenhouse gas reduction targets, programs, and policies
Topic: Localized Emissions
• Incorporate trees and vegetation in urban development and retrofit projects • Consider proximity to sensitive populations (children, elderly) in siting development and transportation infrastructure • Identify localized air quality impacts, and prioritize mitigation projects for the most vulnerable populations • Consider policies to prohibit idling

*Denotes mitigation measure from the VISION 2040 FEIS

4.4.4 Significant Unavoidable Adverse Impacts

As described in Section 5.4.5 of the VISION 2040 FEIS, no significant unavoidable adverse impacts are anticipated. Implementation of the mitigation measures listed in Section 4.4.3 of this Draft SEIS and mitigation for project-level actions would help avoid or reduce localized air quality impacts.

4.5 Ecosystems

This section updates VISION 2040 FEIS Section 5.4.2 and describes impacts that could result from additional development associated with an added 1.8 million people and 1.2 million jobs to the region by 2050. Many of the ecosystem impacts are similar to those described in the VISION 2040 FEIS—reduction in habitat quality and quantity, habitat fragmentation, and alteration of vegetation cover—and will be briefly described. Impacts specific to each alternative are within the range of impacts described in the VISION 2040 FEIS but will be updated to supply additional context to the comparison between each of the regional growth alternatives.

4.5.1 Analysis of Alternatives

4.5.1.1 Impacts Common to all Alternatives

All alternatives would result in ecosystem impacts due to increased residential and commercial land development and expansion of infrastructure to serve the new development. These impacts are similar to those described in the VISION 2040 FEIS, and include:

- Development: Clearing and grading activities associated with development affects ecosystem functions through fragmentation, isolation, degradation of natural habitats, alteration of species composition, disruption of hydrological systems, and modification of energy flow and nutrient cycling.
- Land Cover: All alternatives would result in vegetation removal and increased amounts of impervious surfaces (discussed in greater detail in Section 4.6). Areas with higher sensitivity to such changes would have greater risk of adverse effects on habitat quality and quantity for terrestrial and aquatic species.
- Transportation Infrastructure: Construction of transportation infrastructure contributes to the conversion of forested areas to paved areas. As described in Section 4.3, all alternatives are based on implementation of the transportation system as defined in the Regional Transportation Plan (PSRC 2018c).
- Habitat: Under all alternatives, specific impacts to regionally significant habitat areas associated with individual projects or localized actions would be determined through project-level planning, and impacts could be avoided or minimized through mitigation. In many cases, regionally significant habitat areas are protected by critical area ordinances and other regulations. As regionally significant habitat areas tend to occur more in rural areas than in cities, alternatives that minimize growth in rural areas and adjacent to natural resource lands could have fewer impacts.

Impacts due to growth as described for each regional geography are similar to the VISION 2040 FEIS and have been updated to reflect revised regional geography classifications for VISION 2050. For all alternatives, relative adverse impacts are likely to be greater if development occurs in less developed areas rather than already impacted urban areas.

- Metropolitan and Core Cities: Some high-quality ecosystems persist in these geographies. In many cases, such areas are protected in parks and by critical areas ordinances. In general, however, ecosystem resources in Metropolitan and Core Cities are less abundant and more degraded than in other geographies. As a result, the ecological impacts of development in these areas would likely be less severe than impacts of similar development in other geographies.

- HCT Communities: These areas are generally less developed than Metropolitan and Core Cities. Growth would likely occur by increasing density around high-capacity transit investments in urban areas that are close to existing city centers. These areas likely have less-intact ecosystems, similar to Metropolitan and Core Cities. Development in these areas could result in low to moderate impacts to ecosystems.
- Cities & Towns: These vary widely in size and development but are less built out than Metropolitan, Core Cites, and HCT Communities. Growth would be accommodated by increasing density, but likely would be more dispersed than Metropolitan, Core Cites, and HCT Communities. Development in these areas could cause a proportionally larger alteration in land cover and vegetation than in more densely developed areas. Compared to denser urban areas, added infrastructure could pose a greater risk of bisecting currently intact functioning ecosystems and habitats. Increased development in these areas would be more likely to impact ecosystems.
- Urban Unincorporated: Most of these areas are located closer to the edge of the urban growth area and the level of development ranges from fairly developed to minimally developed. Impacts would be similar to Cities & Towns, but growth in these areas would likely have a greater impact on ecosystems given their proximity to rural and natural resource areas.
- Rural: Much of the land in rural areas is undeveloped or minimally developed. Development in these areas would be more likely to alter vegetation and land cover. In addition, regionally significant habitat is more likely to occur in these areas. Alternatives that direct growth to these areas would have the most potential impacts to ecosystem functions and regionally significant habitat.

4.5.1.2 Comparison of Alternatives

The alternatives direct different proportions of population and employment growth into the regional geographies, as described in Sections 3.2 to 3.4. Alternatives directing a greater proportion of growth to Rural and Urban Unincorporated areas (and to some extent Cities & Towns) would be expected to pose a greater risk of adverse effects to ecosystems compared to an alternative that emphasizes growth in Metropolitan and Core Cities, where remaining ecosystems tend to be limited or already altered by previous development. This section describes impacts for Stay the Course, Transit Focused Growth, and Reset Urban Growth and compares impacts for ecosystem resources.

Summary of Key Differences

Development and land cover – As a result of more compact growth in urban areas and less dispersed growth throughout the remaining urban growth area, Transit Focused Growth would result in the least amount of total acres developed (285,000 acres) of all the alternatives. Therefore, Transit Focused Growth would have the least ecosystem impacts associated with vegetation removal and land disturbance. Reset Urban Growth, the more dispersed growth alternative, would require the most total acres for development (331,000 acres) and would have the most ecosystem impacts associated with vegetation removal and land disturbance. Stay the Course would result in development of 322,000 acres and would fall in the middle of this range.

Habitat – Under Transit Focused Growth, the least amount of population and employment growth (12 percent of population growth and 7 percent of employment growth) would be directed to Cities & Towns, Urban Unincorporated, and Rural areas where regionally significant habitat would be more likely to occur. Therefore, Transit Focused Growth would have the least impacts to regionally significant habitat of all the alternatives. Reset Urban Growth would direct the most amount of growth to Cities & Towns, Urban Unincorporated, and Rural areas (26 percent of population growth and 14 percent of employment growth), and would have the greatest impact on regionally significant habitat. Stay the Course would direct 19 percent of population growth and 9 percent of employment growth to Cities & Towns, Urban Unincorporated, and Rural areas, and would fall in the middle of this range.

4.5.1.3 Impacts of Stay the Course (No Action Alternative)

A total of 322,000 acres would be developed throughout the region to accommodate growth under Stay the Course. This development would occur through compact development in already urban areas, with some development dispersed throughout the urban growth area. A large portion of this overall development—233,000 acres —would occur on previously undeveloped lands, resulting in reduced vegetation cover and habitat degradation.

Fourteen percent of population growth and 8 percent of employment growth would be directed to Cities & Towns and Urban Unincorporated areas where regionally significant habitat would be more likely to occur. In addition, 5 percent of population growth and 1 percent of employment growth would be directed to rural lands, which would likely experience the greatest impact to regionally significant habitat.

Development to accommodate this growth under this alternative would result in reduced vegetation cover and habitat degradation, and would likely impact regionally significant habitat.

4.5.1.4 Impacts of the Transit Focused Growth Alternative

A total of 285,000 acres would be developed throughout the region to accommodate the Transit Focused Growth alternative. This development would focus on increased growth around high-capacity transit investments as well as in Metropolitan and Core Cities. This alternative would result in a compact urban growth pattern with the least amount of dispersed growth and sprawling development patterns. As with Stay the Course, a portion of this overall development—215,000 acres—would occur on previously undeveloped lands.

Ten percent of population growth and 6 percent of employment growth would occur in Cities & Towns and Urban Unincorporated areas where regionally significant habitat would be more likely to occur. In addition, 2 percent of population growth and 1 percent of employment growth would occur in rural areas.

4.5.1.5 Impacts of the Reset Urban Growth Alternative

Under Reset Urban Growth, 331,000 acres would be developed throughout the region to accommodate growth. This alternative focuses development throughout the urban area and in outlying cities and unincorporated urban areas, resulting in a more dispersed development pattern throughout the region. Similar to Stay the Course, 233,000 acres of development would occur on previously undeveloped lands, resulting in reduced vegetation cover and habitat degradation.

Twenty percent of population growth and 12 percent of employment growth would be directed to Cities & Towns and Urban Unincorporated areas where regionally significant habitat would be more likely to occur. In addition, 6 percent of population growth and 2 percent of employment growth would be directed to rural lands, which would likely experience the greatest impact to regionally significant habitat.

4.5.2 Cumulative Effects

Cumulative impacts for ecosystems are similar to those described in VISION 2040 FEIS Section 5.5.3. These include dramatic alteration of the landscape and ecosystem functions resulting from urban development of the region over the last 150 years. These changes are largely irreversible in areas where development has already occurred. Urban development will continue, though appropriate planning and mitigation could limit ecosystem impacts. Climate change is also likely to result in future impacts by altering hydrology, changing the types of habitat present in a given area, and affecting hunting and forage opportunities.

Differences in cumulative effects would derive from differences in impacts as well as each alternative's likelihood of supporting or disrupting regional ecosystem restoration efforts. Transit Focused Growth would be most supportive of land use policies that facilitate protection and preservation of ecosystems and habitats by focusing development in existing urban areas and would be less likely to impede ecosystem restoration efforts. Transit Focused Growth would result in the least adverse cumulative effects on ecosystems. Reset Urban Growth, the

most dispersed growth alternative, would have the most potential for adverse cumulative effects, and Stay the Course would fall in the middle of this range.

4.5.3 Potential Mitigation Measures

Potential mitigation measures are similar to those described in the VISION 2040 FEIS. Table 4.5-1 summarizes mitigation measures from the FEIS and includes additional mitigation measures.

Table 4.5-1. Potential Mitigation Measures: Ecosystems

Topic: Ecosystems
• Preserve and restore open spaces, shorelines, riparian areas, and wetlands*
• Implement Green Street strategies and programs*
• Protect areas with high priority through avoidance or replacement*
• Provide market-based strategies and incentives to encourage conservation*
• Develop regional or watershed environmental plans*
• Enact conservation levies to preserve areas identified as high-priority habitat*
• Designate critical areas*
• Repair and replace culverts to support fish passage and stream habitat restoration*
• Encourage Green Development actions and strategies*
• Implement urban forestry programs that enhance ecosystem function in urban areas*
• Create fish ladders*
• Remove invasive species*
• Minimize new road construction that fragments ecosystems and habitat*
• Design and construct transportation facilities to maintain species and ecosystem functions, considering hydrological and ecological connectivity*
• Create programs to encourage developers to pursue projects through redevelopment
• Support jurisdictions with their regular updates to Shoreline Master Programs and Critical Areas Ordinances
• Encourage policies that protect and create wildlife corridors along critical areas and shorelines
• Implement the Regional Open Space Conservation Plan (PSRC 2018j) at the local level
• Promote rural land use and management practices that limit impact on open space services
• Encourage use of drainage systems that mimic natural systems (e.g., vegetated swales and rain gardens)
• Locate, design, and maintain stormwater management facilities to maximize benefits to pond-breeding amphibians (Wind 2015)
• Promote the preservation of on-site native vegetation, particularly mature trees
• Support funding mechanisms for fixing blocked culverts
• Explore ways to protect habitat through Transfer/Purchase of Development Rights programs, outright purchase, or conservation easement
• Seek funding sources such as countywide bond issues, ecosystem service markets, and public/private partnerships
• Use mitigation banking
• Support environmental stewardship and public education programs about ecosystem resources

*Denotes mitigation measure from the VISION 2040 FEIS

4.5.4 Significant Unavoidable Adverse Impacts

Significant unavoidable adverse impacts are as described in Section 5.5.5 of the VISION 2040 FEIS. As all alternatives would entail additional residential and commercial development and supporting infrastructure, they could have significant unavoidable adverse impacts to terrestrial and aquatic ecosystems depending on project-specific actions and their location. This would lead to alteration of land cover, removal of vegetation, and loss of habitat. Implementation of the mitigation measures listed in Section 4.5.3 of this Draft SEIS would help avoid or reduce ecosystem impacts.

4.6 Water Quality and Hydrology

As discussed in Chapter 2, increasing impervious surfaces through development can result in potential adverse effects to water quality and hydrology. Projected population and employment growth would drive additional development throughout the region, likely resulting in increased impervious surface area. Water quality and hydrology impacts common to all alternatives are similar to those described in the VISION 2040 FEIS and will be briefly described. Impacts specific to each alternative are within the range of impacts described in the VISION 2040 FEIS and are updated to provide additional context to provide comparison between each of the regional growth alternatives. This section updates VISION 2040 FEIS Section 5.6.2.

4.6.1 Analysis of Alternatives

4.6.1.1 Impacts Common to all Alternatives

Many of the impacts common to all alternatives are similar to those described in the VISION 2040 FEIS, including:

- Construction impacts – construction activities can involve removal of vegetation and soil disturbance, causing erosion and water quality impacts. Construction activities and associated rainfall runoff controls are required to meet permitting requirements that should prevent or minimize adverse impacts.
- Impaired waters – impaired waters are widespread throughout the region; therefore, all alternatives would likely result in some development around both impaired waters and non-impaired waters. Future redevelopment around impaired waters could provide an opportunity to improve water quality through upgrades and improvements to stormwater treatment systems that currently may not meet current standards.
- Other water resources – sole-source aquifers, large contiguous floodplains, wetlands, lakes, rivers, and streams are located throughout the region. All alternatives could have impacts on these resources if development occurs in proximity to these resources. Development within and near these water resources is regulated and any impacts

would be mitigated under local jurisdictions' stormwater management codes, critical areas codes, and shoreline master programs, as applicable.

