

VISION 2050

Draft Supplemental Environmental Impact Statement

Appendices



Puget Sound Regional Council

FEBRUARY 2019



Puget Sound Regional Council

MEMBERSHIP

Counties - King County - Kitsap County - Pierce County - Snohomish County

Cities and Tribes - Algona - Arlington - Auburn - Bainbridge Island - Beaux Arts Village - Bellevue - Black Diamond - Bonney Lake - Bothell - Bremerton - Buckley - Burien - Clyde Hill - Covington - Darrington - Des Moines - DuPont - Duvall - Eatonville - Edgewood - Edmonds - Enumclaw - Everett - Federal Way - Fife - Fircrest - Gig Harbor - Granite Falls - Hunts Point - Issaquah - Kenmore - Kent - Kirkland - Lake Forest Park - Lake Stevens - Lakewood - Lynnwood - Maple Valley - Marysville - Medina - Mercer Island - Mill Creek - Milton - Monroe - Mountlake Terrace - Muckleshoot Indian Tribe - Mukilteo - Newcastle - Normandy Park - North Bend - Orting - Pacific - Port Orchard - Poulsbo - Puyallup - Puyallup Tribe of Indians - Redmond - Renton - Ruston - Sammamish - SeaTac - Seattle - Shoreline - Skykomish - Snohomish - Snoqualmie - Stanwood - Steilacoom - Sultan - Sumner - Tacoma - The Suquamish Tribe - Tukwila - University Place - Woodinville - Woodway - Yarrow Point

Statutory Members - Port of Bremerton - Port of Everett - Port of Seattle - Port of Tacoma - Washington State Department of Transportation - Washington Transportation Commission

Associate Members - Alderwood Water & Wastewater District - Port of Edmonds - Island County - Puget Sound Partnership - Snoqualmie Indian Tribe - Thurston Regional Planning Council - Tulalip Tribes - University of Washington - Washington State University

Transit Agencies - Community Transit - Everett Transit - Kitsap Transit - Metro King County - Pierce Transit - Sound Transit

Funding for this document provided in part by member jurisdictions, grants from U.S. Department of Transportation, Federal Transit Administration, Federal Highway Administration and Washington State Department of Transportation.

Title VI Notice: PSRC fully complies with Title VI of the Civil Rights Act of 1964 and related statutes and regulations in all programs and activities. For more information, or to obtain a Title VI Complaint Form, see <https://www.psrc.org/title-vi> or call 206-587-4819.

American with Disabilities Act (ADA) Information: Individuals requiring reasonable accommodations may request written materials in alternate formats, sign language interpreters, physical accessibility accommodations, or other reasonable accommodations by contacting the ADA Coordinator, Thu Le at 206-464-6175, with two weeks advance notice. Persons who are deaf or hard of hearing may contact the ADA Coordinator, Thu Le through TTY Relay 711.

Language Assistance

العربية | Arabic, 中文 | Chinese, Deutsch | German, Français | French, 한국 | Korean, Русский | Russian, Español | Spanish, Tagalog, Tiếng việt | Vietnamese

Call 206-587-4819

Additional copies of this document may be obtained by contacting:

Puget Sound Regional Council, Information Center

1011 Western Avenue, Suite 500

Seattle, Washington 98104-1035

206-464-7532

Email: info@psrc.org

Website: www.psrc.org

Appendices for VISION 2040 Draft Supplemental Environmental Impact Statement

- A Acronyms and Glossary
- B Supplemental Data Tables and Figures
- C Modeling Methodology and Analysis Tools
- D Evaluation Criteria for Selecting a Preferred Growth Alternative
- E Background and Information Papers
- F List of Preparers
- G Distribution List
- H Equity Analysis

VISION 2050

Draft Supplemental Environmental Impact Statement

Appendix A Acronyms and Glossary



Puget Sound Regional Council

FEBRUARY 2019

Appendix A: Acronyms and Glossary

This appendix includes a list of acronyms and glossary of technical terms and definitions that appear in the document.

Acronyms

CFR	Code of Federal Regulations
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
Ecology	Washington State Department of Ecology
EIA	Energy Information Administration
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
FEIS	Final Environmental Impact Statement
GMA	Growth Management Act
HCT Communities	High-Capacity Transit Communities
I-5	Interstate 5
I-90	Interstate 90
I-405	Interstate 405
NAAQS	National Ambient Air Quality Standards
MUGA	Municipal Urban Growth Area
NOAA	National Oceanic and Atmospheric Administration
NO _x	nitrogen oxides
OFM	Washington State Office of Financial Management
PAA	Potential Annexation Area
PM	particulate matter
PM _{2.5}	fine particulates
PM ₁₀	coarse particulates
PSCAA	Puget Sound Clean Air Agency
PSRC	Puget Sound Regional Council
RCW	Revised Code of Washington
SEIS	Supplemental Environmental Impact Statement

SEPA	State Environmental Policy Act
SR	State Route
SWMMWW	Stormwater Management Manual for Western Washington
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WDNR	Washington State Department of Natural Resources
WSDOT	Washington State Department of Transportation

Glossary

Activity Unit

A unit measuring activity, calculated by adding together the number of residents (population) and jobs (employment) in a given area. Activity units represent the total amount of activity present in an area, and do not distinguish by the mix or proportion of the activity that is residential versus commercial. PSRC has used activity units for other projects; for example, an activity unit threshold has been established as one of the criteria for designating new regional growth centers.

Adverse Impact

Any undesirable or harmful effect to a person or to any natural or human-made resource.

Affordable Housing

Affordable housing is generally defined by the U.S. Department of Housing and Urban Development as housing where the occupant is paying no more than 30 percent of gross income for housing costs, including utility costs.

Alternative

Under Washington's State Environmental Policy Act, an environmental impact statement must evaluate reasonable alternatives that could feasibly attain the proposal's objective and are within a jurisdictional agency's authority to control. Alternatives should cover a broad enough range of scenarios such that all feasible options for a preferred alternative lie within the scope of impacts studied.

Autonomous Vehicles

Also known as self-driving cars, these 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.

Average Annual Vehicle Delay

The amount of time the average person spends in congestion each year.

Average Daily Vehicle Miles and Minutes

How far the average person is driving each day and how much time is spent in cars.

CO₂e (Carbon Dioxide Equivalent)

A term for describing different greenhouse gases in a common unit. For any quantity and type of greenhouse gas, CO₂e signifies the amount of CO₂ that would have the equivalent global warming impact.

Communities of Color

Census tracts where over 50 percent of the people are people of color.

Community Protocol

The U.S. Community Protocol is 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.

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.

Critical Area

An area of specific environmental value that is protected from encroachment or adverse impacts from development. Under the Growth Management Act, five types of environmental features are identified as critical areas: wetlands, critical aquifer recharge areas, frequently flooded areas, geologically hazardous areas, and fish and wildlife habitat conservation areas.

Cumulative Effect/Impact

Cumulative impacts from past actions or the incremental effect of the proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over time.

Displacement

The involuntary relocation of current residents or businesses from their current residence. This is a different phenomenon than when property owners voluntarily sell their interests to capture an increase in value. Physical displacement is the result of eviction, acquisition, rehabilitation, or demolition of property, or the expiration of covenants on rent- or income-restricted housing. Economic displacement occurs when residents and businesses can no longer afford escalating rents or property taxes. Cultural displacement occurs when people choose to move because their neighbors and culturally related businesses have left the area.

Displacement Risk

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" is determined by sorting all census tracts based on their index scores and represents the top 10 percent of scores among all tracts.

Economic Clusters

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.

Economic Sectors

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.

Ecosystem

A functional unit consisting of all the living organisms (plants, animals, and microbes) in a given area and their physical and chemical environment.

Endangered Species

Animals, birds, fish, plants, or other living organisms threatened with extinction by anthropogenic (human-caused) or other natural changes in their environment. Requirements for declaring a species endangered are contained in the federal Endangered Species Act.

End-Use Energy

The output of the power plant that is consumed by homes, businesses, industry, and the transportation sector.

Environmental Justice

Equal protection from environmental hazards for individuals, groups, or communities regardless of race, ethnicity, or economic status. This applies to the development, implementation, and enforcement of environmental laws, regulations, and policies, and implies that no population of people should be forced to shoulder a disproportionate share of negative environmental impacts of pollution or environmental hazard due to a lack of political or economic strength.

Equity Geographies

Areas where impacts can be differentiated between the entire regional population and social equity populations. Examples are:

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.

Gentrification

The influx of capital and higher-income, and oftentimes more highly educated residents into lower income neighborhoods.

Growth Management Act (GMA)

GMA was adopted by the Washington State Legislature in 1990 and 1991 and represents the framework for land use planning and development in Washington state. The act is contained in Chapter 36.70A of the Revised Code of Washington.

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.

Impervious Surface

A surface that prohibits the movement of water from the land surface into the underlying soil or dirt. Buildings and paved surfaces (e.g., asphalt, concrete) are considered impervious covers. A natural condition (e.g., bedrock close to the surface, very dense soil layers such as hardpan that restrict water movement) is generally not considered an impervious surface.

Inclusionary Zoning

A system that requires a minimum percentage of housing affordable to lower- and moderate-income households to be provided in new developments. Inclusionary programs are based on mandatory requirements or development incentives, such as density bonuses.

Infill Development

Development that takes place on vacant or underutilized parcels within an area that is already characterized by urban development and has access to urban services.

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.

Jobs-Housing Balance

A planning concept that advocates for housing and employment to be located close together. A jobs-housing ratio, which is indexed to the regional average in the VISION 2050 SEIS, 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.

Lahar

A specific type of debris flow associated with volcanoes. It is a dense mixture of water-saturated debris that moves down-valley, looking and behaving much like flowing concrete. It occurs when loose masses of unconsolidated material are saturated, become unstable, and move downslope.

Level of Service

A grading system developed by the transportation profession to quantify the degree of comfort (including such elements as speed, travel time, number of stops, total amount of stopped delay, and impediments caused by other vehicles) afforded to drivers or transit riders as they travel through an intersection or roadway segment. This system can also be applied to other public services such as the provision of parks, emergency response time, or pedestrian facilities.

Liquefaction

The process by which loose, unconsolidated soils and fill respond to the shaking motion of an earthquake, causing the soil to liquefy and flow like water, similar to quicksand. This process strongly amplifies ground motion and is a major source of catastrophic damage in earthquakes.

Low-Income Communities

Census tracts where over 50 percent of the households earn less than 200 percent of the federal poverty level.

Maintenance Area (Air Quality)

Any geographic region of the United States previously designated nonattainment pursuant to the Clean Air Act Amendments of 1990 and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under Section 175A of the Clean Air Act, as amended.

Manufacturing/Industrial Centers

Regionally designated areas for the preservation of intensive manufacturing and industrial activity. These areas are characterized as large contiguous blocks served by the region's major transportation infrastructure, including roadways, rail, and port facilities.

Mitigation

Mitigation is defined as the following: (1) Avoiding an impact altogether by not taking a certain action or parts of an action; (2) minimizing the impact by limiting the degree or magnitude of the action and its implementation by using appropriate technology or taking affirmative steps to avoid or reduce impacts; (3) rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; (5) compensating for the impact by replacing, enhancing, or providing substitute resources or environments; and/or; (6) monitoring the impact and taking appropriate corrective measures.

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

No Action Alternative

The no action alternative for a plan is generally defined as no change in existing policy. The environmental impacts of predicted growth under this "no action" scenario is then compared to that of the other alternatives.

Opportunity Index

Represents a comprehensive index of five key elements of neighborhood opportunity: 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 represents 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.

People of Color

Individuals who report as black, Hispanic, Asian, American Indian, Alaskan Native, Native Hawaiian, other, Pacific Islander, or two or more races or ethnicities. People of color are sometimes referred to as “minority populations” in other PSRC publications or elsewhere to be consistent with U.S. Census Bureau data.

People with Low Income

Individuals with a household income less than 200 percent of the federal poverty level.

Preferred Alternative

Under the Washington State Environmental Policy Act, the individual or hybrid alternative that is selected from those analyzed in a draft environmental impact statement for further environmental review in a final or supplemental draft environmental impact statement.

Primary Energy

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

Regional Geographies

Groupings of cities and unincorporated areas used for planning and growth distribution purposes in the Regional Growth Strategy. Regional geographies include Metropolitan Cities, Core Cities, HCT Communities, Cities & Towns, Urban Unincorporated Areas, Rural, Resource Lands, and Major Military Installations.

Regional Growth Centers

Regionally designated areas of compact development where housing, employment, shopping and other activities are in close proximity. They are focal points of higher density population and employment, with efficient multimodal transportation infrastructure and services. The term “regional growth center” is used to differentiate centers that are designated for regional purposes from those that have a more local focus.

Riparian Corridor

Areas adjacent to rivers and streams with a differing density, diversity, and productivity of plant and animal species relative to nearby uplands.

Rural Lands

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

Scoping

The first phase of an environmental impact analysis process in which the extent of the project is established. The purpose for environmental scoping is to determine the scope and range of proposed actions, alternatives, environmental elements and impacts, and mitigation measures to be analyzed in the environmental impact statement. The scoping process is also intended to eliminate from detailed study those issues that are not significant, and those that have been covered by prior environmental review.

Sole Source Aquifer

An aquifer that supplies 50 percent or more of the drinking water to an area.

Threatened Species

An animal or plant species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Transportation Demand Management

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 Mode Share

The percentage of trips made by people driving alone, carpooling, using transit, walking, or biking.

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).

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.

UrbanSim

A software-based simulation model for integrated planning and analysis of urban development, incorporating the interactions between land use, transportation, and public policy.

Watershed

The land area that drains into a stream; the watershed for a major river may encompass a number of smaller watersheds that ultimately combine at a common point.

VISION 2050

Draft Supplemental Environmental Impact Statement

Appendix B Supplemental Data Tables and Figures



Puget Sound Regional Council

FEBRUARY 2019

Appendix B: Supplemental Data Tables and Figures

This appendix includes supplemental data tables and figures that were reviewed and analyzed in support of the Draft Supplemental Impact Statement (Draft SEIS). Tables and figures are organized by Section of the Draft SEIS, as listed below.