- Impervious surfaces – all alternatives would result in an increase in the amount of impervious surface in the region, as a result of added residential, commercial, and infrastructure development required to support an additional 1.8 million people and 1.2 million jobs in the region. Increasing the amount of impervious surfaces may alter stormwater hydrology, reduce aquatic habitat from sediment transport and scour, degrade water quality through an increase of pollutants in stormwater, and increase water temperature.
- Sea level rise – all alternatives may experience the effects of sea level rise as described in Section 2.8 depending on the rate of climate change and the effectiveness of mitigation actions. The areas near the estuaries of the Stillaguamish, Snohomish, Duwamish, and Puyallup rivers and other low-lying coastal areas are most at risk of inundation from sea level rise, which may directly impact some cities and industrial lands at the ports of Everett, Seattle, and Tacoma.

4.6.1.2 Comparison of Alternatives

This section describes impacts for Stay the Course, Transit Focused Growth, and Reset Urban Growth and compares impacts for water resources.

Impervious surfaces and land development patterns are key measures related to the health of the region's water resources. Data for impervious surfaces added to the region for each alternative is shown in Table 4.6-1. In comparing the alternatives, the following factors are important:

- New Development compared to No Development – Current stormwater management codes require the most effective, reasonably available technologies to minimize water quality impacts. However, in previously undeveloped areas, avoiding development altogether will result in less impact to water quality than new development compliant with current stormwater management codes.
- Less Redevelopment compared to More Redevelopment – In areas developed before more stringent stormwater regulations were in place, alternatives that focus growth and redevelopment to these locations could trigger new control of previously unmanaged impervious runoff or upgrades to older stormwater management systems, resulting in an overall beneficial impact to water quality. Redeveloping more of these outdated areas results in more of a benefit to water quality. At the same time, due to the cost of land, purchasing space for stormwater management in these dense, urban areas is typically more expensive than placing the same level of controls in previously undeveloped areas of more outlying cities and rural land.

- **New Development compared to Redevelopment** – Where the option is available, focusing growth in previously developed urban areas that redevelops old impervious surfaces and updates controls to current standards will result in less impact to water quality than focusing the same growth in previously undeveloped areas that add new impervious controlled surfaces under current standards.

In general, the difference in potential impacts to water quality between the alternatives is limited. However, growth in Metropolitan, Core Cities, and HCT Communities would likely result in reduced adverse impacts, and growth in Cities & Towns, Urban Unincorporated, and Rural areas would have the potential to increase adverse impacts.

Table 4.6-1. New Impervious Surface in Previously Undeveloped Areas (added from 2017–2050)

	2017 Acres	Stay the Course		Transit Focused Growth		Reset Urban Growth	
		Acres	% increase	Acres	% increase	Acres	% increase
King County	129,600	9,100	7%	7,300	6%	9,600	7%
Kitsap County	23,400	1,800	8%	1,500	6%	1,900	8%
Pierce County	66,100	8,300	13%	7,300	11%	8,500	13%
Snohomish County	53,80	4,100	8%	3,400	6%	4,400	8%
Region	**273,000**	**23,200**	**8%**	**19,600**	**7%**	**24,300**	**9%**

Summary of Key Differences

New impervious surface added to undeveloped areas – Transit Focused Growth would result in the least amount of impervious surface added to the region in undeveloped areas (19,600 acres). Reset Urban Growth would result in the most amount of impervious surface added to the region in undeveloped areas (24,300 acres). Stay the Course would fall in between this range at 23,200 acres of added impervious surface in undeveloped areas.

Redevelopment in areas with outdated stormwater controls (resulting in potential water quality benefit) – Reset Urban Growth would redevelop 26,000 acres (12 percent of the 223,900 acres with outdated controls) and would result in the greatest redevelopment benefit of the alternatives. Transit Focused Growth would redevelop 17,200 acres of old impervious surfaces (8 percent of the 223,900 acres with outdated controls) and would result in the least redevelopment benefit of the alternatives. Stay the Course would fall in between this range at 22,800 acres of old impervious surfaces redeveloped.

4.6.1.3 Impacts of Stay the Course (No Action Alternative)

Under this growth alternative, 23,200 acres of new impervious surface would be added to the region. Most of the growth in acres of impervious surface added would occur in King and Pierce counties; however, the largest percentage increase—13 percent—would occur in Pierce County. The other counties show a percentage increase similar to the regional average of 8 percent.

A portion of additional development added to the region would occur through redevelopment and increasing density of existing developed parcels that were developed prior to enactment of stringent stormwater standards. Growth through redevelopment of older parcels would improve existing stormwater facilities on approximately 22,800 acres, leading to potential water quality improvements on those redeveloped lands.

4.6.1.4 Impacts of Transit Focused Growth

An added 19,600 acres of new impervious surface in previously undeveloped areas would occur under Transit Focused Growth. As with Stay the Course, most added acres would occur in King and Pierce counties, with the largest percentage increase occurring in Pierce County. All other counties would have shares similar to the regional average of 6 percent.

Growth through redevelopment of older parcels would improve existing stormwater facilities on approximately 17,200 acres, leading to potential water quality improvements on those redeveloped lands.

4.6.1.5 Impacts of Reset Urban Growth

With Reset Urban Growth, there would be an added 24,300 acres of new impervious surface in previously undeveloped areas in the region. As with the other alternatives, this would primarily be distributed between King and Pierce counties, with Pierce County having the largest percentage increase of added impervious surface.

Growth through redevelopment of older parcels would improve existing stormwater facilities on approximately 26,000 acres, leading to potential water quality improvements on those redeveloped lands.

4.6.2 Cumulative Effects

Cumulative effects would be similar to those described in Section 5.6.3 of the VISION 2040 FEIS. Development and human activity over the last 150 years have dramatically changed water resources by hardening watersheds and altering shorelines, rivers, and floodplains physically and chemically through added contamination. Growth throughout the region has the potential to continue to alter water resources, though this could be lessened through redevelopment of land and transportation infrastructure. Climate change may also play a role

in future impacts by degrading water quality, altering water supply timing and quantity, increasing flooding, and causing increases in sea level and coastal erosion.

4.6.3 Potential Mitigation Measures

The potential mitigation measures for water quality and hydrology impacts described in the VISION 2040 FEIS are still applicable and are summarized in Table 4.6-2, which also includes new mitigation measures.

Table 4.6-2. Potential Mitigation Measures: Water

Topic: Water Resources
• Improve stormwater detention and treatment systems, including "green" stormwater infrastructure* • Pursue low-impact development techniques to minimize impervious surface* • Strengthen critical areas ordinances and develop conservation plans* • Restore buffers* • Transfer development rights to reduce development potential* • Implement "best practice" construction practices* • Control land use in areas susceptible to groundwater contamination • Limit development of impervious surfaces over recharge areas* • Update development standards to minimize impervious surface* • Pursue water conservation and reuse measures* • Consider green development standards* • Reduce need for additional or expanded roadways* • Use cleaner fuels* • Implement the Puget Sound Partnership Action Agenda and Water Resource Inventory Area Salmon Recovery/Habitat Protection plans • Conduct integrated watershed planning • Retrofit (with updated stormwater controls) areas and transportation facilities not likely to be redeveloped in the near term • Prioritize watersheds for stormwater retrofits that provide opportunities to restore salmon habitat and redevelop urban centers (Washington State Department of Commerce 2016) • Develop programs that encourage the private sector to take an active role in creating cost-effective regional stormwater management opportunities on private land (NRDC 2018a) • Use the Clean Water State Revolving Funds to support climate-resilient communities (NRDC 2018b) • Continue research and implementation of innovative stormwater best management practices • Develop recommendations for incentives to encourage infill and redevelopment • Charge surface water management fees to allow jurisdictions to efficiently manage stormwater and incentivize the construction and use of effective stormwater infrastructure (PSRC 2014b) • Implement PSRC's Four-Part Strategy to reduce greenhouse gas emissions • Implement elements of the Regional Open Space Conservation Plan that help preserve water resource lands, natural areas, and aquifer recharge areas

*Denotes mitigation measure from the VISION 2040 FEIS

4.6.4 Significant Unavoidable Adverse Impacts

As described in Section 5.6.5 of the VISION 2040 FEIS, significant unavoidable adverse impacts are similar to the impacts discussed above and include:

- Water quality and quantity impacts resulting from added impervious surfaces and point and non-point discharges of pollutants to receiving waters
- Additional water consumption, causing diversions and water withdrawals from surface and groundwater sources

Implementation of the mitigation measures listed in Section 4.6.3 of this Draft SEIS would help avoid or reduce water quality impacts.

4.7 Public Services and Utilities

This section updates VISION 2040 FEIS Section 5.7.2 and describes impacts that could result from growth in the region through 2050.

4.7.1 Analysis of Alternatives

4.7.1.1 Impacts Common to all Alternatives

As the region adds approximately 1.8 million people and 1.2 million jobs between now and 2050, demand for additional utilities including energy (described in Section 4.10), solid waste, sanitary sewer, water, and stormwater are anticipated. In addition, general service expansions of fire and police services, health and medical services, and schools would be anticipated. Impacts common to all alternatives are as described in the VISION 2040 FEIS. The impacts under all alternatives would be as follows:

- Solid Waste: Expansion of existing and/or addition of new transfer stations would likely be needed to accommodate increased solid waste generation.
- Sanitary Sewer: Expansion and/or replacement of pipes and wastewater treatment facilities would likely be needed to handle increased demand caused by growth.
- Water Supply: Increased supply or reduced demand (through conservation) may be needed to meet projected demand through the region into 2050. All alternatives would likely require updated and extended water distribution infrastructure. In addition, uncertainty from climate change may present new risks and vulnerabilities for water resource managers and planners throughout the region.
- Stormwater: Expansion and/or replacement of pipes, flow control facilities, and water quality treatment facilities would likely be needed to handle increased impervious surfaces and pollution-generating activities caused by growth.

- Fire, Police, and Health and Medical Services: Additional services would be needed throughout the region to serve the planned growth. Existing facilities may need to be expanded or new facilities built.
- Schools: New, expanded, or remodeled schools will be necessary for all alternatives. Locations and impacts may vary slightly by alternative.

Under all alternatives, agencies responsible for providing utilities and public services would engage in long-range planning to ensure future projected demands would be met (as described in Section 2.9.1).

4.7.1.2 Comparison of Alternatives

The provision of services and required infrastructure is driven by land development patterns associated with each regional growth alternative. Impacts for the alternatives considered here are within the range of impacts described in the VISION 2040 FEIS. This section describes impacts for Stay the Course, Transit Focused Growth, and Reset Urban Growth, and compares impacts for public services and utilities.

Summary of Key Differences

The concentrated population and employment growth of Transit Focused Growth directed to Metropolitan Cities, Core Cities, and HCT Communities would slightly increase the strain on infrastructure and facilities in these areas compared to other alternatives. The slightly reduced allocations of growth to these areas in Reset Urban Growth would slightly reduce the strain placed on existing infrastructure and facilities compared to other alternatives.

However, under Transit Focused Growth, growth is minimized to Cities & Towns, Urban Unincorporated, and Rural areas, which would result in reduced strain on existing utilities and reduced need for expansion of infrastructure and facilities into areas not currently served compared to other alternatives. Under Reset Urban Growth, the additional growth allocated to Cities & Towns, Urban Unincorporated, and Rural areas would strain existing utilities and likely require the addition of new utilities. There is increased potential for the need to expand infrastructure and facilities into areas not currently served.

4.7.1.3 Impacts of Stay the Course (No Action Alternative)

Strong growth focused in Metropolitan Cities, Core Cities, and HCT Communities would place a large strain on existing infrastructure. To serve these areas, the capacity of existing infrastructure would likely need to be expanded and updated, or new infrastructure and facilities would need to be built.

Growth allocated to Cities & Towns, Urban Unincorporated, and Rural areas could require expansion of current infrastructure. Some potential exists for expanding infrastructure and facilities into areas that are not currently served, but this could be costly and conveyance

facilities could have impacts on ecosystem and water resources that are more likely to be present in these areas.

4.7.1.4 Impacts of the Transit Focused Growth Alternative

Focused growth in Metropolitan and Core Cities and HCT Communities would require capacity expansion of existing or addition of new infrastructure to serve these areas where existing infrastructure would be strained. Limited growth in Cities & Towns, Urban Unincorporated, and Rural areas may reduce the need to construct or expand facilities in these less-developed areas and help to preserve rural and open spaces.

4.7.1.5 Impacts of the Reset Urban Growth Alternative

Growth in Metropolitan and Core Cities would require expansion of existing or addition of new facilities in these areas. In addition, greater allocation of growth to Cities & Towns, Urban Unincorporated, and Rural areas could increase the demand for construction of new infrastructure and facilities.

4.7.2 Cumulative Effects

Regional cumulative effects would be similar to those described in the VISION 2040 FEIS. The primary cumulative impact would be that service providers would need to expand their services, infrastructure, and facilities to meet the needs of growth. These service expansions could increase public costs and impact environmental resources.

If the impacts of climate change are accelerated or occur at a different magnitude than predicted, infrastructure may need to be relocated or replaced in affected areas or away from shorelines. The water supply could become contaminated in affected areas if climate change events or other disasters damage infrastructure.

4.7.3 Potential Mitigation Measures

Potential mitigation measures described in the VISION 2040 FEIS continue to be applicable and are summarized in Table 4.7-1, which also includes new mitigation measures.

Table 4.7-1. Potential Mitigation Measures: Public Services and Utilities

Topic: General
• Implement conservation and demand-reduction measures* • Create effective emergency and disaster planning programs* • Employ incentive programs to utilize innovative/alternative technologies and conservation practices* • Research and promote “smart cities” practices—using data and analytics to optimize utility performance (smart meters and monitoring, smart grid technology) • Consider developing best management practices and model policies for cities and counties to easily adopt

Table 4.7-1. Potential Mitigation Measures: Public Services and Utilities (continued)

Topic: Solid Waste
• Implement conservation measures, with emphasis on increased recycling* • Promote green waste practices throughout the region, including curbside composting service, work site composting, and yard waste collection • Educate residents on proper waste disposal • Assist schools in conservation practices and involve them in educational opportunities • Pursue opportunities to divert waste from landfills
Topic: Water, Sanitary Sewer, and Stormwater
• Promote water conservation and reuse options* • Extract new or additional water from new ground or surface water sources* • Store water and release when needed* • Study water availability and demand at regional and local levels* • Implement planned and programmed improvements to sewer and wastewater facilities* • Employ measures to conserve water and improve collection systems* • Investigate interties and options for sharing supplies* • Investigate localized climate change impacts to prepare for possible impacts on water supply • Improve urban water management and install permeable pavement, drought-tolerant landscaping, and water-efficient fixtures • Encourage green infrastructure: design rooftops to capture rainwater, install rain gardens • Implement PSRC's Four-Part Strategy to reduce greenhouse gas emissions • Implement elements of the Regional Open Space Conservation Plan that help preserve water resource lands, natural areas, and aquifer recharge areas
Topic: Other Services (fire, police, medical, schools)
• Identify opportunities to share services and facilities* • Assess school district and other service district boundaries* • Encourage proactive collaboration between cities, counties, school districts, and other special service districts to understand capacity needs and support development sites for new schools and other facilities

*Denotes mitigation measure from the VISION 2040 FEIS

4.7.4 Significant Unavoidable Adverse Impacts

Similar to Section 5.7.5 of the VISION 2040 FEIS, all alternatives are likely to impact public service providers in unplanned ways. Institutional constraints exist that may affect implementation of future service provisions, such as:

- Uncertainty and disincentives for sharing resources
- Limited funding to support site acquisition and building in compact urban areas

Implementation of the mitigation measures listed in Section 4.7.3 of this Draft SEIS would help avoid or reduce public services and utilities impacts.

4.8 Parks and Recreation

This section updates VISION 2040 FEIS Section 5.8.2 and describes impacts that could result from growth in the region through 2050. The analysis in this section is based on existing parks, trails, and other open space facilities located in the urban growth area or within one-quarter mile of the urban growth area boundary. Potential new future parks and facilities are not accounted for in this impact analysis.

4.8.1 Analysis of Alternatives

4.8.1.1 Impacts Common to all Alternatives

Impacts common to parks, open space, and recreational facilities within the urban growth areas under all alternatives are similar to those described in the VISION 2040 FEIS. The addition of 1.8 million people to the region would impact existing park and recreation resources unless new parks and facilities are added at both the local and regional level. These impacts would include:

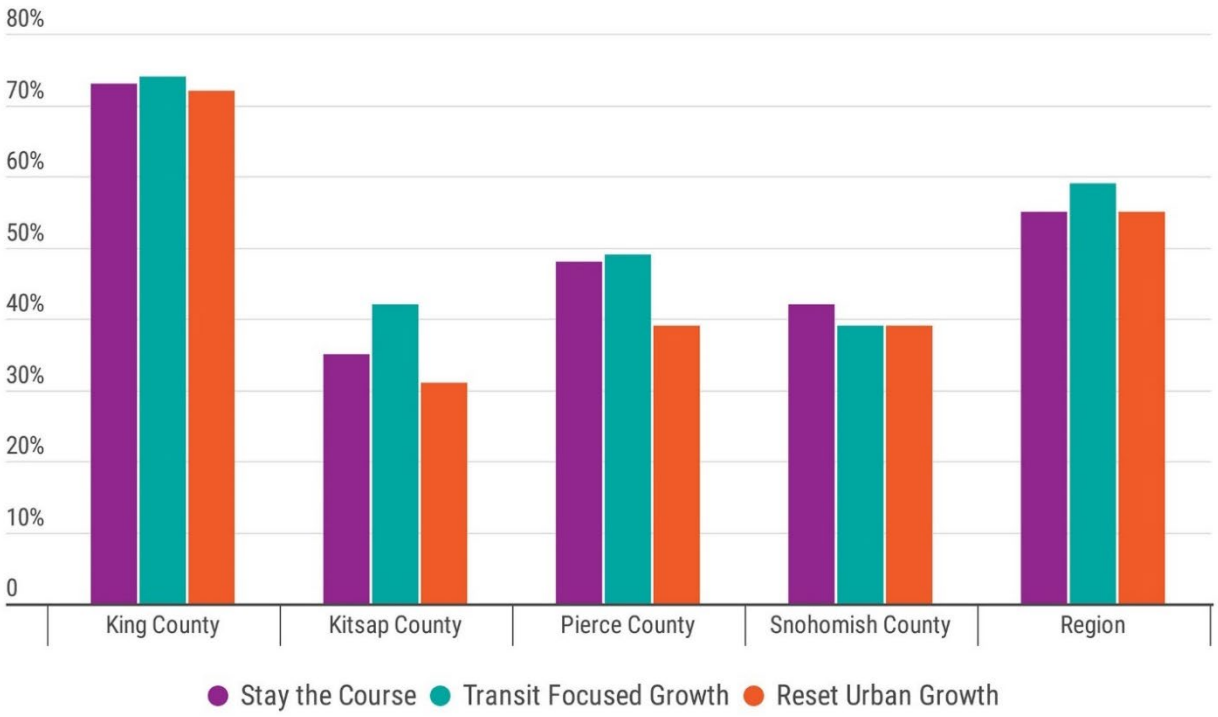
- Increased use, and in some locations, crowding. Increased use could lead to degradation of the recreational experience and potential degradation of the natural and open space resources.
- Increased demand for jurisdictions to redevelop existing parks and develop, operate, and maintain new facilities, which would increase capital expenses.
- The additional use of and demand for resources would likely increase conflicts between different types of recreational users and reduce the convenience of access.
- New development not properly planned with consideration of parks and open space needs, such as those identified in the Regional Open Space Conservation Plan, would lack access to parks, open spaces, and recreational resources within the urban growth area.

In addition to impacts to parks as described in the VISION 2040 FEIS, there is potential for impacts at a regional level for facilities outside of the urban growth area. At a regional level, access to wild open spaces such as national parks, forests, and wilderness areas would experience similar adverse impacts under all alternatives. The population growth in the region could substantially strain management of these resources, including trail and road maintenance and vegetation and ecosystem preservation. Because many people arrive at these resources by car, access would increase carbon emissions, and without mitigation, trailheads would likely become increasingly congested, impacting natural resources around access points and creating safety concerns.

4.8.1.2 Comparison of Alternatives

This section describes impacts for Stay the Course, Transit Focused Growth, and Reset Urban Growth and compares impacts for parks and recreation resources. This analysis considers each alternative's distribution of population within one-quarter mile of existing facilities to compare ease of access to existing parks and open space. Figure 4.8-1 shows supporting data for this measure.

Figure 4.8-1. Urban Population Growth in Proximity to Parks Providing Local Urban Access, 2017–2050



Source: PSRC

Note: Proximity is defined as within one-quarter mile; parks providing local urban access is defined as currently existing parks, trails, and other open space facilities located in the urban growth area or within one-quarter mile of the urban growth area boundary

Summary of Key Differences

At a regional level, Transit Focused Growth would result in the greatest proportion of the population growth (59 percent) occurring within one-quarter mile of existing parks, trails, and open space facilities. Both Stay the Course and Reset Urban Growth would have slightly less population growth (55 percent) occurring within one-quarter mile of parks and recreation resources.

4.8.1.3 Impacts of Stay the Course (No Action Alternative)

Under the Stay the Course alternative, 55 percent of the region's urban population growth would be located in proximity to parks providing local urban access. King County would see the greatest share of urban growth in proximity to local parks at 73 percent and Kitsap County would have the lowest share at 35 percent. Pierce County and Snohomish County fall in the middle of this range with 48 percent and 42 percent, respectively, of urban population growth located in proximity to local parks.

4.8.1.4 Impacts of the Transit Focused Growth Alternative

It is estimated that the Transit Focused Growth alternative would result in 59 percent of regional urban population growth being located in proximity to parks providing local urban access. Growth in King County would have the greatest access at 74 percent and Snohomish County the lowest at 39 percent. Pierce County and Kitsap County fall in the middle of this range with 49 percent and 42 percent, respectively, of urban population growth located in proximity to parks.

4.8.1.5 Impacts of the Reset Urban Growth Alternative

Under the Reset Urban Growth alternative, 55 percent of regional urban population growth would be located in proximity to parks providing local urban access. Growth in King County would have the greatest access at 72 percent and Kitsap County the lowest at 31 percent. Pierce County and Snohomish County fall in the middle of this range with 39 percent located in proximity to parks.

4.8.2 Cumulative Effects

Cumulative effects would be as described in VISION 2040 FEIS Section 5.8.3, and could include the following:

- Population growth and associated development may limit available land for development of parks, open space, and recreational facilities, creating competition for available land and higher land costs.
- An aging population (described in Section 2.1) could result in higher levels of park use and different types of use.
- Increased development may conflict aesthetically with nearby existing parks, open space, and recreational resources.

4.8.3 Potential Mitigation Measures

Potential mitigation measures listed in the VISION 2040 FEIS would still be applicable, and this list is expanded to include new measures. These measures are described in Table 4.8-1.

Table 4.8-1. Potential Mitigation Measures: Parks and Recreation Resources

Topic: Parks and Recreation Resources
• Develop level-of-service guidelines for parks and recreation facilities* • Commit to planning, funding, and constructing new and updated parks and recreational facilities* • Develop comprehensive program for acquiring land for public use* • Adopt local development impact fees for parks* • Commit funding for maintenance and enhancements of existing facilities* • Adopt local park development, enhancement, and maintenance levies* • Preserve and enhance access to and interpretation of natural features* • Redevelop areas such as brownfield sites and closed mining sites as public recreation facilities* • Consider joint recreational uses when developing new infrastructure and facilities* • Ensure that new neighborhood parks are located near the greatest number of people* • Include bike lanes, broad sidewalks, and shared-use paths in comprehensive planning for new transportation and recreation development and redevelopment* • Plan for and provide public transportation, sidewalks, and trail systems that enhance access to recreational facilities* • Incentivize private developers to provide recreation and open space with development projects* • Plan recreational resources on a regional or statewide scale* • Expand use of joint operating agreements between schools and local jurisdictions* • Implement the Regional Open Space Conservation Plan, including the following: – Incorporate open space conservation into all levels of planning – Protect remaining key habitat areas – Support urban open space and increase access to nearby open space for urban residents – Build a regional trail network – Enhance stewardship on open space lands – Restore habitat in high-value areas – Coordinate planning among and within agencies, jurisdictions, Tribes, and organizations – Engage the community to ensure that new and upgraded facilities meet their needs – Build multi-benefit green infrastructure, such as stormwater parks and river trails

*Denotes mitigation measure from the VISION 2040 FEIS

4.8.4 Social Equity Considerations

In particular, the necessity of having a car to access regional parks, open space, and recreational resources creates a barrier for people with lower incomes who are less likely to own a car. Other barriers to enjoying these open spaces for people with low incomes include the cost of an access pass and lack of leisure time, equipment, and familiarity with hiking and camping (PSRC 2018j).

Under all alternatives and compared to the region as a whole, more growth would occur in census tracts that are greater than 50 percent people with low incomes and people of color with access to local parks. Future park access for residents of census tracts in which more than

50 percent of people have low incomes would improve the most under Reset Urban Growth. However, large amounts of growth could indicate displacement risk for people with low incomes unless mitigated as discussed in Section 4.1.4. For census tracts that have more than 50 percent people of color, access would be similar across the alternatives. Increased demand could impact existing parks (described above in Section 4.8.1.1) but would affect all populations similarly.

4.8.5 Significant Unavoidable Adverse Impacts

Significant unavoidable adverse impacts to recreational resources would likely occur as a result of population growth under all alternatives and would be similar to those detailed in Section 5.8.5 of the VISION 2040 FEIS and the impacts described above. These adverse impacts would include crowding, increased costs of facility operations and maintenance, user conflicts, and degradation of natural resources. Intensity and distribution of impacts could correspond to population growth at the local level. Implementation of the mitigation measures listed in Section 4.8.3 of this Draft SEIS would help reduce and avoid some of these impacts to parks and recreation.

4.9 Environmental Health

This section updates VISION 2040 FEIS Section 5.9.2 and describes environmental health impacts from contamination and the built environment. The analysis of impacts considers potential redevelopment of contaminated sites, physical activity, access to open space, and noise and air quality impacts.

4.9.1 Analysis of Alternatives

4.9.1.1 Impacts Common to all Alternatives

Impacts common to all alternatives would be as described in VISION 2040 FEIS Section 5.9.2 for contamination and pollution. These impacts would be both adverse and beneficial and include the following:

- Development or redevelopment could occur in contaminated areas and expose construction workers or people living near construction activities to contamination or pollution.
- Growth in contaminated areas would result in a beneficial impact through cleanup activities.

Contaminated areas are generally focused in established cities, along waterfronts, and in transportation corridors. Potential for encountering contamination diminishes further away from these areas. Rural areas have localized contamination but the overall potential for encountering contamination is lower in these areas.

Physical activity and access to health services tend to be greater in cities, urban areas, and areas with access to transit. Physical activity and access to health services are reduced in rural areas.

The regional growth alternatives would have both adverse and beneficial impacts on human health beyond those discussed in the VISION 2040 FEIS. Human health impacts that would be common to all alternatives include the following:

- Increasing walking, biking, and transit as forms of transportation promotes healthy lifestyles.
- Increasing density of the urban environment could cause localized adverse air quality and noise impacts if not properly planned for and mitigated.
- Access to open spaces provides physical and mental health benefits and contributes to a high quality of life, especially for people living in cities and urban areas (PSRC 2018j). Providing increased access to open space and green spaces promotes mental health and encourages physical activity.

4.9.1.2 Comparison of Alternatives

Urban environments with transit access and greater access to health services are shown to have increased public health. All alternatives have increased transit access compared to baseline, which could result in improved public health. The compact development pattern of Transit Focused Growth could potentially provide greater health benefits, whereas the more dispersed pattern of Reset Urban Growth could potentially result in slightly decreased benefits to public health.

At a regional level, there are no discernable environmental health differences between alternatives due to contaminants. Any localized impacts related to cleanup of contaminated areas, air quality, or noise from specific development projects would be assessed and mitigated through applicable regulatory processes for those projects.

4.9.2 Cumulative Effects

Although increased development could result in a higher potential for release of hazardous materials, development that is managed in compliance with applicable regulations would result in a cumulative beneficial impact to environmental health through site cleanup activities.