List of Supplemental Data Tables and Figures

Supporting Data for Section 2.1

Historical and Forecast Population, Region
2010-2017 Population, by County

Supporting Data for Section 2.2

Historical and Forecast Employment by Sector, Region
Employment in Regional Industry Clusters, by County

Supporting Data for Section 2.3

Historical and Forecast Average Household Size, Region
Historical and Forecast Age Demographics, Region
Historical and Forecast Housing Stock, Region
Housing Units by Structure Type
Median Gross Rent (dollars)
Median Single-Family Housing Price (dollars)

Supporting Data for Section 2.4

Land Area by Growth Management Act Land Use Categories (square miles)
Designated Regional Growth Centers
Designated Manufacturing/Industrial Centers

Supporting Data for Section 2.6

Current National Ambient Air Quality Standards for Principal Pollutants

Supporting Data for Section 2.9

Public Water Supply (freshwater), by County, 2015
Public Water Supply (freshwater), by County, 2000

Supporting Data for Section 2.12

Primary Energy Consumption Estimates (2006-2016) (Trillion Btu)
End-Use Energy Consumption Estimates (2006-2016) (Trillion Btu)

Supporting Data for Section 3.2

2017-2050 Population and Employment Growth Allocations: Stay the Course

Supporting Data for Section 3.3

2017-2050 Population and Employment Growth Allocations: Transit Focused Growth

Supporting Data for Section 3.4

2017-2050 Population and Employment Growth Allocations: Reset Urban Growth

Supporting Figures for Section 3.5

Stay the Course: Employment Distribution 2017–2050

Transit Focused Growth: Employment Distribution 2017–2050

Reset Urban Growth: Employment Distribution 2017–2050

Supporting Data for Section 4.1

Jobs Housing Ratios

Housing Growth in Areas Zoned for Low-, Moderate-, and High-Density Development

Supporting Data for Section 4.2

Population and Employment in Proximity to Urban Growth Area Boundary, 2050

Population and Employment in Proximity to High-Capacity Transit, 2050

Developed Land (acres), 2017-2050

Supporting Data for Section 4.3

Average Daily Vehicle Miles Traveled by Residents

Average Daily Vehicle Minutes Traveled by Residents

Average Annual Vehicle Delay Hours by Residents

Annual Transit Boardings by Operator

Trip Mode Share, Commute Trips

Trip Mode Share: Non-commute trips

Average Jobs Accessible per Resident by Travel Mode

Travel Times for Major Corridors

Supporting Data for Section 4.4

Projected Pollutant Emissions (tons per day)

Supporting Data for Section 4.6

Impervious Surfaces (Acres)

Supporting Data for Section 4.8

Population in Proximity to Parks Providing Local Urban Access

Supporting Data for Section 5.5

Population in Areas of Moderate to Very High Opportunity

Population in Areas of Higher Displacement Risk

Supporting Data for Section 2.1

Historical and Forecast Population, Region

	Year	Population
Actual	1970	1,939,000
	1980	2,240,000
	1990	2,749,000
	2000	3,276,000
	2010	3,691,000
	2017	4,067,000
Forecast	2020	4,241,000
	2030	4,823,000
	2040	5,328,000
	2050	5,823,000

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

2010-2017 Population, by County

Jurisdiction	2010 Population Census	2011 Population Estimate	2012 Population Estimate	2013 Population Estimate	2014 Population Estimate	2015 Population Estimate	2016 Population Estimate	2017 Population Estimate	2018 Population Estimate
King County	1,931,249	1,942,600	1,957,000	1,981,900	2,017,250	2,052,800	2,105,100	2,153,700	2,190,200
Kitsap County	251,133	253,900	254,500	254,000	255,900	258,200	262,590	264,300	267,120
Pierce County	795,225	802,150	808,200	814,500	821,300	830,120	844,490	859,400	872,220
Snohomish County	713,335	717,000	722,900	730,500	741,000	757,600	772,860	789,400	805,120

Source: Office of Financial Management, Forecasting and Research Division

Supporting Data for Section 2.2

Historical and Forecast Employment by Sector, Region

	Actual						Forecast			
Year	1970	1980	1990	2000	2010	2017	2020	2030	2040	2050
Total Employment	751,000	1,067,000	1,489,000	1,883,000	1,890,000	2,233,000	2,357,000	2,678,000	3,037,000	3,392,000
Construction/Resource	42,000	65,000	96,000	124,000	104,000	141,000	144,000	158,000	168000	165,000
FIRE	49,000	75,000	91,000	116,000	104,000	110,000	113,000	120,000	133000	150,000
Manufacturing	158,000	208,000	239,000	223,000	171,000	185,000	187,000	186,000	179000	165,000
Retail	n/a	n/a	154,000	193,000	181,000	236,000	251,000	294,000	343000	388,000
Services	177,000	332,000	516,000	771,000	844,000	1,038,000	1,124,000	1,341,000	1597000	1,880,000
WTU	n/a	n/a	129,000	150,000	138,000	161,000	167,000	182,000	198000	209,000
Government	n/a	n/a	127,000	144,000	167,000	172,000	180,000	188,000	192000	190,000
Education	n/a	n/a	93,000	123,000	132,000	144,000	146,000	162,000	181000	198,000
Uniformed Military	54,000	37,000	43,000	38,000	50,000	46,000	46,000	46,000	46000	46,000

Source: PSRC

Employment in Regional Industry Clusters, by County

	King		Kitsap		Pierce		Snohomish	
Year	2010	2017	2010	2017	2010	2017	2010	2017
Industry Cluster								
Aerospace	*	45,630	90	130	2,620	3,170	*	43,500
Business Services	85,190	89,430	3,950	3,650	14,570	15,920	12,930	15,400
Clean Technology	15,750	18,150	1,080	1,000	2,350	2,390	2,000	2,630
Information Technology	114,470	185,540	1,520	1,820	5,630	6,790	7,780	9,810
Life Science & Global Health	18,130	20,290	490	360	1,520	1,690	5,370	5,010
Maritime	*	13,090	650	1,070	1,920	2,030	*	1,150
Philanthropies	2,380	3,340	40	30	240	200	140	160
Tourism	39,240	100,880	1,900	5,500	5,590	17,970	4,190	14,880
Transportation & Logistics	31,280	38,190	490	750	7,700	10,800	2,510	3,230
Total Cluster Employment	359,830	513,700	10,160	14,280	42,070	60,920	70,850	95,510

Source: PSRC

Note: Some industries belong to more than one cluster; jobs in these industries are counted only once in the aggregate total.

*Estimate subject to confidentiality restrictions.

Supporting Data for Section 2.3

Historical and Forecast Average Household Size, Region

	Year	Average Household Size
Actual	1970	2.96
	1980	2.56
	1990	2.48
	2000	2.49
	2010	2.49
Forecast	2017	2.50
	2020	2.51
	2030	2.47
	2040	2.41
	2050	2.36

Source: Source: U.S. Census Bureau, PSRC

Historical and Forecast Age Demographics, Region

	Year	Population	% Age 0-17	% Age 18-64	% Age 65+
Actual	1970	1,939,000	37%	54%	9%
	1980	2,240,000	30%	60%	10%
	1990	2,749,000	27%	62%	11%
	2000	3,276,000	27%	62%	10%
	2010	3,691,000	25%	64%	11%
Forecast	2017	4,067,000	24%	62%	14%
	2020	4,241,000	24%	62%	15%
	2030	4,823,000	22%	59%	18%
	2040	5,328,000	22%	60%	19%
	2050	5,823,000	21%	61%	18%

Source: U.S. Census Bureau, PSRC

Historical and Forecast Housing Stock, Region

	Year	Housing Units	% Single Family	% Multifamily
Actual	1970	680,000	75%	25%
	1980	895,000	72%	28%
	1990	1,134,000	69%	31%
	2000	1,348,000	69%	31%
	2010	1,571,000	67%	33%
	2017	1,687,000	65%	35%
Forecast	2020	1,745,000	n/a	n/a
	2030	2,013,000	n/a	n/a
	2040	2,287,000	n/a	n/a
	2050	2,547,000	n/a	n/a

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

Housing Units by Structure Type

Year	2000	2010	2017
King County Housing Units	742,000	851,000	922,000
% Single Family	63%	60%	57%
% Multifamily	37%	40%	43%
Kitsap County Housing Units	93,000	107,000	111,000
% Single Family	80%	81%	81%
% Multifamily	20%	19%	19%
Pierce County Housing Units	277,000	325,000	346,000
% Single Family	75%	75%	75%
% Multifamily	25%	25%	25%
Snohomish County, Housing Units	1,348,000	287,000	308,000
% Single Family	73%	74%	73%
% Multifamily	27%	26%	27%
Region Housing Units	1,348,000	1,571,000	1,687,000
% Single Family	69%	67%	65%
% Multifamily	31%	33%	35%

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

Median Gross Rent (dollars)

Year	King	Kitsap County	Pierce County	Snohomish
2010	\$1,036	\$936	\$964	\$1,024
2011	\$1,067	\$983	\$957	\$1,039
2012	\$1,109	\$1,010	\$986	\$1,076
2013	\$1,183	\$1,020	\$993	\$1,124
2014	\$1,227	\$1,028	\$1,034	\$1,195
2015	\$1,354	\$1,057	\$1,062	\$1,237
2016	\$1,418	\$1,162	\$1,133	\$1,267
2017	\$1,555	\$1,179	\$1,197	\$1,377

Source: U.S. Census Bureau ACS 1-Year estimates, Table B25064

Note: Gross rent is the contract rent plus the estimated average monthly cost of utilities (electricity, gas, water and sewer) and fuels (oil, coal, kerosene, wood, etc.) if these are paid for by the renter or paid for the renter by someone else

Median Single-Family Housing Price (dollars)

Year	King	Kitsap	Pierce	Snohomish
2010	\$ 375,500	\$ 235,000	\$ 220,000	\$ 279,500
2011	\$ 348,300	\$ 235,000	\$ 197,000	\$ 241,500
2012	\$ 370,800	\$ 242,200	\$ 195,200	\$ 261,400
2013	\$ 421,900	\$ 245,400	\$ 219,600	\$ 299,700
2014	\$ 454,100	\$ 245,200	\$ 231,400	\$ 331,000
2015	\$ 495,500	\$ 263,900	\$ 255,600	\$ 364,400
2016	\$ 568,400	\$ 292,100	\$ 279,400	\$ 389,800
2017	\$ 650,800	\$ 325,000	\$ 313,200	\$ 439,700

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

Note: Median prices are for single family home resales, excluding new construction.

Supporting Data for Section 2.4

Land Area by Growth Management Act Land Use Categories (square miles)

	Land Area					Resource Land Area by Type		
	Total	Urban Non-Resource	Rural Non-Resource	National Park and Forest	Resource	Agriculture	Forest	Mineral and Other Resource
King County	2,147	459	333	846	508	64	439	6
Kitsap County	399	101	289	0	9	0	4	5
Pierce County	1,689	254	507	563	365	35	326	3
Snohomish County	2,102	185	397	1,027	494	97	398	0
Region	6,337	999	1,526	2,436	1,376	196	1,167	14

Source: PSRC, County Comprehensive Plan and Zoning Data

Note: 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 table. Snohomish County's mineral zoning overlay is not accounted for in this table.

Designated Regional Growth Centers

King County	Auburn	Kirkland Totem Lake	Seattle First Hill/Capitol Hill
	Bellevue Downtown	Redmond Downtown	Seattle Northgate
	Burien	Redmond Overlake	Seattle South Lake Union
	Federal Way	Renton	Seattle University Community
	Issaquah	SeaTac	Seattle Uptown
	Kent	Seattle Downtown	Tukwila
Kitsap County	Bremerton	Silverdale	
Pierce County	Lakewood	Puyallup South Hill	Tacoma Mall
	Puyallup Downtown	Tacoma Downtown	University Place
Snohomish County	Bothell Canyon Park	Everett	Lynnwood

Source: PSRC

Designated Manufacturing/Industrial Centers

King County	Ballard Interbay	Kent
	Duwamish	North Tukwila
Kitsap County	Puget Sound Industrial Center - Bremerton	
Pierce County	Frederickson	Sumner-Pacific
	Port of Tacoma	
Snohomish County	Paine Field/Boeing Everett	

Source: PSRC

Supporting Data for Section 2.6

Current National Ambient Air Quality Standards for Principal Pollutants

Pollutant	Averaging Time	Level	Form
Carbon Monoxide (CO)	8 hours	9 ppm	Not to be exceeded more than once per year
	1 hour	35 ppm	
Lead (Pb)	Rolling 3-month average	0.15 µg/m ³	Not to be exceeded
Nitrogen Dioxide (NO ₂)	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	1 year	53 ppb (2)	Annual Mean
Ozone (O ₃)	8 hours	0.070 ppm	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution (PM)	1 year	12.0 µg/m ³	Annual mean, averaged over 3 years
	1 year	15.0 µg/m ³	Annual mean, averaged over 3 years
	24 hours	35 µg/m ³	98th percentile, averaged over 3 years
	24 hours	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO ₂)	1 hour	75 ppb	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	3 hours	0.5 ppm	Not to be exceeded more than once per year

Source, EPA: <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

Supporting Data for Section 2.9

Public Water Supply (freshwater), by County, 2015

County	Population served	Withdrawals (million gallons per day)				
		Groundwater	% Groundwater	Surface water	% Surface Water	Total Water
	(rounded)					
King	1,988,000	59.7	30%	138	70%	198
Kitsap	212,000	14.33	73%	5	27%	20
Pierce	778,000	69.5	63%	40.9	37%	110
Snohomish	677,000	8.3	13%	57.22	87%	66
Total	3,655,000	152	39%	241	61%	393

Source: USGS, 2018

Public Water Supply (freshwater), by County, 2000

County	Population served	Withdrawals (million gallons per day)				
		Groundwater	% Groundwater	Surface water	% Surface Water	Total Water
	(rounded)					
King	1,593,000	78.33	24%	253	76%	331
Kitsap	191,000	17.72	75%	6	25%	23
Pierce	675,000	54.0	45%	65.76	55%	120
Snohomish	503,000	6.88	10%	64.19	90%	71
Total	2,962,000	157	29%	389	71%	546

Source: USGS, 2018

Supporting Data for Section 2.12

Primary Energy Consumption Estimates (2006-2016) (Trillion Btu)