The regional cumulative effects for human health would be similar for all alternatives. Planned projects that promote alternative transportation modes and transit-oriented development would provide benefits by reducing vehicle miles traveled and air emissions. However, with the additional development needed to accommodate the planned population and job growth, an increase in localized noise and air quality impacts could occur in some urban areas.

4.9.3 Potential Mitigation Measures

The potential mitigation measures described in the VISION 2040 FEIS would continue to be applicable. A summary of these is provided in Table 4.9-1, along with additional mitigation measures.

Table 4.9-1. Potential Mitigation Measures: Environmental Health

Topic: Contamination and Pollution
• Promote incentives to encourage brownfield redevelopment* • Seek alternatives to chemical-intensive activities and petroleum-based fuels* • Discourage chemical-intensive industries from operating in high-priority conservation areas* • Continue to comply with local, state, and federal hazardous materials regulations* • Consider encouraging redevelopment of contaminated sites through public/private partnerships and other creative financing strategies (Li et al. 2016)
Topic: Human Health
• Create walkable cities with parks, greenbelts, bike paths, and mixed-use development • Enact stringent air emissions policies* • Improve education related to environmental and public health* • Utilize technological advances to mitigate impacts to environmental health (e.g., fuel-efficient buses)* • Encourage jurisdictions to perform a community health impact assessment (PSRC 2014b) • Support implementation of the Regional Open Space Conservation Plan and develop or preserve green infrastructure, parks, and open spaces in urban areas (see Section 4.8 for additional information) • Implement pedestrian-oriented design strategies such as small block sizes and dense mix of land uses, and ensure connectivity of walkways (PSRC 2014b) • Identify opportunities to implement complete streets, and provide facilities to promote walking and biking (PSRC 2014b) • Establish policies that support healthy food retail and development programs that encourage more choices at the neighborhood scale (PSRC 2014b) • Pursue strategies to decrease localized air quality impacts (see Section 4.4.3) • Pursue strategies to decrease localized noise impacts (see Section 4.14)

*Denotes mitigation measure from the VISION 2040 FEIS

4.9.4 Significant Unavoidable Adverse Impacts

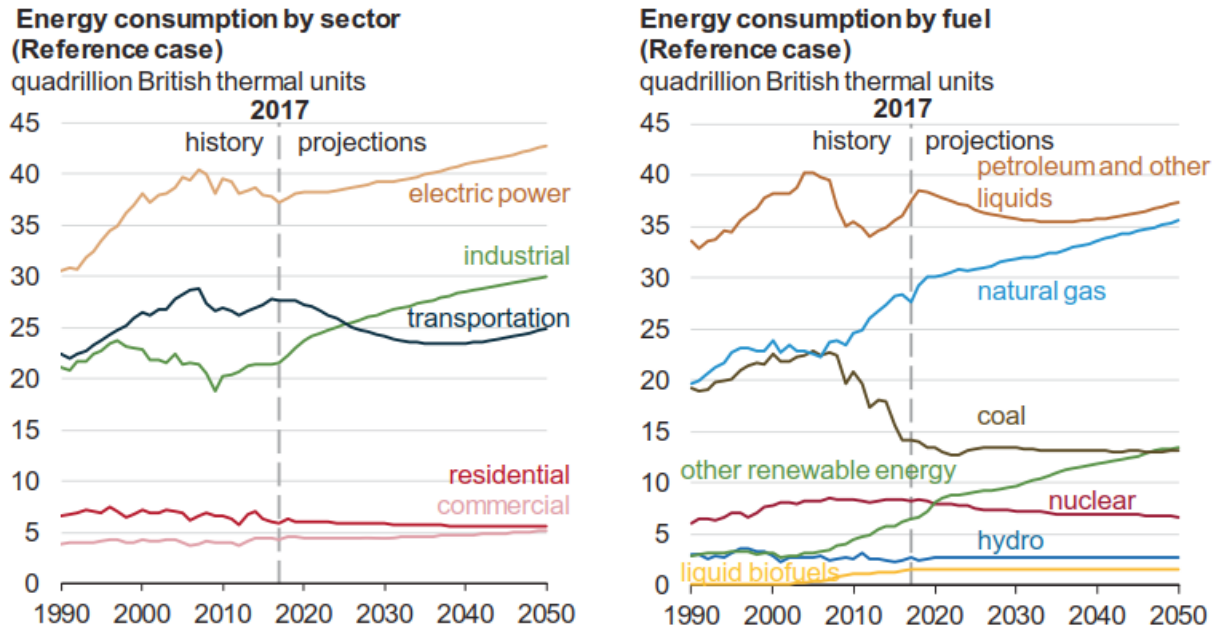
As described in Section 5.9.5 of the VISION 2040 FEIS, development and redevelopment to accommodate growth will occur under all alternatives and could result in exposure to contamination. However, all development should occur in compliance with local, state, and federal regulations, resulting in minimal risk. In addition, cleanup of contaminated sites would be possible under all alternatives, resulting in a beneficial impact. These impacts are not anticipated to result in significant unavoidable adverse impacts.

Human health impacts such as increased noise and decreased air quality associated with increasing urbanization could be reduced by mitigation but not wholly avoided. Implementation of the mitigation measures listed in Section 4.9.3 of this Draft SEIS would help reduce or avoid these impacts.

4.10 Energy

This section updates VISION 2040 FEIS Section 5.10.2 and describes impacts that could result from growth in the region through 2050. Regional energy consumption projections are not available. Although the general mix of energy sources (Section 2.12) varies between Washington state and the nation, they would generally follow consumption trends similar to those projected for the nation as a whole. Energy consumption at a national level is projected to increase as population increases. Although a range of scenarios is possible, the Reference case[7] projection estimates an increase in the rate of total energy consumption of 0.4 percent per year (EIA 2018b). Projected energy consumption by sector and fuel type is shown in Figure 4.10-1. Notably, consumption of natural gas grows the most on an absolute basis and consumption of renewables (not including hydroelectric) grows the most on a percentage basis.

Figure 4.10-1. Projected Energy Consumption by Sector and Fuel Type



Source: U.S. Energy Information Administration (EIA 2018b)

Impacts under each of the regional growth alternatives would be similar to the range of impacts considered in the VISION 2040 FEIS. All alternatives would likely increase demand for electrical power, natural gas, and petroleum, and associated development of facilities that distribute these energy sources. All alternatives would assume the implementation of the Four-Part

[7] The Reference case projection assumes trend improvement in known technologies along with a view of economic and demographic trends reflecting the current views of leading economic forecasters and demographers. The Reference case generally assumes that current laws and regulations affecting the energy sector are unchanged throughout the projection period. The potential impacts of proposed legislation, regulations, and standards are not included (EIA 2018b).

Greenhouse Gas Strategy, which includes technological initiatives to reduce energy consumption from the transportation sector. These initiatives include improvements in vehicle fuel economy and electrification of the region's transportation system (PSRC 2018c). There could be minor differences between alternatives, as described below.

Summary of Key Differences

All alternatives are characterized by strong growth in Metropolitan Cities, Core Cities, and HCT Communities, which would require expansion of existing or addition of new infrastructure to serve these areas.

Growth in Cities & Towns, Urban Unincorporated, and Rural areas may require construction or expansion of facilities where open spaces and undeveloped land occur; however, associated impacts would be limited for Stay the Course and minimized under Transit Focused Growth. Reset Urban Growth is characterized by a greater allocation of growth to Cities & Towns, Urban Unincorporated, and Rural areas, which could increase the demand for construction of new infrastructure into areas not currently served.

Impacts to renewable resources were not discussed in the VISION 2050 FEIS. Given the national projections for an increase in renewables and the recent regional trends showing an increase in consumption of primarily wind and biomass renewable energy resources (Section 2.12), it can be inferred that demand for renewable resources in the region would increase in the future. To meet this demand, it is anticipated that construction of wind turbines and biomass plants would be needed.

Cumulative effects would be the same under all alternatives as described in the VISION 2040 FEIS. Impacts to energy resources could be influenced by drought, climate change, national and state policy, energy costs, and availability. Drought and climate change impacts could reduce river flows, which would affect the production of hydroelectric power. Natural gas and petroleum are particularly susceptible to international actions and market conditions, and the region relies on imports of those products.

Significant unavoidable adverse impacts are as described in the VISION 2040 FEIS and include higher energy prices, habitat reduction from construction of new infrastructure, air pollution and greenhouse gas emissions from burning fossil fuels, and reduced availability of non-renewable resources.

Potential mitigation measures would include those described in the VISION 2040 FEIS, in addition to new strategies. These measures are summarized in Table 4.10-1.

Table 4.10-1. Potential Mitigation Measures: Energy

Topic: Energy
• Pursue energy conservation strategies* • Promote alternative energy sources* • Coordinate planning of energy utilities with transportation and other infrastructure projects* • Promote green building practices for residential, commercial, and infrastructure development

*Denotes mitigation measure from the VISION 2040 FEIS

4.11 Historic, Cultural, and Archaeological Resources

This section updates VISION 2040 FEIS Section 5.11.2 and describes impacts that could result from growth in the region through 2050. Projected population and employment growth will result in development throughout the region. Areas experiencing development would potentially encounter historic, cultural, and archaeological resources that are previously unknown or newly eligible.

At a regional level, impacts would be similar under all alternatives and within the range of impacts considered in the VISION 2040 FEIS. Development could alter landscapes and properties with archaeological, cultural, or historic resources through damage and destruction, as well as through secondary visual, noise, and air pollution impacts. These resources are distributed throughout the region, with a concentration of historic buildings, artifacts, and resources in older cities. All alternatives focus strong growth in Metropolitan and Core Cities and would have the potential to impact historic, cultural, and archaeological resources through development and redevelopment activities. Growth could lead to neighborhood change if resources such as historic buildings used by the community or current residents are altered. Chapter 5 and Appendix H (Equity Analysis) more broadly address historic urban communities, cultural establishments, and businesses associated with existing demographic conditions and changes in low-income communities and communities of color.

Cumulative effects are within the range of impacts discussed in the FEIS. Significant unavoidable adverse impacts include the destruction and permanent loss of historic, cultural, and archaeological resources.

Potential mitigation measures from the VISION 2040 FEIS are applicable and are listed in Table 4.11-1.

Table 4.11-1. Potential Mitigation Measures: Historic, Cultural, and Archaeological Resources

Topic: Historic, Cultural, and Archaeological Resources
• Use local planning and zoning techniques to identify and protect historic and cultural resources* • Provide tax incentives to encourage preservation and rehabilitation of historic and cultural resources* • Use fee simple acquisition or protective easements to control historic and cultural resources*

*Denotes mitigation measure from the VISION 2040 FEIS

4.12 Visual Quality

This section updates VISION 2040 FEIS Section 5.12.2. Development associated with projected population and employment growth would result in visual quality impacts similar to, and within the range of, impacts described in the VISION 2040 FEIS. New and renovated residential, commercial, and industrial buildings and expanded infrastructure could impact viewsheds and visual character throughout the region. These impacts include the following:

- Development in existing outlying and rural areas would potentially convert undeveloped spaces to other uses and may not be consistent with community visual character.
- Development in existing urban areas would result in an increase in density, height, and scale of new and redeveloped areas, which could impede viewsheds and increase shading.
- Beneficial impacts could include redevelopment of aging infrastructure and poorly maintained properties, resulting in improvement to visual quality. If properly planned and designed, new development could be an attractive addition to the views and visual character of communities and could help create new community identity or enhance the existing sense of place.

Impacts would be similar under all alternatives and within the range of impacts considered in the VISION 2040 FEIS. Minor differences that could occur between alternatives are described below.

Summary of Key Differences

Development in urban areas would result in larger and taller buildings than existing development. Impacts could be both negative and positive and would be similar for all alternatives. Some development in outlying and rural areas could result in negative visual impacts and would be slightly reduced under Transit Focused Growth and slightly increased under Reset Urban Growth.

Cumulative effects are within the range of and similar to the impacts and benefits discussed above. As a result of growth, areas in the region may experience significant unavoidable adverse impacts through the obstruction of scenic views and displacement of natural and historic resources. These impacts would be as described in the VISION 2040 FEIS.

Impacts to visual resources could be mitigated through the strategies presented in the VISION 2040 FEIS and are summarized in Table 4.12-1.

Table 4.12-1. Potential Mitigation Measures: Visual Quality

Topic: Visual Quality
• Pursue architectural design standards, design ordinances, design review, view preservation ordinances, context-sensitive design, and sign standards and ordinances* • Implement Main Street, Great Streets, Complete streets, and Green streets programs* • Cluster development to minimize open space displacement* • Preserve, restore, and enhance natural features* • Plan for and provide parks, recreation, and open space* • Preserve historic and vernacular architecture* • Plan for a visually interesting and stimulating urban environment, including pedestrian-friendly design* • Incorporate building provisions for sun and air access* • Provide incentives for preserving and planting vegetation* • Plan transportation facilities to minimize visual impacts of increased traffic, roadways, and parking* • Relocate utilities underground*

*Denotes mitigation measure from the VISION 2040 FEIS

4.13 Earth

This section updates VISION 2040 FEIS Section 5.13.2 and describes impacts that could result from growth in the region through 2050. Impacts from natural hazards could occur throughout the region and are similar to those described in the VISION 2040 FEIS. Areas at higher risk are generally managed through critical area regulations and other jurisdictional regulations. Nonetheless, impacts from earthquakes, landslides, volcanic activities, and floods could result in damage to buildings and infrastructure, disruptions to utilities, economic losses, and injuries and loss of life. These impacts would be the same under all alternatives.

Impacts from landslide hazards, flooding, seismic activity, and coal mine subsidence are the same as described in the VISION 2040 FEIS. In addition, flooding resulting from climate change could cause additional impacts beyond those described in the VISION 2040 FEIS. These impacts would be the same under all alternatives.

Cumulative effects would be as described in the VISION 2040 FEIS. Other than flooding, which could be influenced by growth "upstream" of the region, geologic conditions would be relatively unaffected by factors outside the region. Significant unavoidable adverse impacts would be as described in the VISION 2040 FEIS. None of the alternatives completely prohibit development on sites at risk for geologic hazards. In addition, the region is susceptible to earthquake and volcanic disasters that would severely and adversely impact many, if not all, of the region's residents.

Mitigation could be implemented to limit the impacts from geologic hazards. Potential mitigation measures are as described in the VISION 2040 FEIS and are summarized in Table 4.13-1.

Table 4.13-1. Potential Mitigation Measures: Earth

Topic: Earth
• Strengthen critical areas ordinances, development codes, and building standards for structures located within hazard areas* • Retrofit existing buildings and infrastructure for protection from earthquakes* • Continue disaster response planning and community education programs* • Continue research into geologic hazard risk*

*Denotes mitigation measure from the VISION 2040 FEIS

4.14 Noise

This section updates VISION 2040 FEIS Section 5.14.2 and describes impacts that could result from growth in the region through 2050. Under all alternatives, noise impacts would be likely and similar to those described in VISION 2040 FEIS. These impacts include the following:

- Growth in urban areas would likely increase localized noise impacts to people through an increase in the number of noise sources (e.g., vehicles, construction equipment, and emergency vehicles), and an increase in population density.
- Growth in rural areas would result in fewer potential noise impacts to people. Although noise sources would increase, noise receptors would likely be dispersed. New noise sources in rural areas that are closer to natural and critical areas could have potential impacts to wildlife, which would be assessed at the project-specific level.

At a regional level, there are no notable differences in noise impacts between alternatives. Noise impacts could occur at a local level if not properly mitigated. Similar to those described in the VISION 2040 FEIS, cumulative effects would generally occur through construction-related noise impacts. Construction impacts would vary throughout the region and would depend on the timing and location of construction activities. Specific impacts would be analyzed and mitigated at the project level.

Significant unavoidable adverse impacts would be as described in the VISION 2040 FEIS and are not anticipated under any of the alternatives.

Mitigation measures would be evaluated at a project level for roadway and transit projects and construction activities. These measures, in addition to new mitigation measures for urban noise sources, are summarized in Table 4.14-1.

Table 4.14-1. Potential Mitigation Measures: Noise

Topic: Roadway or Transit Noise
• Acquire land for buffer zones or construction of noise barriers* • Implement airport noise abatement and mitigation programs* • Align roadways or tracks away from noise-sensitive land uses, and locate new noise-sensitive uses away from these noise sources* • Design and maintain tracks and wheels to reduce squeal and other noise* • Reduce engine noise by maintaining transit vehicles* • Construct noise barriers or berms* • Install noise insulation in buildings within the noise contour* • Encourage vehicle trip reduction* • Require trucks to use designated routes* • Employ traffic management measures* • Increase vegetation and plant trees* • Employ noise-reducing urban design and building siting*
Topic: Construction Noise
• Construct enclosures or walls to surround equipment* • Install mufflers or other noise-reducing devices, or use quieter equipment* • Maintain equipment* • Impose time restrictions on equipment use* • Implement construction time restrictions on equipment use*
Topic: General Urban Noise
• Encourage tools and techniques that mitigate noise for outdoor design, including features such as green areas and porous asphalt (Magrini and Lisot 2015) • Promote use of building materials (e.g., acoustic plaster, absorbing shading devices) that increase surface absorption (Margrini and Lisot 2015) • Pursue additional investigation of urban design strategies, including building geometry and façade design that could reduce noise impacts

*Denotes mitigation measure from the VISION 2040 FEIS


PSRC

5. Environmental Justice

5.1 Background

Environmental justice has become an integral part of the transportation planning process for urban regions in the United States. The concept of "environmental justice" is derived from Title VI of the Civil Rights Act of 1964 and other civil rights statutes, and was first put forth as a national policy goal by presidential Executive Order 12898, issued in 1994, which directs "each federal agency to make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations."

This chapter updates the environmental justice analysis published in the VISION 2040 FEIS. A supplemental analysis of racial and social equity implications of regional growth alternatives can be found in Appendix H.

The U.S. Department of Transportation issued its internal Order to Address Environmental Justice in Minority Populations and Low-income Populations in 1997 and issued an updated Order in May 2012 (U.S. Department of Transportation Order 5610.2(a)), which continues to promote the principles of environmental justice in all Departmental programs, policies, and activities. In this analysis, "people of color" is used in lieu of the term "minority."

In 2003, PSRC developed a baseline regional demographic profile as an initial step toward better integrating environmental justice into its transportation work program. Since then it has been updated regularly to present current demographic data describing the central Puget

Sound region to identify population groups and communities to be considered for subsequent environmental justice analyses and activities (PSRC 2018f). The purpose of developing an environmental justice demographic profile is to compile key demographic data on people of color, people with low incomes, and other populations of interest, and to identify the locations of communities within the region with significant concentrations of people of color and people with low incomes in order to facilitate and enhance environmental justice analyses, outreach, and other planning activities.

Executive Order 12898 and the U.S. Department of Transportation, Federal Highway Administration, and Federal Transit Administration orders on environmental justice define environmental justice populations as those persons belonging to any of the following groups:

People of Color

- Black—a person having origins in any of the black racial groups of Africa.
- American Indian and Alaskan Native—a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition.
- Asian—a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent.
- Native Hawaiian and Other Pacific Islander—a person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
- Hispanic—a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.

People with Low Incomes

- Low-income—a person whose household income (or in the case of a community or group, whose median household income) is at or below the U.S. Department of Health and Human Services poverty guidelines. States and localities may, however, adopt a higher threshold for low-income as long as the higher threshold is not selectively implemented and is inclusive of all persons at or below the U.S. Department of Health and Human Services poverty guidelines. This analysis uses a threshold of 200 percent of the federal poverty level.

Other Populations

- While the various orders on environmental justice require consideration of only people of color and people with low incomes as defined above, discussions of other populations protected by Title VI and related nondiscrimination statutes—such as the elderly and disabled—are encouraged in addressing environmental justice and Title VI in federally sponsored transportation programs, policies, and activities. Appendix H provides further discussion of these populations.

5.2 Analytical Methods

The methodology used to conduct the environmental justice analysis was consistent with the U.S. Department of Transportation Order and similar to the VISION 2040 FEIS. It included the following:

- The study area was identified as the four-county region. Census tracts within the study area were identified and 2016 American Community Survey 1-Year Estimates demographic data was obtained.
- The demographic data was used to identify locations of people of color and people with low incomes.
- Using this data, public outreach efforts were developed to engage and involve people of color and people with low incomes. This process is described in detail in Section 5.3.
- Based on past and present outreach efforts, concerns and needs of people of color and people with low incomes were identified and documented in Section 5.3 and throughout the discussion of the affected environment.
- Using the process described above, along with information analyzed throughout the development of this Draft SEIS, benefits, impacts, and mitigation were identified to assess whether VISION 2050 Regional Growth Strategy alternatives could result in disproportionately high and adverse effects for people of color and people with low incomes.

5.3 Community Outreach

Providing meaningful public involvement opportunities to people of color and people with low incomes to involve them in the decision-making process is a key component of environmental justice. In implementing its plan development and related environmental review activities, PSRC has undertaken numerous public outreach efforts. These efforts include providing opportunities for public comment with ample notice, analyzing comments collected, and responding appropriately. Outreach efforts specifically targeting people with low incomes and people of color are summarized below.

5.3.1 Past Environmental Justice Outreach

The PSRC Public Participation Plan (adopted in 1994 and most recently updated in 2018) specifically outlines the public review process the agency must conduct to prepare regional plans pursuant to state and federal laws (PSRC 2018d). Strategy 4 of the plan specifically

addresses the agency's commitment to involve people with low incomes and people of color in the planning process:

> Strategy 4. Proactively encourage and solicit the involvement of all, including, but not limited to, the transportation disadvantaged, minorities, non-English-speaking, older adults, people with disabilities, and low-income households.

The agency produces the Central Puget Sound Demographic Profile that compiles demographic data on people of color and people with low incomes in the region (PSRC 2018f). PSRC uses this data to identify the locations of communities within the region with significant concentrations of people of color and people with low incomes to facilitate and enhance environmental justice analyses, outreach, and other planning activities.

Other public outreach and planning processes that preceded the VISION 2050 planning process, including efforts to specifically involve people of color and people with low incomes, are summarized in the appendices of several prior PSRC environmental documents, including Appendix B of the Regional Transportation Plan (PSRC 2018c).

5.3.2 VISION 2050 Environmental Justice Outreach

PSRC is engaging many communities in planning for VISION 2050. However, broad and representative public involvement in comprehensive planning is a challenge for all groups, and the more abstract the policy, the more difficult it is to engage the broader community. Reaching out to environmental justice communities presents additional challenges, such as cultural or historical differences that impede outspokenness about or willingness to engage in government issues, language or literacy barriers, fear of not being welcome at meetings that are attended by people who are racially different, and access to transportation to attend meetings.

To help overcome language barriers, populations with limited English proficiency have been identified using information on race and ethnicity and guidelines from the U.S. Department of Justice. The Department of Justice recommends that agencies consider providing language translation services if an ethnic group with a primary language other than English comprises 5 percent or more of an area. Many census tracts in the region have Asian and Hispanic populations greater than 5 percent. Additional census data confirms that the most common non-English languages spoken are Spanish and Chinese (PSRC 2018f). Other non-English languages commonly spoken in the region are Tagalog, Korean, and Vietnamese. PSRC advertises in public meeting notices that translation services are provided upon advance request.

PSRC continues to build on past relationships to continue engaging the community and make all outreach activities as accessible as possible. To do so, an increasing number of materials are translated into multiple languages, outreach materials are made available both electronically and in hard copy, and public meetings are held in locations accessible by transit and at accessible times.

Scoping

PSRC hosted five listening sessions during the SEPA scoping of VISION 2050 to provide in-person opportunities for stakeholders to provide feedback on project scoping. To engage people of color and people with low incomes in these events, PSRC leveraged contacts at community-based organizations and work done for the 2018 update to the Regional Transportation Plan to spread the word. Sessions were held in the late afternoon in different locations throughout the region to be accessible to the widest range of stakeholders. In addition to providing input in facilitated breakout sessions, attendees were able to fill out comment forms that were included in scoping comments. Listening session attendees had the option to provide contact information to continue to receive updates on VISION 2050.

PSRC worked with a consultant during scoping to conduct a statistically valid survey to gather feedback from residents living in the central Puget Sound region regarding their opinions toward growth and growth-related topics including housing, environmental stewardship, access to services, and regional growth management planning and coordination. The survey was also available in Spanish and Chinese—for both the online and phone versions of the survey—to include populations with limited English proficiency. A statistically valid number of Spanish- and Chinese-speaking households were contacted to ensure responses were representative of the sample.

Online Survey

In addition to the statistically valid survey, an online survey was made available during plan development. The online survey included the same questions as the statistically valid survey and was made available in Spanish, Chinese, Tagalog, Korean, and Vietnamese in addition to English.

To distribute the survey to people with low incomes and people of color, PSRC leveraged contacts at community-based organizations. The survey was also made available in printed format as requested.

Survey participants had the option to provide their contact information to continue to receive updates on VISION 2050.

Community Partners

The Community Partners is a group of local stakeholders established during the 2018 update of the Regional Transportation Plan that provides guidance to PSRC on outreach to equity communities, identifies opportunities for collaboration with community groups, and informs other aspects of the plan.

PSRC continues to work with the Community Partners to update VISION 2050. Discussion items to date have included Displacement Risk Analysis and Opportunity Mapping, community outreach, and the social equity work plan.

Peer Networking Series

PSRC hosts the TOOLBOX Peer Networking Series, a series focused on best practices and resources for local planning and implementation. During the VISION 2050 update, PSRC is conducting quarterly three-hour work sessions to provide community members and local practitioners an opportunity to explore topics in depth. Information gathered during breakout discussions was communicated back to PSRC's Growth Management Policy Board.

These free events provide opportunity to learn more information about specific topics related to VISION 2050, become familiar with tools and resources, and discuss these topics in facilitated breakout groups.

Recent sessions have included housing availability and affordability, land use and transportation technology, and social equity in regional goals and policies.

Focus Groups

Focus groups were conducted in fall 2018 to allow key stakeholders who address social equity issues, including representing environmental justice populations, to weigh in on proposed equity analysis tools to be applied to VISION 2050 and tactics for furthering community outreach.

Focus groups conducted in Bremerton, Shoreline, and SeaTac addressed data availability and needs, outreach techniques, and how to incorporate equity into VISION 2050.

Planned Outreach

PSRC will host multiple open houses during the comment period for this Draft SEIS. These open houses will be geographically dispersed and take into consideration the accessibility needs of people with low incomes and people of color when being developed. Open houses will provide the opportunity for anyone interested to learn more about the growth alternatives and provide comment.

PSRC will host a multi-part event to engage high school students in the planning process in spring 2019. To find interested school districts, teachers, or other venues for participation, PSRC reached out to networks of educational professionals, local staff and elected officials, and the Community Partners.

PSRC may conduct in-person comment opportunities during the comment period for the draft plan. These sessions will be geographically dispersed and take into consideration the accessibility needs of people with low incomes and people of color when being developed.

Tribal Coordination

The description of Tribes in Section 6.4.3 of the VISION 2040 FEIS has not changed. PSRC sent letters to tribal governments within the region during the VISION 2050 scoping process in early 2018 and has begun a series of in-person meetings with tribal representatives to discuss the objectives and scope of VISION 2050, and how they may intersect with and support tribal issues and priorities.

5.4 Affected Environment

Demographics in the region have changed considerably since 2000. This section will provide an updated description of:

- Demographic trends since 2000
- Current demographics
- Key findings related to environmental justice populations for housing affordability, displacement, and transportation equity

The affected environment in the VISION 2040 FEIS included data and information from the 2000 census available at the time of publication. This section updates the census information and demographic data (as described in Section 6.2 of the VISION 2040 FEIS) to show the current trends and demographics of the region. Additional detailed information can be found in Appendix H and the Central Puget Sound Demographic Profile (PSRC 2018f).