Year	Coal	Natural Gas	Petroleum	Nuclear	Hydroelectric	Biomass	Wind	Geothermal	Solar	Net intrastate flow of electricity	Net electricity imports	Total
2006	69.2	271	796	97.3	813.4	111.8	10.3	0.7	0.1	-84.2	-29.5	2056.1
2007	95.7	279.4	821.3	85.1	779.1	89.3	24.1	0.7	0.1	-114.1	-11.1	2049.6
2008	94.6	307.1	768.2	96.9	765	95.2	36	0.8	0.1	-96.5	-24.8	2042.6
2009	84	319.7	734.8	69.4	711.8	105.1	34.9	0.9	0.1	-7.4	-21.1	2032.2
2010	94.9	294.9	728.2	96.6	666.2	121.9	46.3	1	0.2	13.5	-23.7	2040
2011	57	272.3	715.7	50.3	892.1	120.2	60.8	1.3	0.2	-79.3	-23.1	2067.5
2012	42.7	271.9	736.9	97.8	851.3	118.2	62.8	1.1	0.3	-117.9	-21.1	2044
2013	75	327.8	713	88.4	745.7	126.7	66.8	1.1	0.3	-76.9	-21.6	2046.3
2014	76.5	320.2	698.7	99.3	755.7	128.7	69.1	1.1	0.5	-101.9	-25.7	2022.2
2015	58.3	327.7	752.1	85.3	684.1	128.8	65.9	1.1	0.6	-90.5	-11.3	2002.1
2016	53.5	324.9	824.8	100.7	723.3	131.9	74.2	1.1	1	-174.3	-2.7	2058.4

Source: U.S. Energy Information Administration

End-Use Energy Consumption Estimates (2006-2016) (Trillion Btu)

Year	Total	Residential Sector	Commercial Sector	Industrial Sector	Transportation Sector
2006	2056.1	484.9	382	560.6	628.5
2007	2049.7	488.3	384.6	509.7	667.1
2008	2042.7	510.5	398.4	526.3	607.5
2009	2032.3	515	393.6	525.5	598.2
2010	2040	487.9	382.6	578.8	590.7
2011	2067.5	509.1	386.4	583.5	588.5
2012	2044.2	478.9	374.8	582	608.5
2013	2046.4	494.3	382.7	573.9	595.5
2014	2022.2	481.9	376.9	577.7	585.7
2015	2022.3	442.9	368	565.1	626.3
2016	2058.2	441.1	363.1	554	700.1

Source: U.S. Energy Information Administration

Supporting Data for Section 3.2

2017-2050 Population and Employment Growth Allocations: Stay the Course

		Metropolitan Cities		Core Cities		HCT Communities		Cities & Towns		Urban Unincorporated		Rural		Total	
		% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation
King County	Population	39%	259,000	41%	272,000	9%	58,000	8%	53,000	0%	0	3%	18,000	100%	661,000
	Employment	42%	280,000	48%	317,000	6%	38,000	4%	24,000	0%	1,000	0%	3,000	100%	662,000
Kitsap County	Population	29%	54,000	15%	28,000	29%	55,000	0%	0	16%	31,000	11%	21,000	100%	189,000
	Employment	31%	20,000	26%	17,000	26%	17,000	0%	0	14%	9,000	3%	2,000	100%	66,000
Pierce County	Population	41%	174,000	31%	134,000	6%	26,000	11%	48,000	8%	33,000	3%	11,000	100%	426,000
	Employment	56%	113,000	22%	45,000	10%	19,000	5%	9,000	5%	11,000	2%	4,000	100%	203,000
Snohomish County	Population	25%	120,000	11%	54,000	35%	169,000	13%	61,000	7%	32,000	9%	44,000	100%	480,000
	Employment	42%	96,000	15%	34,000	26%	58,000	10%	22,000	5%	12,000	2%	5,000	100%	228,000
Region	Population	35%	608,000	28%	488,000	18%	308,000	9%	162,000	5%	96,000	5%	95,000	100%	1,756,000
	Employment	44%	509,000	36%	413,000	12%	133,000	5%	55,000	3%	33,000	1%	14,000	100%	1,158,000

Source: PSRC

Supporting Data for Section 3.3

2017-2050 Population and Employment Growth Allocations: Transit Focused Growth

		Metropolitan Cities		Core Cities		HCT Communities		Cities & Towns		Urban Unincorporated		Rural		Total	
		% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation
King County	Population	44%	381,000	40%	346,000	11%	92,000	5%	44,000	0%	4,000	1%	6,000	100%	872,000
	Employment	46%	311,000	45%	310,000	6%	40,000	3%	18,000	0%	1,000	0%	3,000	100%	682,000
Kitsap County	Population	32%	30,000	16%	15,000	30%	29,000	0%	0	15%	14,000	8%	8,000	100%	97,000
	Employment	33%	19,000	26%	15,000	29%	17,000	0%	0	6%	4,000	5%	3,000	100%	57,000
Pierce County	Population	37%	134,000	28%	101,000	14%	52,000	7%	25,000	11%	41,000	3%	11,000	100%	364,000
	Employment	48%	94,000	23%	44,000	13%	26,000	6%	13,000	8%	15,000	2%	3,000	100%	195,000
Snohomish County	Population	20%	87,000	11%	47,000	54%	231,000	9%	37,000	3%	12,000	2%	10,000	100%	424,000
	Employment	39%	89,000	17%	39,000	30%	68,000	8%	18,000	3%	7,000	2%	4,000	100%	225,000
Region	Population	36%	632,000	29%	509,000	23%	404,000	6%	105,000	4%	70,000	2%	35,000	100%	1,756,000
	Employment	44%	513,000	35%	407,000	13%	151,000	4%	49,000	2%	27,000	1%	13,000	100%	1,158,000

Source: PSRC

Supporting Data for Section 3.4

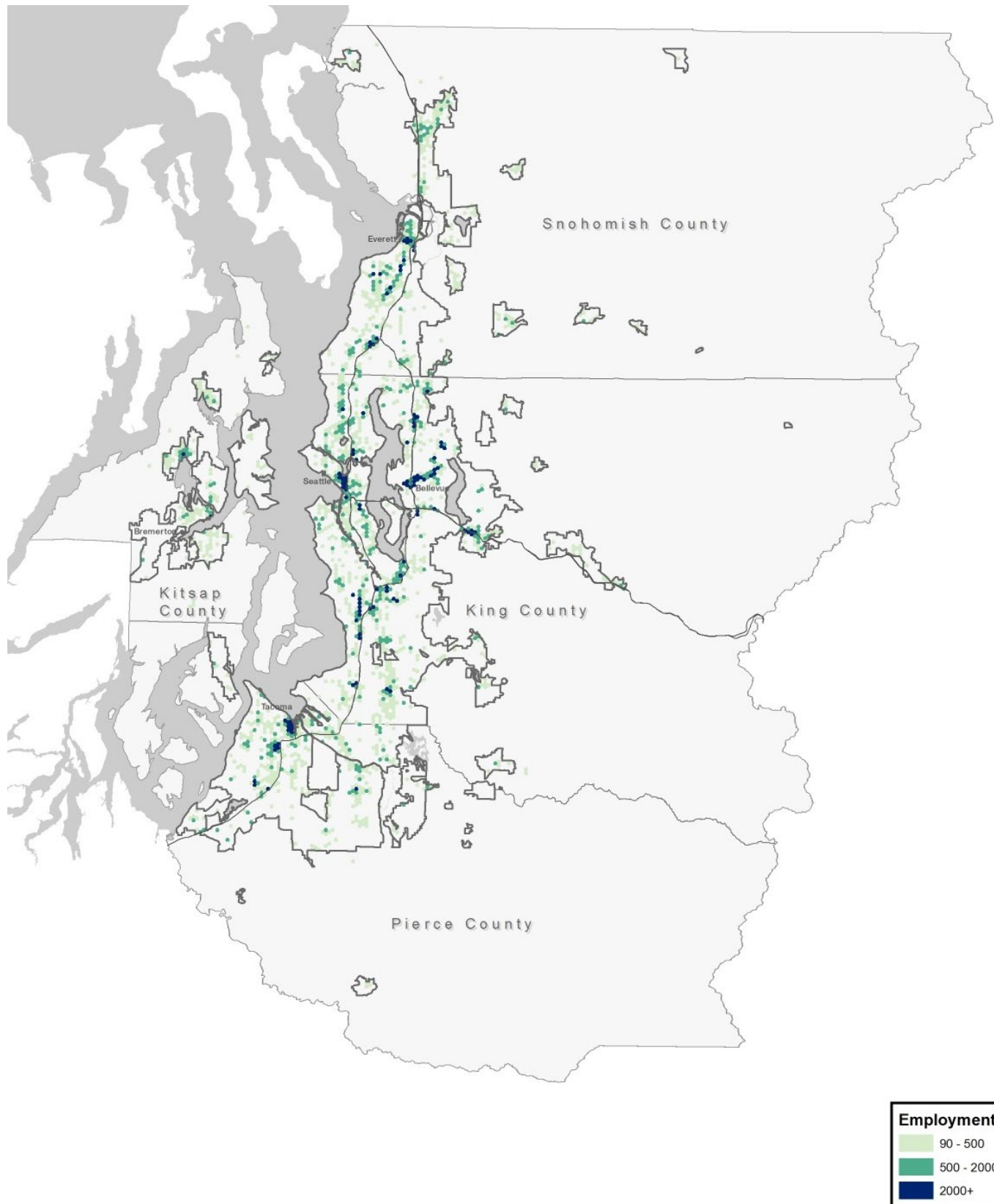
2017-2050 Population and Employment Growth Allocations: Reset Urban Growth

		Metropolitan Cities		Core Cities		HCT Communities		Cities & Towns		Urban Unincorporated		Rural		Total	
		% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation	% Share by Regional Geography	Growth Allocation
King County	Population	41%	354,000	38%	331,000	10%	83,000	9%	75,000	1%	4,000	3%	24,000	100%	872,000
	Employment	44%	303,000	44%	300,000	6%	38,000	5%	35,000	0%	1,000	1%	5,000	100%	682,000
Kitsap County	Population	21%	20,000	9%	9,000	30%	29,000	0%	0	24%	23,000	16%	15,000	100%	97,000
	Employment	29%	16,000	24%	13,000	28%	16,000	0%	0	13%	7,000	6%	3,000	100%	57,000
Pierce County	Population	26%	96,000	17%	62,000	7%	26,000	14%	50,000	30%	108,000	6%	22,000	100%	364,000
	Employment	40%	78,000	19%	36,000	13%	25,000	12%	23,000	14%	27,000	3%	6,000	100%	195,000
Snohomish County	Population	19%	82,000	8%	36,000	42%	180,000	3%	15,000	16%	69,000	10%	43,000	100%	424,000
	Employment	34%	76,000	11%	25,000	28%	62,000	7%	16,000	16%	35,000	5%	10,000	100%	225,000
Region	Population	31%	551,000	25%	438,000	18%	318,000	8%	139,000	12%	205,000	6%	104,000	100%	1,756,000
	Employment	41%	473,000	32%	374,000	12%	141,000	6%	74,000	6%	71,000	2%	25,000	100%	1,158,000

Source: PSRC

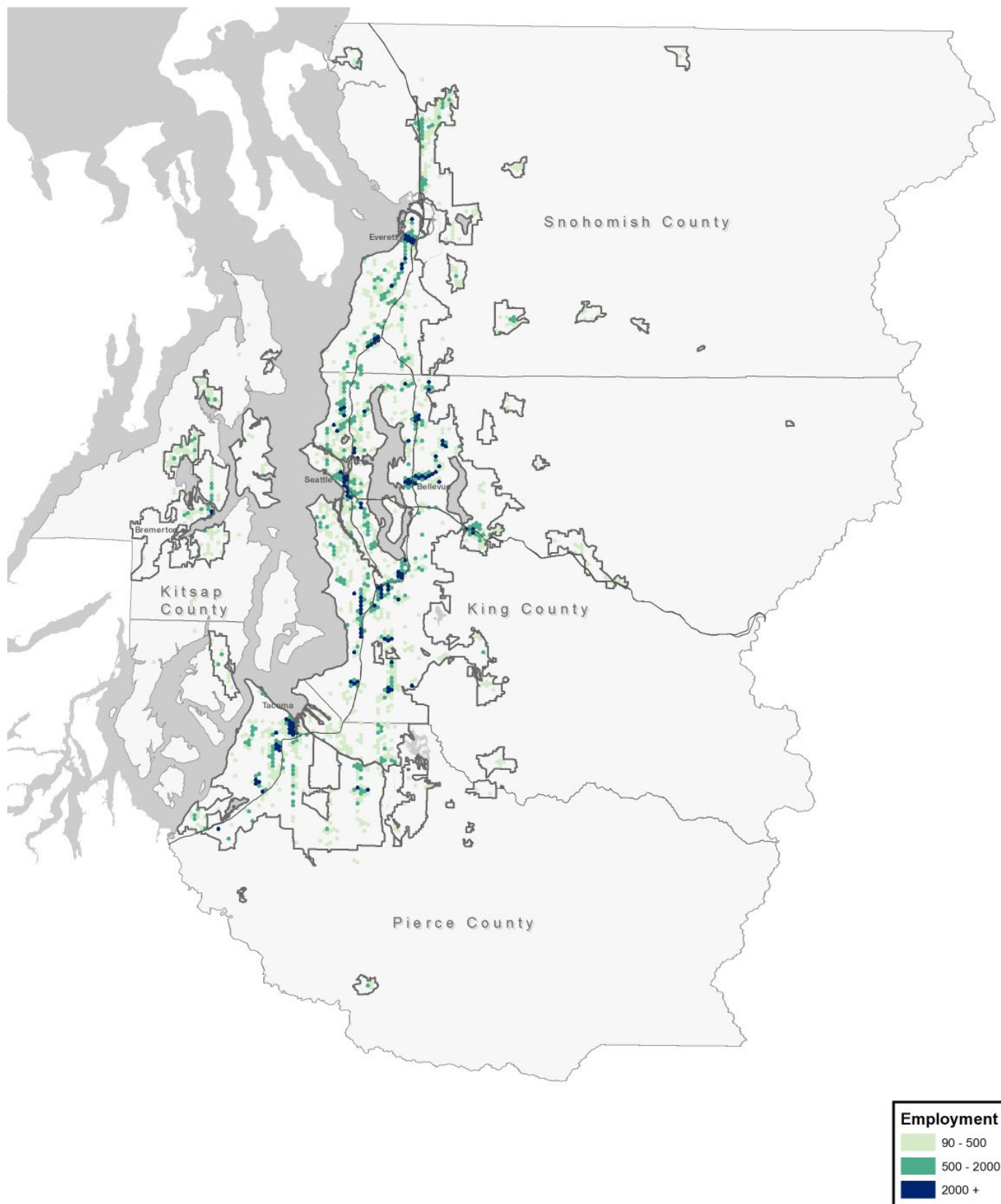
Supporting Data for Section 3.5

Stay the Course: Employment Distribution 2017–2050



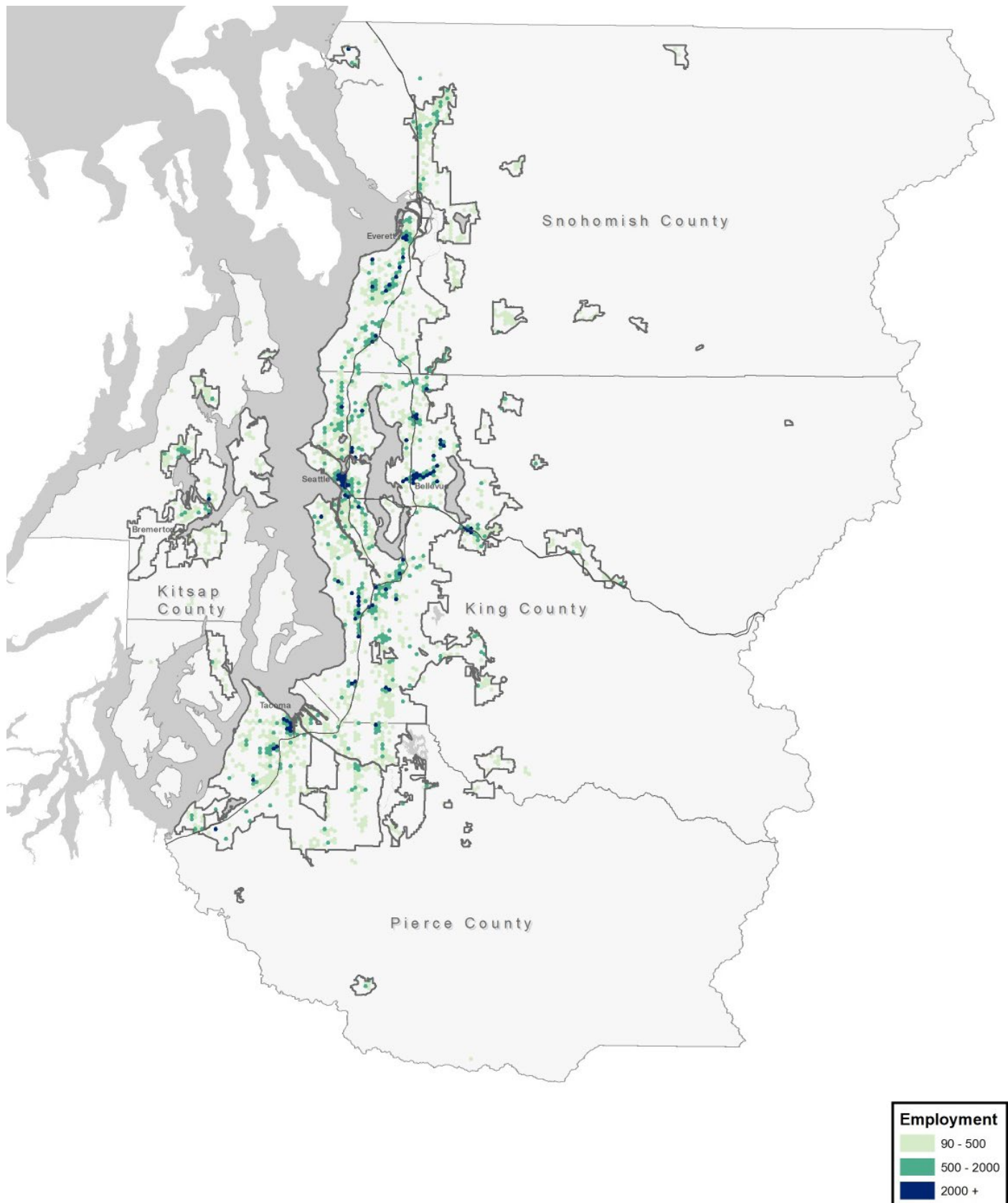
Source: PSRC

Transit Focused Growth: Employment Distribution 2017–2050



Source: PSRC

Reset Urban Growth: Employment Distribution 2017–2050



Source: PSRC

Supporting Data for Section 4.1

Jobs Housing Index

	Base Year	Stay the Course	Transit Focused Growth	Reset Urban Growth
	2017	2050	2050	2050
Regional Subareas				
King County	1.19	1.26	1.17	1.16
East King	1.26	1.37	1.29	1.27
Sea-Shore	1.32	1.29	1.19	1.21
South King	0.97	1.12	1.03	1.02
Kitsap County	0.71	0.65	0.80	0.79
Pierce County	0.78	0.76	0.80	0.81
Snohomish County	0.77	0.77	0.81	0.80
Equity Geographies				
Census tracts greater than 50% people with low incomes	2.07	1.64	1.60	1.76
Census tracts greater than 50% people of color	1.58	1.51	1.40	1.43
Region	1.00	1.00	1.00	1.00

Source: PSRC

Housing Growth in Areas Zoned for Low-, Moderate-, and High-Density Development

		Base Year	Stay the Course	Transit Focused Growth	Reset Urban Growth
		2017	2017-2050	2017-2050	2017-2050
Counties					
King County	Low Density	56%	28%	17%	33%
	Moderate Density	20%	12%	15%	11%
	High Density	24%	60%	68%	56%
Kitsap County	Low Density	87%	71%	61%	79%
	Moderate Density	11%	20%	23%	18%
	High Density	1%	8%	16%	4%
Pierce County	Low Density	74%	44%	33%	51%
	Moderate Density	20%	21%	24%	16%
	High Density	6%	35%	44%	33%
Snohomish County	Low Density	70%	44%	24%	51%
	Moderate Density	24%	16%	22%	15%
	High Density	6%	40%	54%	34%
Equity Geographies					
Census tracts greater than 50% people with low incomes	Low Density	31%	11%	6%	11%
	Moderate Density	35%	10%	9%	8%
	High Density	34%	80%	85%	81%
Census tracts greater than 50% people of color	Low Density	46%	18%	10%	23%
	Moderate Density	37%	13%	14%	13%
	High Density	17%	68%	76%	64%
Region	Low Density	64%	39%	24%	43%
	Moderate Density	20%	15%	19%	13%
	High Density	16%	46%	57%	44%

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, and low- to mid-rise apartments and condos; and high-rise apartments and condos.

Supporting Data for Section 4.2

Population and Employment in Proximity to Urban Growth Area Boundary, 2017–2050

	Stay the Course	Transit Focused Growth	Reset Urban Growth
King County	5%	3%	6%
Kitsap County	20%	16%	24%
Pierce County	8%	7%	12%
Snohomish County	14%	11%	16%
Region	9%	6%	10%

Source: PSRC

Note: Proximity is defined as within 1/4 mile of either side (inside/outside) of the urban growth area boundary

Population and Employment in Proximity to High-Capacity Transit, 2017–2050

	Stay the Course	Transit Focused Growth	Reset Urban Growth
Counties			
King County	64%	84%	61%
Kitsap County	22%	38%	14%
Pierce County	47%	66%	30%
Snohomish County	28%	69%	23%
Equity Geographies			
Census tracts greater than 50% people with low incomes	73%	91%	70%
Census tracts greater than 50% people of color	63%	89%	62%
Region	48%	75%	44%

Source: PSRC

Note: Proximity to high-capacity transit service is defined as within designated regional growth centers; within 1/2 mile of light rail stations, commuter rail stations, and ferry terminals in the urban growth area; and within 1/4 mile of bus rapid transit stops in the urban growth area

Developed Land (Acres), 2017-2050

	Stay the Course	Transit Focused Growth	Reset Urban Growth
King County	143,000	130,000	148,000
Kitsap County	31,000	29,000	32,000
Pierce County	78,000	71,000	80,000
Snohomish County	70,000	54,000	72,000
Region	322,000	285,000	331,000

Source: PSRC

Supporting Data for Section 4.3

Average Daily Vehicle Miles Traveled by Residents

	Base Year	Stay the Course	Transit Focused Growth	Reset Urban Growth
	2014	2050	2050	2050
Counties				
King County	15.4	12.5	12.0	12.5
Kitsap County	13.8	11.5	11.7	12.2
Pierce County	16.4	13.9	13.6	14.6
Snohomish County	18.7	15.4	14.5	15.6
Regional Geographies				
Metropolitan Cities	11.1	8.2	7.9	8.3
Core Cities	15.2	12.3	11.7	12.6
HCT Communities	16.0	13.9	13.3	13.9
Cities & Towns	21.0	19.1	19.0	19.0
Urban Unincorporated	16.7	15.3	15.3	15.5
Rural	25.1	23.0	23.0	22.8
Equity Geographies				
Census tracts greater than 50% people with low incomes	10.9	8.0	7.7	8.4
Census tracts greater than 50% people of color	13.1	10.7	10.3	10.7
Region	16.1	13.4	12.8	13.6

Source: PSRC

Note: This measure is calculated for all trips that use a private vehicle (both drive alone and shared ride) for residents in each defined geography. This metric does not include miles driven by trucks or by people who live outside the region.

Average Daily Vehicle Minutes Traveled by Residents

	Base Year	Stay the Course	Transit Focused Growth	Reset Urban Growth
	2014	2050	2050	2050
Counties				
King County	37	33	32	33
Kitsap County	32	31	30	32
Pierce County	38	36	35	38
Snohomish County	41	39	36	39
Regional Geographies				
Metropolitan Cities	31	25	24	25
Core Cities	35	32	30	33
HCT Communities	37	37	35	37
Cities & Towns	43	44	42	44
Urban Unincorporated	38	39	39	40
Rural	52	53	52	53
Equity Geographies				
Census tracts greater than 50% people with low incomes	27	23	22	24
Census tracts greater than 50% people of color	32	29	29	30
Region	38	35	33	35

Source: PSRC

Note: This measure is calculated for all trips that use a private vehicle (both drive alone and shared ride) for residents in each defined geography. This metric does not include miles driven by trucks or by people who live outside the region.

Average Annual Vehicle Delay Hours by Residents

	Base Year	Stay the Course	Transit Focused Growth	Reset Urban Growth
	2014	2050	2050	2050
Counties				
King County	22	28	27	30
Kitsap County	9	20	15	17
Pierce County	19	30	27	33
Snohomish County	26	43	37	42
Regional Geographies				
Metropolitan Cities	16	18	18	19
Core Cities	22	30	28	32
HCT Communities	25	40	36	39
Cities & Towns	24	41	36	42
Urban Unincorporated	24	42	39	45
Rural	23	41	36	41
Equity Geographies				
Census tracts greater than 50% people with low incomes	15	19	18	21
Census tracts greater than 50% people of color	18	25	24	26
Region	21	31	29	32

Source: PSRC

Note: This measure is calculated for all trips that use a private vehicle (both drive alone and shared ride) for residents in each defined geography. This metric does not include delay for trucks or for people who live outside the region. Delay is measured as the difference between travel in the middle of the night (considered "free-flow") and travel during a specific time of day.

Annual Transit Boardings by Operator

	Base Year	Stay the Course	Transit Focused Growth	Reset Urban Growth
	2014	2050	2050	2050
Community Transit	10,778,000	27,002,000	28,751,000	26,499,000
Everett Transit	1,980,000	5,109,000	4,819,000	4,298,000
King County Metro	128,338,000	226,155,000	243,057,000	242,750,000
Kitsap Transit	4,499,000	17,830,000	14,571,000	14,874,000
Pierce Transit	12,587,000	30,663,000	29,870,000	25,292,000
Sound Transit	36,261,000	169,020,000	181,072,000	175,870,000
Region	194,443,000	475,779,000	502,140,000	489,583,000

Source: PSRC

Note: Estimates do not include ferry boardings.

Share of Commute Trips by Travel Mode

		Base Year	Stay the Course	Transit Focused Growth	Reset Urban Growth
		2014	2050	2050	2050
Counties					
King County	SOV	68%	60%	58%	59%
	HOV	13%	13%	13%	13%
	Transit	9%	13%	14%	13%
	Walk	6%	10%	12%	11%
	Bike	3%	4%	5%	4%
Kitsap County	SOV	75%	70%	69%	72%
	HOV	14%	13%	13%	13%
	Transit	2%	3%	2%	3%
	Walk	7%	10%	11%	9%
	Bike	3%	4%	4%	4%
Pierce County	SOV	77%	69%	68%	71%
	HOV	14%	13%	14%	14%
	Transit	1%	3%	3%	2%
	Walk	5%	11%	11%	9%
	Bike	3%	5%	5%	4%
Snohomish County	SOV	76%	69%	67%	71%
	HOV	15%	14%	14%	14%
	Transit	2%	5%	6%	5%
	Walk	4%	8%	10%	7%
	Bike	3%	4%	4%	4%

		Base Year	Stay the Course	Transit Focused Growth	Reset Urban Growth
		2014	2050	2050	2050
Equity Geographies					
Census tracts greater than 50% people with low incomes	SOV	71%	59%	56%	60%
	HOV	14%	13%	13%	13%
	Transit	6%	9%	11%	9%
	Walk	6%	15%	16%	13%
	Bike	4%	5%	5%	5%
Census tracts greater than 50% people of color	SOV	72%	63%	60%	63%
	HOV	14%	14%	14%	14%
	Transit	7%	10%	11%	10%
	Walk	5%	9%	10%	9%
	Bike	3%	4%	5%	4%
Region	SOV	71%	64%	62%	64%
	HOV	14%	13%	13%	13%
	Transit	6%	9%	10%	9%
	Walk	6%	10%	11%	10%
	Bike	3%	4%	5%	4%

Source: PSRC

SOV – single occupancy vehicle

HOV – high occupancy vehicle

Share of Non-Commute Trips by Travel Mode

		Base Year	Stay the Course	Transit Focused Growth	Reset Urban Growth
		2014	2050	2050	2050
Counties					
King County	SOV	33%	28%	27%	28%
	HOV	40%	38%	37%	37%
	Transit and School Bus	6%	7%	7%	7%
	Walk	20%	25%	27%	26%
	Bike	1%	2%	2%	2%
Kitsap County	SOV	35%	33%	32%	34%
	HOV	41%	39%	39%	40%
	Transit and School Bus	4%	4%	4%	4%
	Walk	19%	23%	23%	21%
	Bike	1%	2%	2%	2%
Pierce County	SOV	33%	30%	29%	31%
	HOV	45%	42%	42%	43%
	Transit and School Bus	4%	5%	5%	5%
	Walk	16%	22%	22%	19%
	Bike	1%	2%	2%	2%
Snohomish County	SOV	34%	31%	30%	32%
	HOV	45%	42%	42%	43%
	Transit and School Bus	4%	4%	4%	4%
	Walk	16%	21%	22%	19%
	Bike	1%	2%	2%	2%

		Base Year	Stay the Course	Transit Focused Growth	Reset Urban Growth
		2014	2050	2050	2050
Equity Geographies					
Census tracts greater than 50% people with low incomes	SOV	32%	26%	25%	27%
	HOV	40%	35%	34%	36%
	Transit and School Bus	6%	7%	7%	7%
	Walk	21%	30%	32%	28%
	Bike	2%	2%	2%	2%
Census tracts greater than 50% people of color	SOV	33%	29%	28%	29%
	HOV	43%	40%	39%	39%
	Transit and School Bus	5%	7%	7%	7%
	Walk	17%	23%	25%	23%
	Bike	1%	2%	2%	2%
Region	SOV	33%	29%	28%	30%
	HOV	42%	40%	39%	40%
	Transit and School Bus	5%	6%	6%	6%
	Walk	18%	23%	25%	23%
	Bike	1%	2%	2%	2%

Source: PSRC

Average Jobs Accessible per Resident by Travel Mode

		<u>Base Year</u>	<u>Stay the Course</u>	<u>Transit Focused Growth</u>	<u>Reset Urban Growth</u>
		2014	2050	2050	2050
Counties					
King County	Jobs within 45-min 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-min 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-min 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-min 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
Equity Geographies					
Census tracts greater than 50% people with low incomes	Jobs within 45-min Transit Trip*	158,400	340,600	368,800	374,300
	Jobs within 1-mile Walk Trip	11,200	28,900	30,800	27,200
	Jobs within 3-mile Bike Trip	51,500	100,100	102,600	101,500
Census tracts greater than 50% people of color	Jobs within 45-min Transit Trip*	140,700	345,800	372,300	353,600
	Jobs within 1-mile Walk Trip	6,100	15,000	17,800	15,500
	Jobs within 3-mile Bike Trip	47,600	93,300	97,800	95,000

Source: PSRC

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.