5.4.1 Trends

The central Puget Sound region continues to become more diverse. Notable demographic trends between 2000 and 2016 include (PSRC 2018e):

- People of color represent 81 percent of the population growth since 2000, and 35 percent of the total population in the region
- Hispanic/Latino populations have grown 130 percent since 2000, and now represent 10 percent of the population
- Asian/Pacific Islander populations have grown 88 percent since 2000 and currently represent 13 percent of the region's population
- People of color are more geographically dispersed throughout the region (Figure 2.1-4)
- On a percentage basis, people with low incomes have increased slightly in all counties and the overall region since 2000

5.4.2 Current Demographics

Tables 5.4-1 and 5.4-2 provide estimates on people of color and people with low incomes in the region. People of color, or non-White persons including White persons of Hispanic/Latino origin, comprised 34.7 percent of the region's total population in 2016. People of color comprised the largest share of the population in King County (39.1 percent), followed by Pierce County (32.5 percent), Snohomish County (29.4 percent), and Kitsap County (23.0 percent).

Table 5.4-1. Estimated Population by Race and Hispanic/Latino Origin, 2016

	Total Population *	Race (all categories)					Hispanic or Latino (of any race)	Total People of Color (non-White including White/ Hispanic)
		White	Black or African American	American Indian and Alaska Native	Asian/ Pacific Islander	Other race or two or more races		
Central Puget Sound	**4,064,000**	**2,835,000**	**218,000**	**33,000**	**542,000**	**437,000**	**394,000**	**1,412,000**
King County	2,150,000	1,393,000	131,000	11,000	378,000	236,000	205,000	840,000
Kitsap County	265,000	213,000	7,000	3,000	14,000	28,000	20,000	61,000
Pierce County	861,000	630,000	56,000	11,000	65,000	100,000	91,000	280,000
Snohomish County	788,000	598,000	24,000	8,000	85,000	72,000	78,000	231,000
Central Puget Sound	**4,064,000**	**69.8%**	**5.4%**	**0.8%**	**13.3%**	**10.7%**	**9.7%**	**34.7%**
King County	2,150,000	64.8%	6.1%	0.5%	17.6%	11.0%	9.5%	39.1%
Kitsap County	265,000	80.6%	2.5%	1.1%	5.1%	10.7%	7.6%	23.0%
Pierce County	861,000	73.1%	6.5%	1.3%	7.6%	11.6%	10.6%	32.5%
Snohomish County	788,000	75.9%	3.1%	1.0%	10.8%	9.2%	9.9%	29.4%

Source: 2016 American Community Survey 1-Year Estimates

Table 5.4-2. Estimated Population Below Poverty Threshold, 2016

	Population for whom poverty status is determined	Income		
		Below 100% of poverty level	Below 150% of poverty level	Below 200% of poverty level
	Estimate	Estimate	Estimate	Estimate
Central Puget Sound	**4,002,000**	**386,000**	**618,000**	**883,000**
King County	2,121,000	196,000	306,000	438,000
Kitsap County	258,000	26,000	44,000	62,000
Pierce County	846,000	102,000	157,000	230,000
Snohomish County	777,000	61,000	112,000	153,000
Central Puget Sound	**100%**	**9.6%**	**15.4%**	**22.1%**
King County	100%	9.3%	14.4%	20.6%
Kitsap County	100%	10.0%	16.9%	23.9%
Pierce County	100%	12.1%	18.5%	27.2%
Snohomish County	100%	7.9%	14.4%	19.7%

Source: 2016 American Community Survey 1-Year Estimates

In 2016, the regionwide poverty rate was 9.6 percent. The poverty rate was highest in Pierce County (12.1 percent) and lowest in Snohomish County (7.9 percent). Table 5.4-2 also reports statistics for the percentage of the region's population below 150 percent and 200 percent of the federal poverty level in 2016. These statistics indicate that substantial numbers of families and individuals in the region have incomes above the federal poverty level but within a range that may still be considered lower income, particularly when considering the cost of living in the central Puget Sound region. Federal poverty thresholds are not adjusted for regional, state, and local

variations in the cost of living, which is on average higher in the central Puget Sound region relative to most other areas of the United States because of higher local housing costs (PSRC 2018f).

Poverty rates are higher, and median household incomes generally lower, for people of color than the White population or total population overall. While the poverty rate for the Asian population is similar to that of the total population, it can be more than double for other racial and ethnic groups. Asians have the highest median income for the region and in King County, but there is wide variation in median income by both county and race/ethnicity. Most racial/ethnic groups saw significant increases in median income between 2014 and 2016. The largest increases in income are found among American Indians (24 percent), Some Other Race[8] (26 percent), and those of Hispanic ethnicity (14 percent).

The disabled population is shown to have significantly higher rates of poverty than the total population overall, whereas poverty rates for the elderly population are significantly lower. The poverty rate for children under 18 is generally about 2 percentage points higher than for the general population, although the difference in Pierce County is twice that of the other counties and of the region overall.

Households with a person of color, low-income households, households with an elderly householder, and households with one or more disabled persons are more likely than the average household in the region to have no vehicle. These data indicate that the transportation needs of these households—especially for public transit—are significantly different from the average household.

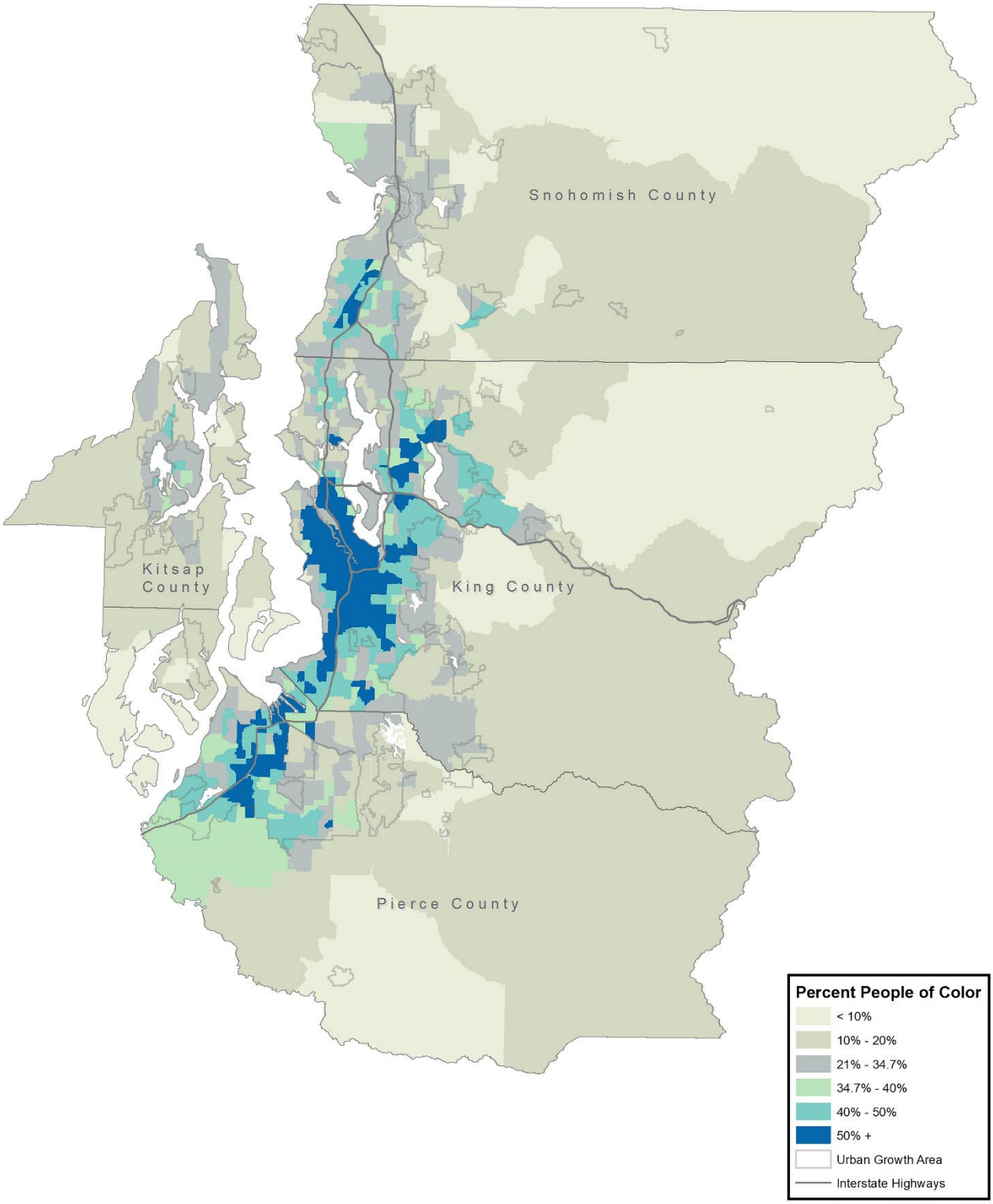
Distribution of environmental justice populations, including people of color and people with low incomes, is shown in Figures 5.4-1 and 5.4-2. Methodology for creating these maps, in addition to maps depicting the geographic distribution of each race, can be found in the Central Puget Sound Demographic Profile (PSRC 2018f).

Figure 5.4-1 shows that people of color are concentrated in the more urban areas of the region, particularly along the I-5 and I-405 corridors, with an especially strong presence in south Seattle, south King County, and central/south Tacoma.

Each community of color has a uniquely different residential pattern of settlement across the region. The Black/African American community, constituting 5.4 percent of the region's total population, has a strong presence in south Seattle, the Renton-Tukwila area, and in parts of Tacoma. The American Indian/Alaskan Native community, while constituting less than 1 percent of the region's total population, can be identified on and near the various tribal lands in central Puget Sound. The Asian/Pacific Islander community, the region's largest community of color at 13.3 percent of total population, is widely dispersed throughout central Puget Sound, with a much greater presence in east and south King County and in southwest

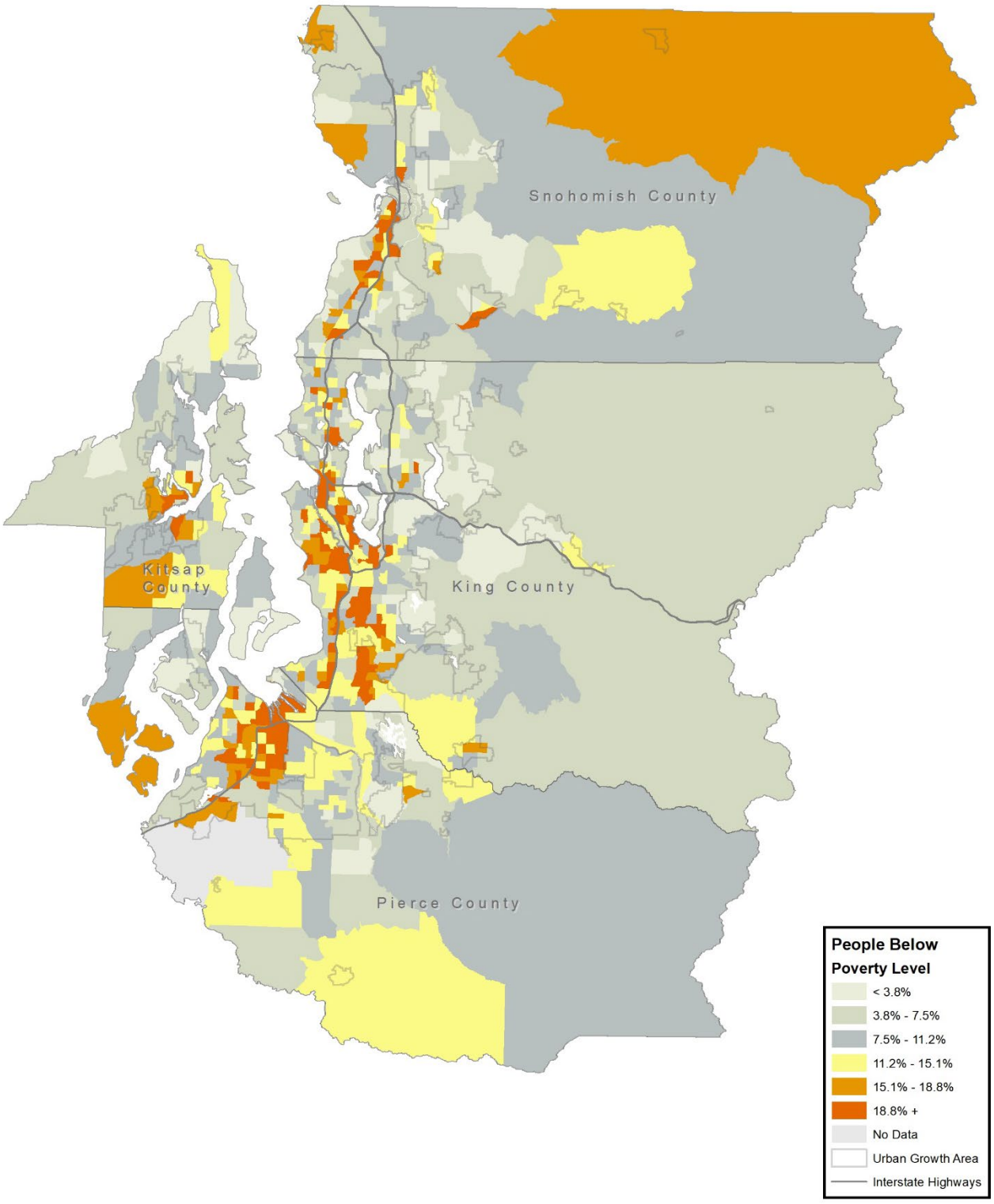
[8] This refers to a combination of two or more races or a race other than Black, American Indian and Alaskan Native, Asian, Native Hawaiian and Other Pacific Islander, or Hispanic.

Figure 5.4-1. Distribution of People of Color, 2016



Source: 2016 American Community Survey 1-Year Estimates

Figure 5.4-2. Distribution of People with Low Incomes, 2016



Source: 2016 American Community Survey 1-Year Estimates

Snohomish County than other communities of color. Asian/Pacific Islanders have an especially strong presence in south and southwest Seattle. The Hispanic/Latino population, which comprises 9.7 percent of the region's total population, has a strong presence in south Everett, south King County, and Tacoma.

Concentrations of poverty (Figure 5.4-2) can be seen throughout the region's urban core, particularly along the I-5 corridor in Snohomish County, in central and south Seattle, and in south King County, Bremerton, and central and south Tacoma.