Travel Times for Major Corridors

From	Year 2050 Travel Time (Minutes)			Difference from Stay the Course (Minutes)	
	Stay the Course	Transit Focused Growth	Reset Urban Growth	Transit Focused Growth	Reset Urban Growth
Auburn to Renton: AM	37	35	36	-2	-1
Renton to Auburn: PM	36	35	36	-1	0
Bellevue to Seattle: AM	28	29	30	1	2
Seattle to Bellevue: PM	28	29	30	1	2
Bellevue to Tukwila: PM	39	40	40	1	1
Tukwila to Bellevue: AM	36	37	38	1	2
Bellevue to Lynnwood: PM	45	44	44	-1	-1
Lynnwood to Bellevue: AM	47	44	46	-3	-1
Bremerton to Silverdale: PM	20	18	18	-2	-2
Silverdale to Bremerton: AM	20	19	19	-1	-1
Everett to Seattle: AM	81	76	79	-5	-2
Seattle to Everett: PM	81	76	79	-5	-2
Redmond to Seattle: AM	32	32	33	0	1
Seattle to Redmond: PM	30	31	32	1	2
Seattle to Tacoma: PM	82	79	82	-3	0
Tacoma to Seattle: AM	87	83	86	-4	-1

Supporting Data for Section 4.4

Projected Pollutant Emissions (tons per day)

	<u>Base Year</u>	<u>Stay the Course</u>		<u>Transit Focused Growth</u>		<u>Reset Urban Growth</u>	
	2014	2050	% change from base year	2050	% change from base year	2050	% change from base year
Carbon Monoxide	866.5	206.5	-76%	203.5	-77%	207.4	-76%
Nitrogen Oxide	150.1	21.8	-85%	21.3	-86%	21.9	-85%
Volatile Organic Compounds	50.5	6.4	-87%	6.3	-87%	6.4	-87%
CO ₂ Equivalent	47,187	40,926	-13%	39,571	-16%	41,374	-12%
PM ₁₀	8.70	7.85	-10%	7.50	-14%	7.97	-8%
PM _{2.5}	5.27	1.62	-69%	1.56	-70%	1.64	-69%

Source: PSRC

Note: All emissions calculated using wintertime rates, except for Volatile Organic Compounds, which are shown at their maximum during summer.

Supporting Data for Section 4.6

Impervious Surfaces (acres)

	<u>Base Year</u>	<u>Stay the Course</u>	<u>Transit Focused Growth</u>	<u>Reset Urban Growth</u>
	2017	2017-2050	2017-2050	2017-2050
Counties				
King County	129,600	9,100	7,300	9,600
Kitsap County	23,400	1,800	1,500	1,900
Pierce County	66,100	8,300	7,300	8,500
Snohomish County	53,800	4,100	3,400	4,400
Age of Development				
Built before 1996	223,900	(22,800)	(17,200)	(26,000)
Built 1996 and after	49,100	14,500	13,000	14,600
Built before 1996, redeveloped	-	31,500	23,800	35,700
Region	273,000	23,200	19,600	24,300

Source: PSRC, Parametrix

Note: Stormwater management guidelines established in the WA Department of Ecology's "1992 Stormwater Management Manual for the Puget Sound Basin" came into widespread practice by 1996.

Supporting Data for Section 4.8

Population in Proximity to Parks Providing Local Urban Access

	Base Year		Stay the Course		Transit Focused Growth		Reset Urban Growth	
	UGA Population 2017	Percent in Proximity to Parks	UGA Population Change 2017-2050	Percent in Proximity to Parks	UGA Population Change 2017-2050	Percent in Proximity to Parks	UGA Population Change 2017-2050	Percent in Proximity to Parks
Counties								
King County	2,024,000	72%	652,000	73%	873,000	74%	853,000	72%
Kitsap County	158,000	35%	157,000	35%	80,000	42%	74,000	31%
Pierce County	692,000	39%	410,000	48%	348,000	49%	336,000	39%
Snohomish County	658,000	46%	440,000	42%	418,000	39%	384,000	39%
Equity Geographies								
Census tracts greater than 50% people with low incomes	237,000	60%	169,000	62%	194,000	64%	122,000	66%
Census tracts greater than 50% people of color	695,000	60%	266,000	60%	343,000	61%	296,000	60%
Region	3,532,000	59%	1,658,000	55%	1,719,000	59%	1,648,000	55%

Source: PSRC

Note: Proximity is defined as within 1/4 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 1/4 mile of the urban growth area boundary.

Supporting Data for Section 5.5

Population in Areas of Moderate to Very High Opportunity

	Base year		Stay the Course		Transit Focused Growth		Reset Urban Growth	
	Population 2017	Percent in Areas of Moderate to Very High Opportunity	Population Change 2017-2050	Percent in Areas of Moderate to Very High Opportunity	Population Change 2017-2050	Percent in Areas of Moderate to Very High Opportunity	Population Change 2017-2050	Percent in Areas of Moderate to Very High Opportunity
Counties								
King County	1,723,000	80%	550,000	82%	727,000	83%	714,000	82%
Kitsap County	88,000	33%	67,000	37%	42,000	45%	30,000	32%
Pierce County	283,000	33%	188,000	44%	151,000	41%	128,000	35%
Snohomish County	307,000	39%	174,000	36%	136,000	32%	161,000	38%
Equity Geographies								
Census tracts greater than 50% people with low incomes	83,000	35%	74,000	44%	100,000	51%	55,000	45%
Census tracts greater than 50% people of color	365,000	52%	146,000	55%	216,000	63%	187,000	63%
Region	2,400,000	59%	980,000	56%	1,057,000	60%	1,033,000	59%

Source: PSRC

Note: Areas of moderate to very high opportunity is defined as the top 60th percentile of census tracts with respect to the opportunity index. Additional detail describing methodology for this measure can be found in Appendix C. Additional information on equity, including maps depicting areas of opportunity, can be found in Appendix H.

Population in Areas of Higher Displacement Risk

	Base Year		Stay the Course		Transit Focused Growth		Reset Urban Growth	
	Population 2017	Percent in Areas of Higher Displacement Risk	Population Change 2017-2050	Percent in Areas of Higher Displacement Risk	Population Change 2017-2050	Percent in Areas of Higher Displacement Risk	Population Change 2017-2050	Percent in Areas of Higher Displacement Risk
Counties								
King County	287,000	13%	169,000	25%	272,000	31%	204,000	23%
Kitsap County	3,000	1%	17,000	10%	21,000	22%	2,000	2%
Pierce County	57,000	7%	58,000	14%	52,000	14%	35,000	10%
Snohomish County	65,000	8%	66,000	14%	57,000	13%	43,000	10%
Equity Geographies								
Census tracts greater than 50% people with low incomes	168,000	70%	153,000	91%	179,000	92%	109,000	89%
Census tracts greater than 50% people of color	275,000	39%	143,000	53%	205,000	60%	156,000	53%
Region	412,000	10%	310,000	18%	402,000	23%	284,000	16%

Source: PSRC

Note: Areas of higher displacement risk is defined as the top 10th percentile of census tracts with respect to the displacement risk analysis index. Additional detail describing methodology for this measure can be found in Appendix C. Additional information on equity, including maps depicting areas of higher displacement risk can be found in Appendix H.

VISION 2050

Draft Supplemental Environmental Impact Statement

Appendix C Modeling Methodology and Analysis Tools



Puget Sound Regional Council

FEBRUARY 2019

Appendix C: Modeling Methodology and Analysis Tools

This appendix provides a detailed description of the modeling process and analysis of the three VISION 2050 alternatives – Stay the Course, Transit Focused Growth, and Reset Urban Growth – for this Supplemental Environmental Impact Statement (SEIS).

Section C.1 provides an overview of models and tools used in the modeling process. Section C.2 documents key technical assumptions and methodologies used to develop and model the three alternatives. Section C.3 presents the data indicators generated through the modeling process used to evaluate the differential outcomes and impacts of the alternatives.

C.1 Models and Tools

This section provides an overview of the full suite of PSRC forecasting tools used to model the SEIS alternatives and generate the evaluation metrics used to analyze the alternatives.

Figure C.1-1. PSRC Model Suite for Analyzing SEIS Alternatives



C.1.1 Regional Macroeconomic Model and Forecast

Purpose

The Puget Sound Regional Macroeconomic Model was used to produce PSRC's 2018 Regional Macroeconomic Forecast, which establishes long-range regional growth assumptions for population, households, and employment out to the year 2050. The regional forecast values serve as control totals for developing the population and employment growth allocations by county and regional geography that define the three SEIS alternatives. The regional forecast and subregional growth assumptions for each alternative then serve as controls and key inputs to the UrbanSim land use model.

Model/Tool

The Puget Sound Regional Macroeconomic Model and 2018 Regional Macroeconomic Forecast were developed by the economic consulting firm ECONorthwest. The regional model

is structured in a top-down manner, with productivity, aggregate employment, income, and inflation forecast initially, followed by subsequent modules for demographic composition and industry detail. The model equations are estimated using over four decades of historical data. It also utilizes two key exogenous elements: a) an extension of results from the well-regarded national macroeconomic model developed and maintained by Yale University professor Ray Fair, and b) an Aerospace employment forecast based on global demand projections and labor productivity trends. The current model has been refined to better capture the effects of the demographic aging transition underway nationally and its workforce implications. The model now also includes a new housing supply module that explicitly accounts for the role of housing price in the behavior of the regional economy and demographics.

Key Assumptions

The latest 2018 Regional Macroeconomic Forecast assumes:

- The region is projected to reach a total of 5.8 million people and 3.4 million jobs by the year 2050. This translates into an additional 1.8 million people and 1.2 million jobs being added to the region between 2017 and 2050.
- The jobs forecast reflects a slight upward increase from PSRC's preceding forecast (2014), attributable to the strength of the regional economy relative to the broader U.S. economy in the economic recovery period following the last recession.
- The population forecast reflects a more substantial upward adjustment from the previous forecast series, in part due to the higher jobs forecast but primarily due to model adjustments that better account for the relationship between job growth, the workforce population, and the aging of the boomer generation in the forthcoming decades.
- The region is projected to add 830,000 households to reach a total of 2.4 million households by the year 2050. Average household size, which has been relatively stable over the last two and a half decades, is anticipated to begin declining again as boomers age and the number of empty-nester and one-person households increases. Decreasing fertility rates also contribute to this trend. A smaller persons-per-household ratio translates into a greater demand for housing to meet the needs of a growing population.

C.1.2 UrbanSim Land Use Model

Purpose

PSRC used its UrbanSim model as a tool for modeling the population and employment growth allocations that define each SEIS alternative. The model simulates how the growth is likely to occur within the development parameters established through local current comprehensive plans and zoning regulations. As such, it is a helpful predictor of growth patterns, but it cannot account for growth that may be influenced by future comprehensive plan and zoning updates. The land parcel-level output supports several land use evaluation metrics used to analyze the

differential impacts of each SEIS alternative. The UrbanSim output also serve as inputs to the regional travel demand model and other analyses.

Model/Tool

UrbanSim is an agent-based microsimulation model that predicts land development and the location choices of households and jobs over time at the land parcel level. Land development is a function of zoned land uses, allowable densities, and market forces (e.g., demand, real estate prices, profitability of new development). Location choice decisions are simulated based on various factors that households/persons and firms/jobs consider when moving to or relocating within the region (e.g., price, building size, proximity to other types of land use, commute times).

UrbanSim is run parallel to the SoundCast travel model (described below) within an integrated model framework that incorporates feedback loops from SoundCast at selected intervals (years). The feedback loop is comprised of accessibility factors from SoundCast that are used by various UrbanSim sub-models. To learn more, visit: <https://www.psrc.org/urbansim-parcel-based-land-use-model>.

Key Assumptions

Key assumptions embedded in the UrbanSim model and simulation of the SEIS alternatives include:

- Jurisdiction-level growth assumptions (population, households, employment) for individual cities, urban unincorporated planning areas, and rural areas serve as control totals and key demand drivers in the UrbanSim model framework. These assumptions are derived from the county and regional geography-level growth allocations for each alternative in conjunction with locally developed growth targets.
- Development parameters in the model were established based on local comprehensive plans and zoning regulations circa 2015/2016, with selected updates for major rezones. 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.
- Accessibility factors from the SoundCast travel model inform the location choices of households and jobs and the attractiveness of available land for development within UrbanSim.