5.4.3 Equity Geographies

"Equity geographies" are areas with higher percentages of people of color and/or people with low incomes. Areas are considered "equity geographies" under the following conditions:

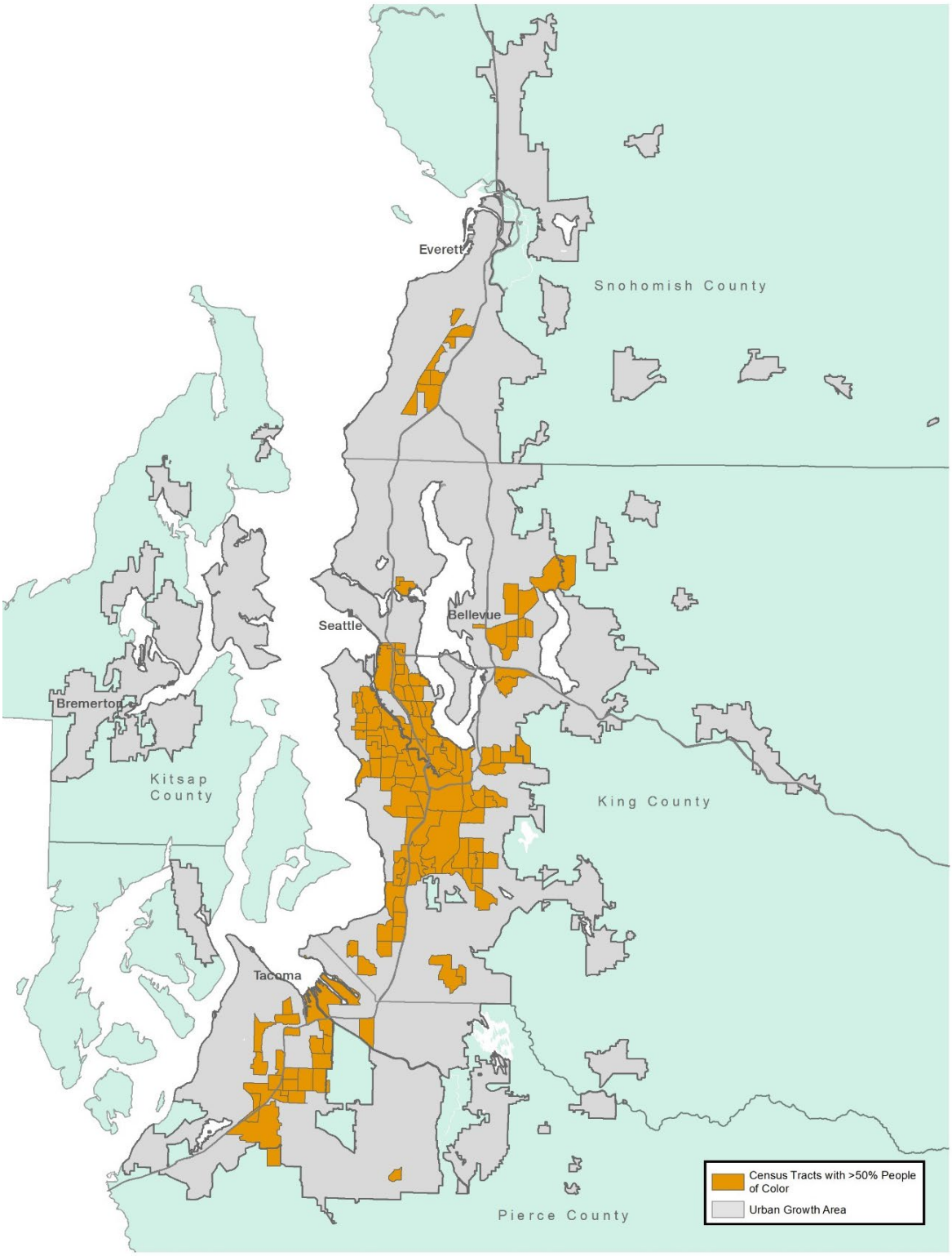
1. Communities of color – Census tracts that are greater than 50 percent people of color.
2. Low-income communities – Census tracts where over 50 percent of the households earn less than 200 percent of the federal poverty level.

The geographic locations of the equity geographies are illustrated in Figures 5.4-3 and 5.4-4. Social equity considerations are provided for several topics where impacts can be differentiated between the entire regional population and census tracts that are greater than 50 percent people with low incomes and people of color. These impacts are discussed in detail throughout Chapter 4 and the supplemental equity analysis in Appendix H, and are summarized in Section 5.5.

5.4.4 Displacement Risk and Growth Pressures

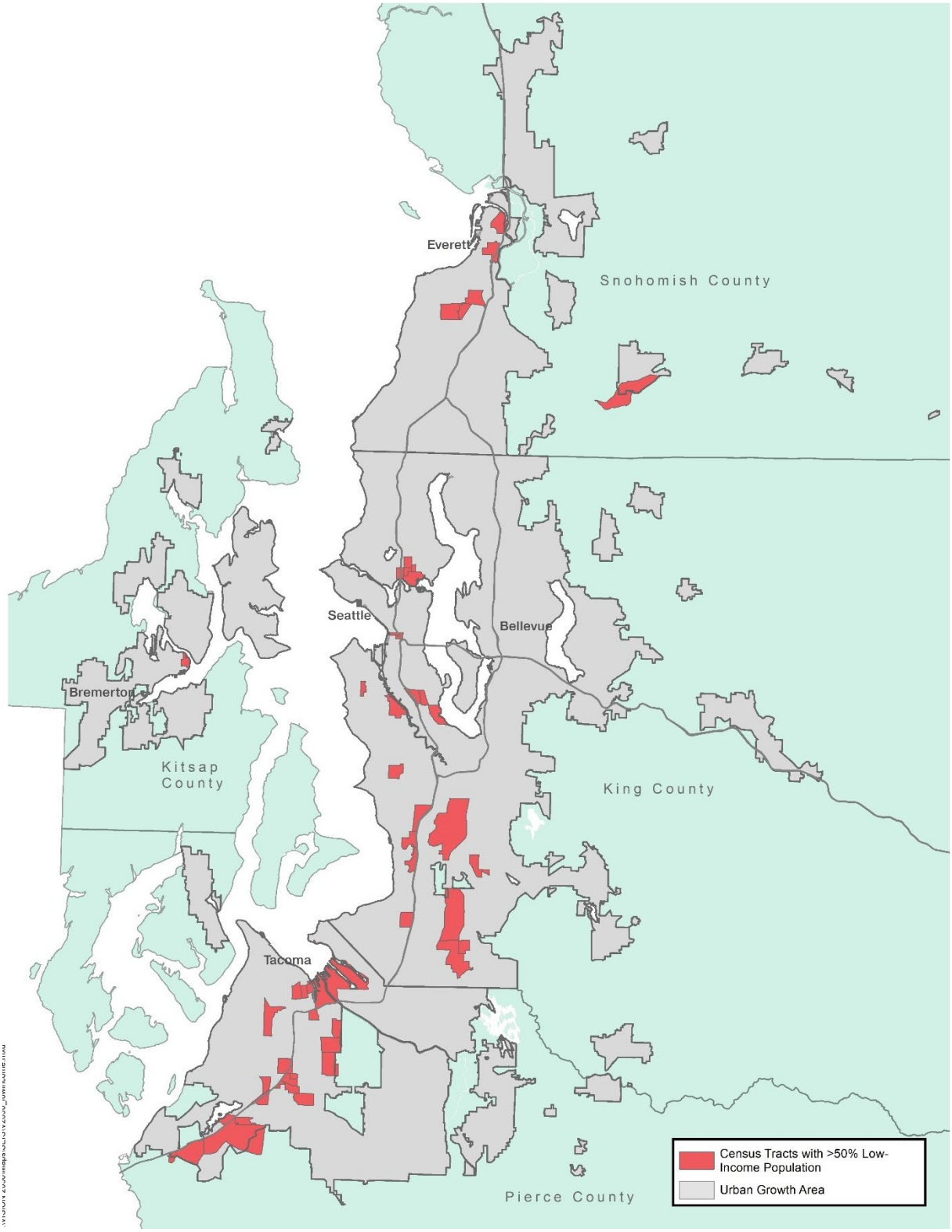
Housing affordability, displacement risk, and growth pressures are areas of interest throughout the region for environmental justice populations. Housing affordability is described in Section 2.3. With a surge in demand for housing that has outpaced the increase in housing supply, the region is experiencing an affordability crisis that is impacting environmental justice populations. Homeownership opportunities are becoming less accessible to middle- and lower-income households (PSRC 2018g). Greater variations are occurring in housing ownership opportunities when analyzed by the race/ethnicity of the households. A strong relationship exists between race/ethnicity, income, and home ownership. The majority of Black and Hispanic households are renters, while the majority of White and Asian households are homeowners. On average, White and Asian households earn over 20 percent more than Black and Hispanic households. Black households experience the largest disparity in income of the groups analyzed. Regionwide, a Black household earns one-third less than the regional median income (PSRC 2018g).

Figure 5.4-3. Census Tracts That Are Greater Than 50 Percent People of Color



Source: U.S. Census Bureau, PSRC

Figure 5.4-4. Census Tracts That Are Greater Than 50 Percent People With Low Incomes



Source: U.S. Census Bureau, PSRC

People with low incomes, people of color, and residents in neighborhoods where households are predominately renters are at a higher risk of displacement and gentrification.

Displacement occurs when housing or neighborhood conditions force residents to move. Displacement can be physical, when building conditions deteriorate or redevelopment occurs, or economic, as costs rise.

Gentrification is the influx of capital and higher-income, more highly educated residents into lower-income neighborhoods.

Depending on the local and regional context, displacement may precede gentrification or the two may occur simultaneously. Several key factors drive gentrification and displacement: proximity to attractive features such as rail/transit stations and job centers, historic housing stock, and location in a strong real estate market (PSRC 2018g). Gentrification and displacement are regional issues, as they are inherently linked to shifts in the regional housing and job market. Changes in neighborhood characteristics can help identify areas where displacement may be occurring. Areas with documented displacement include the Central District in Seattle and the Hilltop neighborhood in Tacoma. Both neighborhoods saw an increase in White residents and median household income, indicating a change in the demographics of the residents who can afford to live in these neighborhoods (PSRC 2018g).

To assess risk to people of color and people with low incomes, PSRC developed tools to identify areas at greater risk of displacement as well as areas of greater opportunity that may experience growth pressures.

Displacement Risk is a composite of indicators representing five elements of neighborhood displacement risks: socio-demographics, transportation qualities, neighborhood characteristics, housing, and civic engagement. The data from these five displacement indicators were compiled into a comprehensive index of displacement risk for all census tracts in the region. "Areas of Higher Displacement Risk" are determined by sorting all census tracts based on their index scores and represent the top 10 percent of scores among all tracts.

Growth in areas of opportunity is based on the "Opportunity Index," which represents a comprehensive index of five key elements of neighborhood opportunity and positive life outcomes: education, economic health, housing and neighborhood quality, mobility and transportation, and health and environment. The level of opportunity score (very low, low, moderate, high, very high) is determined by sorting all census tracts into quintiles based on their index scores. Areas of opportunity for this measure are defined as those areas that score "Moderate to Very High Opportunity"—which represent the top 60 percent of scores among all tracts. Areas of opportunity that experience greater proportions of growth may experience an increased risk of displacement.

Additional detail on the displacement risk and opportunity index measures and methodology can be found in Appendix C.

In 2017, 10 percent of the regional population was located in areas of higher displacement risk, as defined by the displacement risk measure. Seventy percent of the census tracts that are greater than 50 percent people with low incomes were at risk of displacement and 39 percent of the census tracts that are greater than 50 percent people of color were at risk of displacement. This evaluation shows that these communities are at substantially greater risk of displacement than the region as a whole (see Appendix H for maps and additional analysis detail and Appendix C for a description of methodology).

In 2017, the percentage of population living in areas of moderate to high opportunity throughout the region was 60 percent. Thirty-five percent of the census tracts that are greater than 50 percent people with low incomes were located in areas of opportunity and 52 percent of the census tracts that are greater than 50 percent people of color were located in areas of opportunity. These disparities in outcomes compared to the region as a whole indicate the need to improve access to educational, economic, health, housing, and transportation opportunities for both communities of color and communities of people with low incomes (see Appendix H).

5.4.5 Transportation Equity

This Draft SEIS continues to emphasize the importance of transportation equity presented in the VISION 2040 FEIS and Regional Transportation Plan. Equitable access to transportation includes the ability to choose between various transportation options, ensuring that costs are affordable, and ensuring that travel times are reasonable for all people. An equity analysis was performed as part of the Regional Transportation Plan (Appendix B) and found that major investments in transit and increased density would lead to better accessibility, more walking and biking, and increased transit ridership. Census tracts that were greater than 50 percent people of color and people with low incomes were projected to experience greater benefits from planned transportation improvements than the region as a whole.

5.5 Analysis of Alternatives

Table 5.5-1 captures impacts and benefits to environmental justice populations for each element and each alternative. The table also includes the differences between alternatives for growth in areas of opportunity and risk of displacement.

For several of elements, impacts or benefits are not anticipated to be different between the alternatives at the regional level. These include:

- Air quality
- Ecosystems
- Water quality and hydrology
- Historic, cultural, and archaeological resources
- Visual quality and aesthetic resources

- Noise
- Earth

For these elements, impacts to environmental justice populations would be similar to those described in VISION 2040 FEIS Section 6.5.

Impacts to census tracts that are greater than 50 percent people of color and people with low incomes are modeled using existing locations of these communities. It is likely that the locations of these communities would change by 2050, but the general impacts described would remain similar.

Table 5.5-1. Impacts and Benefits to Equity Geographies[1]

Impacts and Benefits by Alternative		
Stay the Course	**Transit Focused Growth**	**Reset Urban Growth**
Element: Population, Employment, Housing		
Jobs-housing balance: Census tracts that are greater than 50 percent people with low incomes or people of color are estimated to be located in very jobs-rich areas in 2050, with jobs-housing indices well over the regional average of 1.0, indicating housing may be unaffordable or unavailable. **Housing densities:** Growth in moderate-density housing accounts for 15 percent of added housing at a regional level for Stay the Course. Census tracts that are greater than 50 percent people with low incomes and people of color see a reduced amount of growth in moderate-density housing, at 10 percent and 13 percent, respectively, compared to the region as a whole. As described in Section 2.3, moderate-density housing tends to provide more affordable housing choices than either low- or high-density housing options.	**Jobs-housing balance:** Transit Focused Growth shows a better balance of jobs-housing for census tracts that are greater than 50 percent people with low incomes or people color compared to Stay the Course, but is still above the regional average for the region as a whole. **Housing densities:** Growth in moderate-density housing accounts for 19 percent of added housing at a regional level for Transit Focused Growth, an increase compared to Stay the Course. However, census tracts that are greater than 50 percent people with low incomes and people of color see a reduced amount of growth in moderate-density housing, at 9 percent and 14 percent, respectively, compared to the region as a whole.	**Jobs-housing balance:** Compared to Stay the Course, Reset Urban Growth shows a worsened jobs-housing index for census tracts that are greater than 50 percent people with low incomes and an improved jobs-housing index for census tracts that are greater than 50 percent people of color. **Housing densities:** Growth in moderate-density housing accounts for 13 percent of added housing at a regional level for Reset Urban Growth, a decrease compared to Stay the Course. Census tracts that are greater than 50 percent people with low incomes see a reduced amount of growth in moderate-density housing (8 percent) compared to the region. Growth in moderate-density housing is the same for both the region and census tracts that are greater than 50 percent people of color compared to Stay the Course.
Element: Land Use		
Census tracts that are greater than 50 percent people of color and people with low incomes have a larger percentage of population and employment growth located in proximity to high-capacity transit (63 percent and 73 percent, respectively) compared to the region as a whole (48 percent). These communities would have improved access to transit but would likely experience elevated risk of displacement.	Communities of color and low-income communities would see the largest increase of growth in proximity to transit compared to Stay the Course. Census tracts that are greater than 50 percent people of color and people with low incomes have a larger percentage of population and employment growth located in proximity to high-capacity transit (89 percent and 91 percent, respectively) compared to the region as a whole (75 percent).	Communities of color and low-income communities would see reduced growth in proximity to transit compared to Stay the Course. Census tracts that are greater than 50 percent people of color and people with low incomes have a larger percentage of population and employment growth located in proximity to high-capacity transit (62 percent and 70 percent, respectively) compared to the region as a whole (44 percent).

Table 5.5-1. Impacts and Benefits to Equity Geographies[1] (continued)

Impacts and Benefits by Alternative		
Stay the Course	Transit Focused Growth	Reset Urban Growth
Element: Transportation		
Compared to the region as a whole, census tracts that are greater than 50 percent people of color and people with low incomes experience greater transportation benefits, including less driving and time spent in traffic, increased walking, and greater access to jobs via walking, biking, and transit.	Generally, transportation benefits described under Stay the Course are slightly improved under Transit Focused Growth for census tracts that are greater than 50 percent people of color and people with low incomes, compared to the region as a whole.	Generally, transportation benefits described under Stay the Course are slightly reduced under Reset Urban Growth for census tracts that are greater than 50 percent people of color and people with low incomes, compared to the region as a whole.
Element: Public Services and Utilities, Energy		
Increased population and employment growth would require expansion or development of new facilities and infrastructure. Compact development where existing utilities are located would help keep utility and living costs down, a benefit to low-income communities.	Similar to Stay the Course, growth would require expansion or development of new facilities. However, compact development where existing utilities are located would help keep utility and living costs down, a benefit to low-income communities.	Greater dispersed development may require more expansion or development of utilities and services compared to Stay the Course, which could add utility and living costs, an adverse impact to low-income communities.
Element: Parks and Recreation		
Local parks resources: Census tracts that are greater than 50 percent people with low incomes and people of color would have slightly greater access to local parks (62 percent and 60 percent, respectively) compared to the region as a whole (55 percent). **Regional parks resources:** Low-income communities would experience reduced access to regional resources that are primarily accessed by car. As noted in Section 4.8.4, people with low incomes are less likely to own a car. Other barriers to enjoying these open spaces for low-income communities include the cost of an access pass and lack of leisure time, equipment, and familiarity with hiking and camping (PSRC 2018j).	**Local parks resources:** Local park access for census tracts that are greater than 50 percent people with low incomes improve (64 percent) compared to Stay the Course. Access for census tracts that are greater than 50 percent people of color would be slightly increased (61 percent) compared to Stay the Course. **Regional parks resources:** Access would be similar to Stay the Course.	**Local parks resources:** Local park access for census tracts that are greater than 50 percent people with low incomes would improve the most (66 percent) compared to Stay the Course. Local park access for census tracts that are greater than 50 percent people of color would be similar to Stay the Course. **Regional parks resources:** Access would be similar to Stay the Course.
Element: Environmental Health		
At a regional level, there are no discernable environmental health differences between alternatives on environmental justice populations. Increased access to transit, denser and more walkable communities, and increased access to parks and open space could provide increased benefits to low-income communities and communities of color. As described in Section 2.11.2, environmental health inequities exist, and health outcomes vary by place, race, and income. Based on locations of people of color and people with low incomes, these populations may experience localized air quality and noise impacts from proximity to transportation infrastructure.		

Table 5.5-1. Impacts and Benefits to Equity Geographies[1] (continued)

Impacts and Benefits by Alternative		
Stay the Course	Transit Focused Growth	Reset Urban Growth
Element: Growth in Opportunity Areas		
Higher proportions of growth are expected in census tracts that are greater than 50 percent people of color and people with low incomes in areas of opportunity compared to the base year of 2017. This improves access to opportunity for these populations but also may indicate higher growth pressures. Mitigation measures would need to be considered to help prevent displacement of vulnerable populations.	Transit Focused Growth would experience greater growth in areas of opportunity for census tracts that are greater than 50 percent people of color and people with low incomes compared to Stay the Course. This improves access to opportunity but may elevate growth pressures. Mitigation measures would need to be considered to help prevent displacement of vulnerable populations.	Reset Urban Growth would experience greater growth pressures in areas of opportunity for census tracts that are greater than 50 percent people of color compared to Stay the Course. This improves access to opportunity but may elevate growth pressures. Growth in areas of opportunity for census tracts that are greater than 50 percent people with low incomes is similar to Stay the Course. Mitigation measures would need to be considered to help prevent displacement of vulnerable populations.
Element: Growth in Areas at Risk of Displacement		
Substantial portions of census tracts that are greater than 50 percent people of color and people with low incomes would be located in areas of displacement risk compared to the region as a whole. This indicates that mitigation policies would be needed to help prevent displacement of these populations. For growth (2017-2050) in the region as a whole, 18% of population growth would occur in areas of higher displacement risk.	For census tracts that are greater than 50 percent people of color and people with low incomes, displacement risk is slightly elevated compared to Stay the Course. For growth (2017-2050) in the region as a whole, 23% of population growth would occur in areas of higher displacement risk, also pointing to an elevated displacement risk compared to compared to Stay the Course.	For census tracts that are greater than 50 percent people of color and people with low incomes, displacement risk is slightly reduced compared to Stay the Course. For growth (2017-2050) in the region as a whole, 16% of population growth would occur in areas of higher displacement risk, also pointing to a slightly reduced displacement risk compared to Stay the Course.
Element: Climate Change		
At a regional level, there are no discernable differences between alternatives on environmental justice populations. Climate impacts or hazards from events such as heat waves, floods, and droughts pose challenges for all communities. However, communities of color and low-income communities may be more vulnerable and have reduced ability to cope with the impacts of these climate-related events compared to the region as a whole (University of Washington Climate Impacts Group et al. 2018).		

[1] Equity geographies include communities of color and low-income communities. Communities of color are census tracts that are greater than 50 percent people of color. Low-income communities are census tracts that are greater than 50 percent people with low incomes (households earn less than 200 percent of the federal poverty level).

5.6 Cumulative Effects

The affected environment (Section 5.4) reflects past and present cumulative impacts on people of color and people with low incomes. Future cumulative effects on people of color and people with low incomes are described in Table 5.5-1, and slight differences are noted between alternatives. Alternatives that concentrate growth in areas of people of color and people with low incomes could have greater cumulative impacts if adequate coordination and mitigation measures are not implemented.

5.7 Potential Mitigation Measures

Potential mitigation measures described in the VISION 2040 FEIS remain applicable and are described in Table 5.7-1, along with additional mitigation measures that may be considered.

Table 5.7-1. Potential Mitigation Measures: Environmental Justice

Topic: Environmental Justice
• Incorporate demographic analyses and community involvement with people of color and people with low incomes at the local level and project level* • Interview social service providers to verify demographic analyses and understand specific local needs and effective methods for outreach and public involvement* • Perform additional and ongoing outreach to involve people of color and people with low incomes* • Use demographic analyses and outreach results to prevent new or expanded uses and other public infrastructure from having a disproportionate impact on environmental justice populations* • Implement planning and design efforts to improve areas where living conditions and land uses erode good health* • Develop programs to maintain and expand the supply of affordable housing* • Promote planning processes that account for living-wage jobs within reasonable commute distances • Support affordable housing initiatives in proximity to employment centers • Increase housing supply through land use and zoning code updates, support affordable housing through local and regional incentives and requirements, increase funding for affordable housing through existing and new sources, and mitigate displacement risk (see Table 4.1-5) • Implement the Regional Open Space Conservation Plan with consideration at the local level of parks planning and locations of people with low incomes and people of color • Investigate alternative transportation modes to access regional park resources

*Denotes mitigation measure from the VISION 2040 FEIS

5.8 Significant Unavoidable Adverse Impacts

Significant unavoidable adverse impacts are discussed for each element in Chapter 4. Loss of affordable housing and displacement would likely be adverse impacts to people of color and people with low incomes. Implementation of the mitigation measures listed in Section 5.7 and Section 4.1 of this Draft SEIS would help to reduce or avoid these impacts.

5.9 Environmental Justice Determination

If appropriate mitigation strategies are fully implemented, none of the alternatives are anticipated to result in disproportionately high and adverse effects on people of color and people with low incomes. Additional environmental justice analyses should be completed as part of future plans, project-level planning, and environmental review.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6. Multicounty Planning Policies

This chapter discusses the existing multicounty planning policies in VISION 2040 and policy updates for VISION 2050.

6.1 How Multicounty Planning Policies are Used

VISION 2040 includes the multicounty planning policies for the four-county region adopted under the authority of GMA (RCW 36.70A.210 (7)). Multicounty planning policies have both a practical and a substantive effect on the comprehensive plans of cities and counties.

The policies provide a common, coordinated policy framework for local plans and other large-scale planning efforts in the region, including countywide planning policies, functional plans developed by PSRC, and plans developed by other groups and agencies, such as Sound Transit and others.

The multicounty planning policies are designed to support implementation of the Regional Growth Strategy, including concentrating growth within the region's designated urban growth area and limiting development in resource and rural areas. The policies provide an integrated framework for addressing planning for the environment, land use, housing, the economy, transportation, and public services.

Multicounty planning policies provide an opportunity for local elected officials in the region to collectively craft solutions that may not be appropriate in other parts of the state. Such policies are developed around issues that the central Puget Sound region holds in common. The

policies serve as statements of shared values and are designed to address what is to be accomplished and why.

Finally, multicounty planning policies provide assurance to local jurisdictions that those issues with broad benefit that would be difficult for individual localities to address alone will be addressed regionwide, within a collaborative framework—rather than 86 fragmented and unilateral ones. More information on the background of VISION's multicounty planning policies is in Chapter 7 of the VISION 2040 FEIS.

This Draft SEIS identifies potential impacts of the Regional Growth Strategy alternatives, along with measures to mitigate those impacts. The multicounty planning policies describe how to address these impacts and implement mitigation measures.

6.2 Multicounty Planning Policies and Potential Updates

The multicounty planning policies are structured in the seven topic areas: Environment, Development Patterns, Housing, Economy, Transportation, Public Services, and General. The policies address issues of a regional nature in a way that provides guidance for implementation, often through local actions. When multicounty planning policies are less detailed, countywide policies and local comprehensive plans are the appropriate mechanisms for providing more detail.

For each topic area, Chapter 7 of the VISION 2040 FEIS summarizes the multicounty planning policies and describes their purpose and environmental effects. Input to date indicates that VISION 2040's policies provide a strong foundation and should be largely retained, with select updates for emerging policy areas and changing conditions. Some changes are also proposed to strengthen or clarify policies. The multicounty planning policies will be revised to be consistent with the preferred Regional Growth Strategy alternative selected by the Growth Management Policy Board and will be included with the draft plan when it is released in summer 2019.

6.3 Environmental Effects

Chapter 7 of the VISION 2040 FEIS describes the likely environmental effects and benefits of the policies in VISION 2040, including the creation of mechanisms to preserve and conserve the natural environment, and to improve conditions related to human health (such as environmental health, noise, parks and recreation, and air pollution). It also states that the policies would not specifically regulate or restrict existing project-level approvals or planning processes. The updates to the policies would continue to maintain the environment by protecting important environmental features, reducing pollutants, and using state-of-the-art planning methods. VISION 2050 would reinforce VISION 2040's environmental goals and

policies and would encourage the implementation of the mitigation measures identified in Chapters 4 and 5 of this Draft SEIS. The updates would continue to result in actions that minimize impacts from any of the growth alternatives.

6.4 Next Steps

All comments received on the Draft SEIS during the public comment period will be reviewed and considered in the development of the preferred Regional Growth Strategy alternative and draft policies. The preferred alternative and draft policies will then be released in a draft VISION 2050 plan for review and comment. The release of the draft VISION 2050 plan will be followed by a public comment period.

Input and feedback received during the draft VISION 2050 comment period will be reviewed and considered by the Growth Management Policy Board and the draft multicounty planning policies will be revised accordingly. Revised draft policies, along with revisions to the preferred Regional Growth Strategy alternative, will then be finalized for review and action by the region's elected officials. For the adoption of the revised multicounty planning policies, Regional Growth Strategy, and VISION 2050, PSRC will provide a notice of availability and public hearing. Prior to adoption of VISION 2050, a Final SEIS will be issued. Final action on the updated VISION and the updated policies will take place in spring 2020.


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