C.1.3 SoundCast Travel Model

Purpose

PSRC has developed a customized set of software programs and mathematical procedures to simulate current and future travel patterns and conditions within the central Puget Sound region. These programs and procedures are collectively referred to as the “SoundCast regional travel demand forecasting model” or simply as the “SoundCast travel model.” The travel model produces detailed spatial and network data that are used to analyze how the

region's transportation infrastructure and environment are likely to be impacted by future growth and development as represented by the VISION 2050 growth alternatives. Model outputs are useful for identifying differences in alternative performance, but do not fully predict future behavior. Selected travel model outputs also serve as inputs to both UrbanSim and the regional air quality model and analysis.

Model/Tool

PSRC used its SoundCast travel model to analyze the transportation-related impacts of the three growth alternatives. SoundCast is an activity-based model which represents how individual people travel to conduct their daily activities, as compared to the previous zone-based model which aggregately represented trips between zones. As an activity-based model, SoundCast allows for improved representation of travel behavior as well as greater temporal and spatial resolution to better evaluate the impacts of alternative land use and development patterns. To learn more, visit: <https://www.psrc.org/activity-based-travel-model-soundcast>.

The current SoundCast 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 base year being in 2014 (versus 2017) since any differences would be small compared to the expected change by the year 2050.

Key Assumptions

The key input assumptions for any travel demand analysis framework include a set of land use growth allocations (representing demand conditions) along with transportation projects, policies, and network attributes (representing supply conditions):

- For the travel demand analysis conducted on the three growth alternatives, parcel-level population, household, and employment outputs from the UrbanSim model for each of the SEIS alternatives comprise the key land use assumptions.
- The set of transportation projects and policies enumerated in the 2018 Regional Transportation Plan provide the future (year 2040) transportation network assumptions used by SoundCast for this analysis.

Limitations of the Model

SoundCast is estimated using transportation mode choice data from PSRC's Regional Household Travel Survey. However, bus rapid transit and light rail services in the Puget Sound region are still in their infancy and available survey data may not yet fully predict user behavior in response to high capacity transit. Additionally, planning and improvements that may occur to make stations more accessible are not accounted for in the model. Subarea planning, local street improvements, and supportive bus service may be employed at future stations to enhance performance. Local planning and improvements are likely to result in greater transit ridership at station areas than reported in the modeling results.

C.1.4. MOVES Mobile Source Emissions Model

Purpose

The air quality model estimates future regional motor vehicle emissions of criteria pollutants and greenhouse gases. The analysis combines mobile source emissions factors from the U.S. Environmental Protection Agency's latest Motor Vehicle Emission Simulator (MOVES) model and output from the travel demand model, including link-specific vehicle miles traveled and vehicle speed.

Model/Tool

PSRC used the most recent version of the MOVES model, [MOVES2014a](#), to develop emissions factors used to conduct the air quality analysis of the SEIS alternatives. The MOVES2014a model represents EPA's most up-to-date assessment of on-road mobile source emissions, including incorporation of the most current vehicle, fuel, and emissions standards and new and updated emissions data from a variety of test programs and other resources. Metropolitan planning organizations are required to use this updated tool for regional emissions analyses for transportation conformity determinations.

Key Assumptions

The assumptions underlying the air quality analysis are as follows:

- The fleet mix and age distribution from the base year are used.
- The model accounts for the phase-in of current emissions standards, inspection/maintenance programs, fuel standards, and engine technology, and contains assumptions regarding the rate of vehicle changeout and fleet turnover for each forecast year.
- The model does not predict future changes in regulations or technological advances, and PSRC does not make any additional assumptions about the future vehicle fleet inputs to the model.

C.2 Modeling the VISION 2050 SEIS Alternatives

The VISION 2050 SEIS alternatives represent distinct patterns of future growth. The alternatives were designed to allow this environmental analysis to consider the effects of extending the current growth strategy to 2050 and the potential impacts of adjustments to that strategy. This section describes the key technical assumptions and methodologies applied in developing and modeling the three alternatives. For a full description of the VISION 2050 alternatives, see Chapter 3 – Alternatives Evaluated.

C.2.1 Key Technical Assumptions

Regional Growth Assumptions

Future assumptions of regional population and employment growth for the 2017 to 2050 planning period—1.8 million additional people and 1.2 million additional jobs—were held constant under all three alternatives. These growth assumptions were derived from PSRC’s 2018 Regional Macroeconomic Forecast.

Table C.2-1. Regional Population and Employment Growth Assumptions

	Forecast Growth 2017-2050
Regional Population	1,756,000
Regional Employment	1,158,000

County Growth Shares

The distribution of forecast population and employment growth across the region’s four counties represents another important technical assumption applied in developing the SEIS alternatives.

Stay the Course. The Stay the Course (or no action) alternative, by definition, uses county population and employment growth shares from the adopted VISION 2040 Regional Growth Strategy. The VISION 2040 county growth shares, which are for the 2000 to 2040 time period, were applied to regional growth assumptions from the 2018 Macroeconomic Forecast for an extended 2000 to 2050 time frame, then adjusted to account for the growth that has already occurred from 2000 through 2017.

The resulting county growth shares for the 2017 to 2050 period represent what is needed for the region to achieve the desired distribution of population and employment growth across counties as expressed in the current strategy by the year 2050 starting from a 2000 base year. In other words, if a county grew faster or slower over the past 17 years than envisioned by the current strategy, then its 2017 to 2050 growth share rebalances the county’s trajectory to achieve the 2050 goal.

Table C.2-2. County Population and Employment Growth Shares – Stay the Course

	Population			Employment		
	VISION 2040	Stay the Course		VISION 2040	Stay the Course	
	% Share 2000-2040	% Share 2017-2050	Growth 2017-2050	% Share 2000-2040	% Share 2017-2050	Growth 2017-2050
King County	42%	38%	661,000	57%	57%	662,000
Kitsap County	9%	11%	189,000	5%	6%	66,000
Pierce County	23%	24%	426,000	17%	17%	203,000
Snohomish County	26%	27%	480,000	20%	20%	228,000
Region	100%	100%	1,756,000	100%	100%	1,158,000

Action Alternatives. The county growth shares in the adopted Regional Growth Strategy were developed using trend data and forecasts circa 2005/06. Recognizing that these assumptions warranted reevaluation, PSRC reviewed a range of available data resources to establish a revised set of baseline county growth shares for the two action alternatives—Transit Focused Growth and Reset Urban Growth. These assumptions were discussed and vetted with PSRC’s Land Use Technical Advisory Committee (LUTAC).

Population. To update county population growth assumptions, PSRC turned to the Washington Office of Financial Management’s (OFM) [2017 Supplemental Population Projections](#), which extended the latest Growth Management Act (GMA) Population Projections for Counties from 2040 out to 2050. Counties are required under the state GMA to plan for future growth using OFM projections; therefore they are a widely recognized and relevant forecast resource to inform VISION 2050.

PSRC derived 2017 to 2050 county percent growth shares from OFM’s supplemental population projections (Medium series) and applied them to the regional population growth assumptions from PSRC’s Macroeconomic Forecast to arrive at the 2017 to 2050 county population growth assumptions used in the Transit Focused Growth and Reset Urban Growth alternatives.

Table C.2-3. County Population Growth Shares by Alternative

	Stay the Course		Transit Focused Growth		Reset Urban Growth	
	% Share 2017-2050	Growth 2017-2050	% Share 2017-2050	Growth 2017-2050	% Share 2017-2050	Growth 2017-2050
King County	38%	661,000	50%	872,000	50%	872,000
Kitsap County	11%	189,000	5%	97,000	5%	97,000
Pierce County	24%	426,000	21%	364,000	21%	364,000
Snohomish County	27%	480,000	24%	424,000	24%	424,000
Region	100%	1,756,000	100%	1,756,000	100%	1,756,000

The revised baseline county population growth assumptions used in the action alternatives redistribute a substantial share of future growth into King County (+211,000) when compared to allocations under Stay the Course, primarily from Kitsap County (-93,000), but also from Pierce County (-63,000) and Snohomish County (-56,000). These assumptions were

compared to and evaluated for reasonableness against several historical reference data points and were determined to be realistic.

Table C.2-4. Actual and Forecast County Population Growth Shares

	Actual			VISION 2040	Action Alternatives
	% Share 1990-2017	% Share 2000-2017	% Share 2010-2017	% Share 2000-2040	% Share 2017-2050
King County	49%	53%	59%	42%	50%
Kitsap County	6%	4%	4%	9%	5%
Pierce County	21%	20%	17%	23%	21%
Snohomish County	25%	23%	20%	26%	24%
Region	100%	100%	100%	100%	100%

Employment. On the employment side, with no comparable forecast resource available, PSRC chose to use 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.

PSRC boards and committees provided guidance that the employment shares should be further adjusted to encourage additional employment growth in Kitsap, Pierce, and Snohomish counties to promote a better balance of jobs and housing across the region. As a result, the final version of the county employment growth shares in the action alternatives reflects a 5 percentage point shift of regional employment from King County to Kitsap (+1 percentage point), Pierce (+2 percentage points), and Snohomish (+2 percentage points) counties. The development of the VISION 2040 Regional Growth Strategy included a similar adjustment for population and employment to support a better balance across the counties.

Table C.2-5. County Employment Growth Shares by Alternative

	Stay the Course		Transit Focused Growth		Reset Urban Growth	
	% Share 2017-2050	Growth 2017-2050	% Share 2017-2050	Growth 2017-2050	% Share 2017-2050	Growth 2017-2050
King County	57%	662,000	59%	682,000	59%	682,000
Kitsap County	6%	66,000	5%	57,000	5%	57,000
Pierce County	17%	203,000	17%	195,000	17%	195,000
Snohomish County	20%	228,000	19%	225,000	19%	225,000
Region	100%	1,158,000	100%	1,158,000	100%	1,158,000

The updated county employment growth assumptions for the 2017 to 2050 period were determined to be consistent with historical trends as well as with the subregional forecast assumptions used to develop the VISION 2040 Regional Growth Strategy for employment.

Table C.2-6. Actual and Forecast County Employment Growth Shares

	Actual			VISION 2040	New Baseline	Action Alternatives
	% Share 1990-2017	% Share 2000-2017	% Share 2010-2017	% Share 2000-2040	% Share 2017-2050	% Share 2017-2050
King County	N/A	57%	73%	57%	64%	59%
Kitsap County	N/A	4%	2%	5%	4%	5%
Pierce County	N/A	17%	11%	17%	15%	17%
Snohomish County	N/A	22%	14%	20%	17%	19%
Region	N/A	100%	100%	100%	100%	100%

Regional Geographies. Regional geographies provide a central organizing framework for the Regional Growth Strategy, in which cities, unincorporated urban communities, rural areas, and resource lands are classified according to the roles each are expected to play in accommodating future growth and implementing the strategy.

VISION 2040 defines regional geographies among cities primarily based on regional growth centers and jurisdictional size. Since VISION 2040 was adopted, eight cities have been reclassified from Small Cities to Larger Cities. City reclassifications and member feedback about the geographies generated significant board discussion about the criteria and expectations for different types of places and prompted a new look at definitions of regional geographies for the VISION 2050 update.

Based on scoping comments and direction from the Growth Management Policy Board, PSRC developed an updated classification of cities and unincorporated urban areas. Changes are intended to clarify distinctions between places based on access to high-capacity transit; for urban unincorporated areas, planning status regarding annexation or incorporation is also taken into account.

The VISION 2050 SEIS alternatives use the revised classification system presented in the table below to express how county population and employment growth allocations are distributed across the region.

Table C.2-7. VISION 2050 Regional Geographies

Metropolitan Cities Central cities in the county that serve 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 Bothell Burien Federal Way	Issaquah Kent Kirkland	Lakewood Lynnwood Puyallup	Redmond Renton SeaTac	Silverdale Tukwila University Place
High-Capacity Transit (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 Bainbridge Island Bothell MUGA Des Moines DuPont Edmonds Edmonds MUGA	Everett MUGA Federal Way PAA Fife Fircrest Kenmore Lake Forest Park	Larch Way Overlap Lynnwood MUGA Marysville Mercer Island Mill Creek Mill Creek MUGA	Mountlake Terrace Mukilteo Mukilteo MUGA Newcastle North Highline Renton PAA	Port Orchard Poulsbo Shoreline Sumner Tacoma PAA Woodinville
Cities & Towns Cities and towns with local transit access or without fixed-route transit				
Algona Beaux Arts Black Diamond Bonney Lake Brier Buckley Carbonado Carnation Clyde Hill	Covington Darrington Duvall Eatonville Edgewood Enumclaw Gig Harbor Gold Bar Granite Falls	Hunts Point Index Lake Stevens Maple Valley Medina Milton Monroe Normandy Park North Bend	Orting Pacific Roy Ruston Sammamish Skykomish Snohomish Snoqualmie South Prairie	Stanwood Steilacoom Sultan Wilkeson Woodway Yarrow Point
Urban Unincorporated Areas Urban unincorporated 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

Similar to 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, which plan outside the framework of state and regional policy and are dependent on national and international circumstances.

Tribes are also not subject to the planning requirements of GMA. Counties take differing approaches to account for growth on tribal lands, therefore Tribes are not allocated specific levels of growth under the Regional Growth Strategy.

C.2.2 Stay the Course (No Action) Alternative

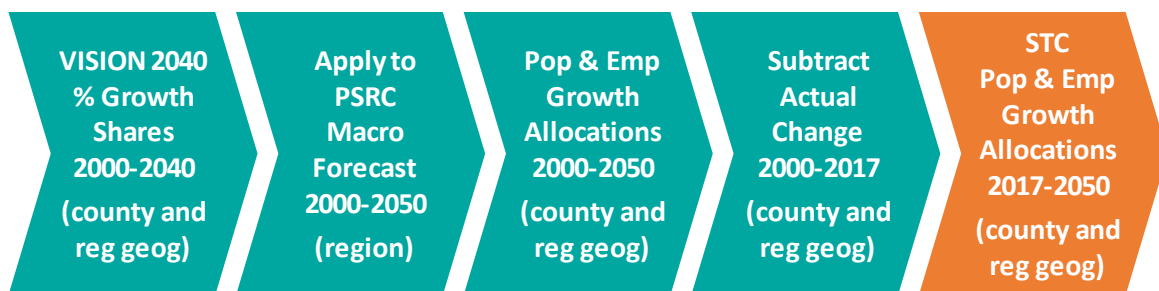
The Stay the Course alternative is a direct extension of the VISION 2040 Regional Growth Strategy. The alternative assumes compact growth, focused in the largest and most transit-connected cities in the region and within the region's 29 designated regional growth centers. It is the required "no action alternative" that would maintain current policy and must be evaluated under SEPA.

Stay the Course continues to direct the largest shares of the region's future growth to the region's five major Metropolitan Cities and their designated centers—Seattle, Bellevue, Everett, Bremerton and Tacoma. It also focuses growth into the region's Core Cities—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 to urban unincorporated and rural areas and more growth to cities.

Methodology

The Stay the Course alternative is developed using the current Regional Growth Strategy's assumed distribution of future growth across counties and regional geographies. First, VISION 2040 population and employment growth shares for the 2000 to 2040 time frame were applied to regional growth assumptions derived from PSRC's Macroeconomic Forecast for an extended 50-year time frame out to 2050. Then, the 2000 to 2050 growth allocations for counties and regional geographies were adjusted to subtract out growth that already occurred between 2000 and 2017.

Figure C.2-1. Stay the Course Methodology



In regional geographies where actual 2000 to 2017 growth was greater than the 2000 to 2050 growth allocation, the 2017 to 2050 allocation was reset from the negative value to zero and the remaining shortfall was proportionally distributed across other regional geographies within the county. The resulting growth assumptions for the remaining 2017 to 2050 period represent what is needed for the region to achieve the desired development pattern expressed in the current growth strategy by the year 2050 starting from a 2000 base year.

Table C.2-8. 2017-2050 Population and Employment Growth Allocations – Stay the Course

POPULATION	Metro Cities	Core Cities	HCT Comm	Cities & Towns	Urban Uninc	Rural	Total
King County	39% (259,000)	41% (272,000)	9% (58,000)	8% (53,000)	0% (0)	3% (18,000)	100% (661,000)
Kitsap County	29% (54,000)	15% (28,000)	29% (55,000)	N/A N/A	16% (31,000)	11% (21,000)	100% (189,000)
Pierce County	41% (174,000)	31% (134,000)	6% (26,000)	11% (48,000)	8% (33,000)	3% (11,000)	100% (426,000)
Snohomish County	25% (120,000)	11% (54,000)	35% (169,000)	13% (61,000)	7% (32,000)	9% (44,000)	100% (480,000)
Region	35% (608,000)	28% (488,000)	18% (308,000)	9% (162,000)	5% (96,000)	5% (95,000)	100% (1,756,000)

EMPLOYMENT	Metro Cities	Core Cities	HCT Comm	Cities & Towns	Urban Uninc	Rural	Total
King County	42% (280,000)	48% (317,000)	6% (38,000)	4% (24,000)	0% (1,000)	0% (3,000)	100% (662,000)
Kitsap County	31% (20,000)	26% (17,000)	26% (17,000)	N/A N/A	14% (9,000)	3% (2,000)	100% (66,000)
Pierce County	56% (113,000)	22% (45,000)	10% (19,000)	5% (9,000)	5% (11,000)	2% (4,000)	100% (203,000)
Snohomish County	42% (96,000)	15% (34,000)	26% (58,000)	10% (22,000)	5% (12,000)	2% (5,000)	100% (228,000)
Region	44% (509,000)	36% (413,000)	12% (133,000)	5% (55,000)	3% (33,000)	1% (14,000)	100% (1,158,000)

Some counties and regional geographies have been growing faster or slower than VISION 2040 assumed. The following charts illustrate how the Stay the Course alternative accounts for the lesser or extra amount of growth needed between 2017 and 2050 to ultimately achieve the VISION 2040 growth shares by 2050.

Figure C.2-2. Regional Growth Strategy for Population vs. Growth Trends vs. Stay the Course

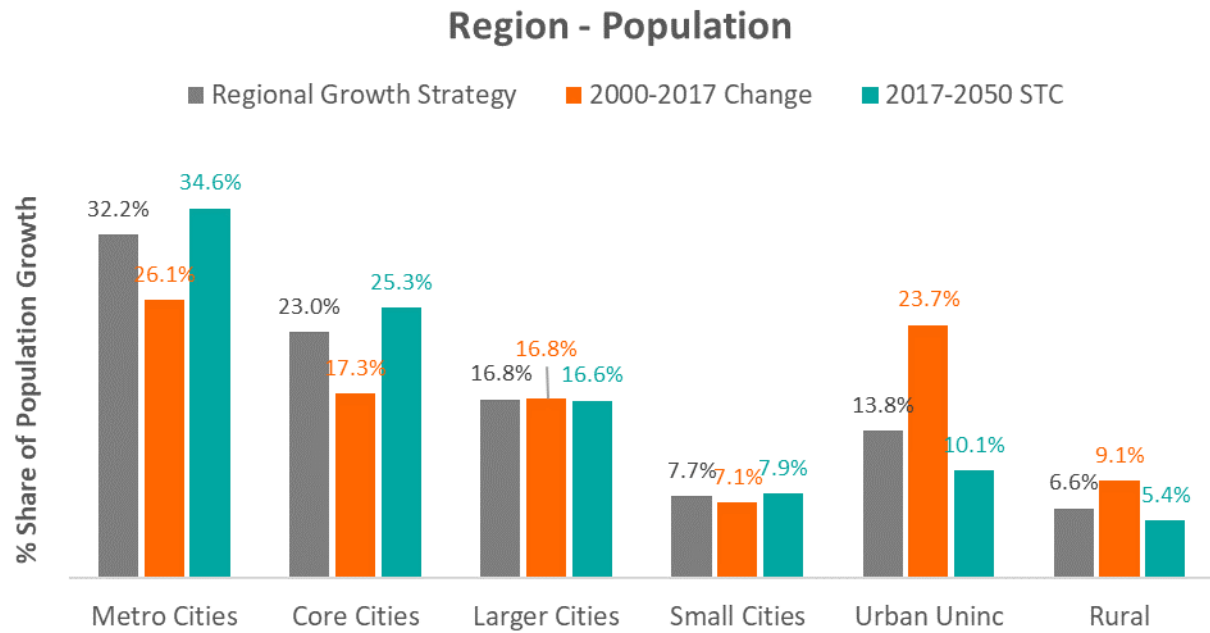
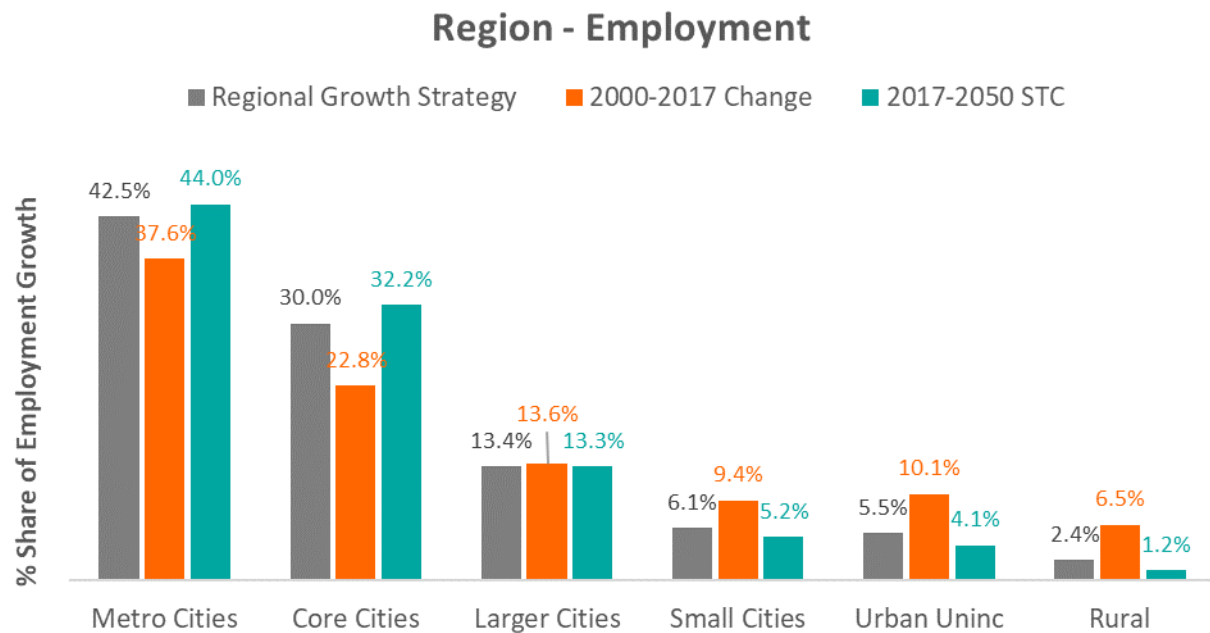


Figure C.2-3. Regional Growth Strategy for Employment vs. Growth Trends vs. Stay the Course



The Regional Growth Strategy Background Paper (PSRC 2018a) provides more information on growth trends for individual regional geographies, regionally and by county, in comparison to the policy goals of the adopted strategy.

Regional Geographies in Stay the Course. PSRC developed preliminary Stay the Course growth allocations based on VISION 2040 regional geographies in which places are classified as Metropolitan Cities, Core Cities, Larger Cities (cities with combined population and employment of 22,500 or higher), Small Cities (cities with population and employment less than 22,500), Unincorporated Urban Growth Areas, and Rural.

For purposes of this environmental analysis and to facilitate comparability across SEIS alternatives, Stay the Course—as presented in Table C.2-8 above—was translated into the revised VISION 2050 regional geographies classification system. To model the Stay the Course alternative, PSRC developed jurisdiction-level growth assumptions based on VISION 2040 regional geographies. (This process is discussed in more detail in section C.2.5 Modeling the Alternatives in UrbanSim – Jurisdiction-Level Control Totals). The jurisdiction-level model inputs, as well as all subsequent model outputs, were then reaggregated for reporting purposes using the revised regional geographies.

For comparison purposes, Stay the Course growth allocations using the VISION 2040 regional geographies are provided in the table below.

Table C.2-9. 2017-2050 Population and Employment Growth Allocations – Stay the Course by VISION 2040 Regional Geography

POPULATION	Metro Cities	Core Cities	Larger Cities	Small Cities	Urban Uninc	Rural	Total
King County	39% (259,000)	38% (254,000)	16% (104,000)	4% (25,000)	0% (0)	3% (18,000)	100% (661,000)
Kitsap County	29% (54,000)	15% (28,000)	11% (20,000)	18% (35,000)	16% (31,000)	11% (21,000)	100% (189,000)
Pierce County	41% (174,000)	26% (109,000)	11% (47,000)	11% (48,000)	9% (37,000)	3% (11,000)	100% (426,000)
Snohomish County	25% (120,000)	11% (54,000)	25% (122,000)	6% (31,000)	23% (109,000)	9% (44,000)	100% (480,000)
Region	35% (608,000)	25% (445,000)	17% (292,000)	8% (139,000)	10% (177,000)	5% (95,000)	100% (1,756,000)
EMPLOYMENT	Metro Cities	Core Cities	Larger Cities	Small Cities	Urban Uninc	Rural	Total
King County	42% (280,000)	43% (282,000)	12% (79,000)	3% (17,000)	0% (2,000)	0% (3,000)	100% (662,000)
Kitsap County	31% (20,000)	26% (17,000)	6% (4,000)	20% (13,000)	14% (9,000)	3% (2,000)	100% (66,000)
Pierce County	56% (113,000)	20% (40,000)	8% (16,000)	8% (17,000)	6% (12,000)	2% (4,000)	100% (203,000)
Snohomish County	42% (96,000)	15% (34,000)	24% (55,000)	6% (13,000)	11% (25,000)	2% (5,000)	100% (228,000)
Region	44% (509,000)	32% (373,000)	13% (154,000)	5% (60,000)	4% (48,000)	1% (14,000)	100% (1,158,000)

Regional Growth Strategy Adjustments. The VISION 2040 Regional Growth Strategy was adopted by the PSRC General Assembly in April 2008, and has since been updated by the Executive Board via a series of technical amendments to reflect annexations, urban growth area boundary adjustments, and city reclassifications. For purposes of developing the Stay the Course alternative, the current Regional Growth Strategy was adjusted to reflect additional annexations and boundary changes through April 2017, as well as the reclassifications of Bonney Lake, Covington, and Lake Stevens from the Small Cities to Larger Cities category.

The Executive Board has also designated new regional growth centers in the cities of Issaquah and University Place since VISION 2040 was adopted, but the board has not yet formally reclassified those jurisdictions as Core Cities. Issaquah and University Place are reported with other Core Cities in all three SEIS alternatives to reflect their future planning role in implementing VISION 2050, but Stay the Course assumes levels of growth for these cities based on their adopted classification as Larger Cities.

C.2.3 Transit Focused Growth Alternative

The Transit Focused Growth alternative is based on VISION 2040 and assumes accelerated growth near the region's existing and planned transit investments. The alternative assumes that 75 percent of the region's population and employment growth occurs in regional growth centers and areas within a quarter- to a half-mile from current and planned high-capacity transit stations, including light rail, bus rapid transit, commuter rail, ferries, and streetcar. Transit Focused Growth directs the largest shares of growth to Metropolitan Cities, Core Cities, and HCT Communities, and assumes a greater role for areas served by high-capacity transit outside of Metropolitan and Core cities. The remaining balance of growth is distributed largely within the urban growth area among areas not served by high-capacity transit. Growth in Rural and Urban Unincorporated areas is the lowest in this alternative.

Unlike Stay the Course, this alternative (and Reset Urban Growth) uses the revised county growth distributions discussed in the County Growth Shares – Action Alternatives section (see section C.2.1) above, which assumes higher levels of (primarily population) growth in King County and comparatively lower shares of growth to Kitsap, Pierce, and Snohomish counties. It also reflects a more aggressive improvement in the balance of jobs and housing across the region's counties by 2050 relative to Stay the Course.

Methodology

The methodology for developing the Transit Focused Growth alternative begins with Stay the Course population and employment growth allocations for regional geographies at the regional summary level. Transit Focused Growth pivots off Stay the Course by shifting additional growth to Metropolitan Cities, Core Cities, and HCT Communities from Cities Towns, Urban Unincorporated, and Rural areas.

Table C.2-10. 2017-2050 Population and Employment Growth Allocations – Regional Geography

POPULATION	Metro Cities	Core Cities	HCT Comm	Cities & Towns	Urban Uninc	Rural	Total
Stay the Course	35%	28%	18%	9%	5%	5%	100%
Transit Focused Growth	36%	29%	23%	6%	4%	2%	100%
EMPLOYMENT	Metro Cities	Core Cities	HCT Comm	Cities & Towns	Urban Uninc	Rural	Total
Stay the Course	44%	36%	12%	5%	3%	1%	100%
Transit Focused Growth	44%	36%	12%	4%	2%	1%	100%

As mentioned above, the Transit Focused Growth alternative also uses a revised set of assumptions regarding how regional population and employment growth is distributed among the region's counties. The initial calculations use the revised baseline county employment shares (discussed in section C.2.1) without the 5 percentage point jobs shift to improve the balance of jobs and housing across counties.

Table C.2-11. 2017-2050 Population and Employment Growth Allocations – County

POPULATION	King County	Kitsap County	Pierce County	Snohomish County	Total
Stay the Course	38%	11%	24%	27%	100%
Transit Focused Growth	50%	5%	21%	24%	100%
EMPLOYMENT	King County	Kitsap County	Pierce County	Snohomish County	Total
Stay the Course	57%	6%	17%	20%	100%
Transit Focused Growth	64%	4%	15%	17%	100%

Regional population and employment growth for the 2017 to 2050 period is first apportioned to counties and regional geographies (at the regional summary level), based on the shares established above. To further allocate growth across regional geographies in each county, the methodology sought to account for the unique role regional geographies play within each county. For example, Core Cities today account for a substantially greater share of total population in King County (33 percent) than in Pierce County (17 percent) and especially Kitsap and Snohomish counties (7 percent).

The methodology uses current (2017) distributions of population and employment by county and regional geography as a proxy for the distinct development patterns that characterize each county in terms of its regional geographies. An iterative proportional fitting process was then applied to adjust the 2017 population and employment distributions to match the county and regional geography-level growth allocations established in the preceding step.

Figure C.2-4. Iterative Proportional Fitting Process

POPULATION	Metro Cities	Core Cities	HCT Comm	Cities & Towns	Urban Uninc	Rural	Total
King County	2017 pop	2017 pop	2017 pop	2017 pop	2017 pop	2017 pop	50%
Kitsap County	2017 pop	2017 pop	2017 pop	2017 pop	2017 pop	2017 pop	5%
Pierce County	2017 pop	2017 pop	2017 pop	2017 pop	2017 pop	2017 pop	21%
Snohomish County	2017 pop	2017 pop	2017 pop	2017 pop	2017 pop	2017 pop	24%
Total	36%	29%	23%	6%	4%	2%	1,756,000

Selected manual adjustments were made to the employment growth allocations to better reflect the intended policy goals of the Transit Focused Growth alternative. And in one last step, the 5 percentage point jobs shift across counties was implemented, which shifts more future job growth to Kitsap, Pierce, and Snohomish counties from King County.

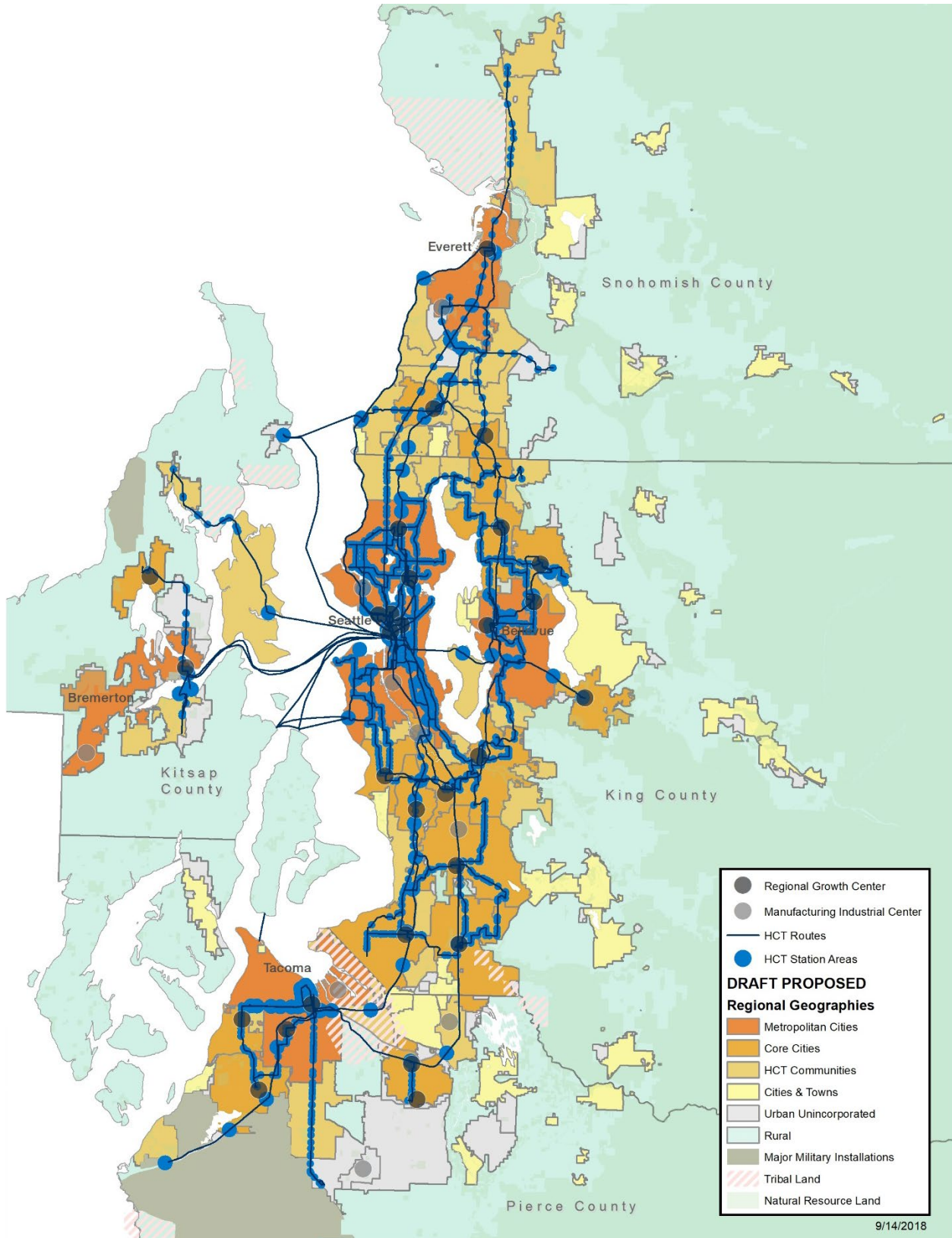
Table C.2-12. 2017-2050 Population and Employment Growth Allocations – Transit Focused Growth

POPULATION	Metro Cities	Core Cities	HCT Comm	Cities & Towns	Urban Uninc	Rural	Total
King County	44% (381,000)	40% (346,000)	11% (92,000)	5% (44,000)	0% (4,000)	1% (6,000)	100% (872,000)
Kitsap County	32% (30,000)	16% (15,000)	30% (29,000)	N/A N/A	15% (14,000)	8% (8,000)	100% (97,000)
Pierce County	37% (134,000)	28% (101,000)	14% (52,000)	7% (25,000)	11% (41,000)	3% (11,000)	100% (364,000)
Snohomish County	20% (87,000)	11% (47,000)	54% (231,000)	9% (37,000)	3% (12,000)	2% (10,000)	100% (424,000)
Region	36% (632,000)	29% (509,000)	23% (404,000)	6% (105,000)	4% (70,000)	2% (35,000)	100% (1,756,000)
EMPLOYMENT	Metro Cities	Core Cities	HCT Comm	Cities & Towns	Urban Uninc	Rural	Total
King County	46% (311,000)	45% (310,000)	6% (40,000)	3% (18,000)	0% (1,000)	0% (3,000)	100% (682,000)
Kitsap County	33% (19,000)	26% (15,000)	29% (17,000)	N/A N/A	6% (4,000)	5% (3,000)	100% (57,000)
Pierce County	48% (94,000)	23% (44,000)	13% (26,000)	6% (13,000)	8% (15,000)	2% (3,000)	100% (195,000)
Snohomish County	39% (89,000)	17% (39,000)	30% (68,000)	8% (18,000)	3% (7,000)	2% (4,000)	100% (225,000)
Region	44% (513,000)	35% (407,000)	13% (151,000)	4% (49,000)	2% (27,000)	1% (13,000)	100% (1,158,000)

Centers and Transit Station Areas. In addition to directing a greater share of future growth to Metropolitan Cities, Core Cities, and HCT Communities, the Transit Focused Growth alternative has an explicit goal of directing 75 percent of the region’s anticipated population and employment growth to regional growth centers and areas served by existing and planned high-capacity transit investments.

High-capacity transit station areas are defined as areas (parcels) within a one-half mile walk of existing/planned light rail and streetcar stations, commuter rail stations, and ferry terminals within the region's designated urban growth areas (UGA), and/or areas within a one-quarter mile walk of existing/planned bus rapid transit stations in the UGA. Parcels are selected using transportation network-based distances. That is, half- and quarter-mile distances from transit stations are measured using existing street network walking distances. The high-capacity transit stations are locations identified in the 2018 Regional Transportation Plan and are based on the long-range plans adopted by transit agencies. These station areas are likely to see future planning changes and access improvements that expand the one quarter- and half-mile walksheds and are not accounted for in the modeling analysis of the alternatives.

Figure C.2-5. High-Capacity Transit Station Areas



The high-capacity transit station area definition described above was also used to establish the revised VISION 2050 regional geographies classification system discussed in section C.2.1 Key Technical Assumptions and Concepts – Regional Geographies. For that application, urban unincorporated places with high-capacity transit stations are classified as HCT Communities only if they are affiliated for annexation or planning for incorporation.

C.2.4 Reset Urban Growth Alternative

The Reset Urban Growth alternative shares similarities with actual growth patterns that occurred from 2000 to 2017, and assumes a more distributed growth pattern throughout the urban area. Reset Urban Growth generally continues to allocate the largest shares of growth to Metropolitan Cities, Core Cities, and HCT Communities, although the overall growth to these places is less compared to Stay the Course or Transit Focused Growth. Growth in Rural and Urban Unincorporated areas is the highest in this alternative.

This alternative (like Transit Focused Growth) uses the revised county growth distributions discussed in the County Growth Shares – Action Alternatives section (see section C.2.1). The revised county assumptions direct higher levels of (primarily population) growth to King County from the region's other counties. The future balance of jobs and housing across the region's counties shows greater improvement compared to Stay the Course.

Methodology

The Reset Urban Growth alternative begins by allocating 2017 to 2050 forecast regional population and employment growth down to counties using the revised baseline county growth shares discussed in the County Growth Shares – Action Alternatives section. The 5 percentage point jobs shift to improve the balance of jobs and housing across counties is not applied in this initial step. The methodology then uses VISION 2040 population and employment growth shares to further disaggregate the county allocations down to regional geographies.

The key ramification of this approach compared to Stay the Course is that, by the year 2050, regional geographies that grew faster over the last seventeen years (2000 to 2017) than assumed under VISION 2040 would absorb a greater share of the region's growth than called for by the current Regional Growth Strategy, and regional geographies that grew slower would capture a smaller share. The difference can be pronounced for certain regional geographies. The revised baseline county growth shares can accentuate this effect on growth allocations for some regional geographies, while dampening it in others.

Table C.2-13. 2017-2050 Population and Employment Growth Allocations –
Reset Urban Growth (Preliminary)

POPULATION	Metro Cities	Core Cities	HCT Comm	Cities & Towns	Urban Uninc	Rural	Total
King County	41% (355,000)	38% (332,000)	10% (84,000)	8% (74,000)	0% (3,000)	3% (24,000)	100% (872,000)
Kitsap County	26% (25,000)	13% (12,000)	29% (28,000)	N/A N/A	16% (15,000)	16% (15,000)	100% (97,000)
Pierce County	32% (118,000)	26% (94,000)	7% (27,000)	11% (41,000)	17% (62,000)	6% (22,000)	100% (364,000)
Snohomish County	20% (86,000)	9% (38,000)	40% (170,000)	12% (52,000)	8% (36,000)	10% (43,000)	100% (424,000)
Region	33% (583,000)	27% (477,000)	18% (309,000)	10% (167,000)	7% (116,000)	6% (104,000)	100% (1,756,000)
EMPLOYMENT	Metro Cities	Core Cities	HCT Comm	Cities & Towns	Urban Uninc	Rural	Total
King County	45% (331,000)	44% (328,000)	6% (42,000)	4% (29,000)	1% (4,000)	1% (5,000)	100% (740,000)
Kitsap County	28% (13,000)	23% (11,000)	28% (12,000)	N/A N/A	13% (6,000)	8% (3,000)	100% (45,000)
Pierce County	46% (79,000)	23% (39,000)	13% (23,000)	7% (12,000)	9% (15,000)	3% (6,000)	100% (172,000)
Snohomish County	37% (75,000)	14% (29,000)	28% (56,000)	9% (19,000)	6% (13,000)	5% (10,000)	100% (202,000)
Region	43% (497,000)	35% (406,000)	11% (133,000)	5% (60,000)	3% (37,000)	2% (25,000)	100% (1,158,000)

The methodology then resets the growth allocations for the Cities & Towns and Urban Unincorporated regional geographies using Buildable Lands capacity estimates factored upward by a 10 percent margin. The 10 percent capacity increase assumes that, over the 30-year VISION 2050 planning horizon, these regional geographies are likely to see some limited amount of redevelopment and/or upzones that would increase local development capacities beyond what was assumed in each county's most recent Buildable Lands analysis.

Table C.2-14. Buildable Lands-Based 2017-2050 Population and Employment Growth Allocations

POPULATION	Population		Employment	
	Cities & Towns	Urban Uninc	Cities & Towns	Urban Uninc
King County	74,820	4,390	34,860	1,410
Kitsap County	N/A	23,440	N/A	7,400
Pierce County	49,620	108,340	23,120	26,960
Snohomish County	14,540	69,070	16,350	35,090
Region	138,990	205,240	74,340	70,860

For this application, King County's Buildable Lands estimates for urban unincorporated communities were adjusted using parcel-level UrbanSim capacity estimates to account for areas that had been annexed since the estimates were published. Pierce County's summary Buildable Lands estimates for its entire urban unincorporated area were apportioned to individual urban unincorporated planning communities using the county's parcel-level Buildable Lands database. In both counties, housing capacity estimates were converted to population using a series of jurisdiction-specific factors for vacancy, average household size, and group quarter population.

The final Reset Urban Growth alternative uses the preliminary Rural growth allocations along with the Buildable Lands-based growth allocations for Cities & Towns and Urban Unincorporated. The balance of remaining growth within each county is then proportionally reallocated to Metropolitan Cities, Core Cities, and HCT Communities based on the preliminary growth distributions. Selected manual adjustments were made to the employment growth allocations to better reflect the intended policy goals of the Reset Urban Growth alternative. Lastly, the 5 percentage point jobs shift to improve the balance of jobs and housing across counties was implemented, which shifts more job growth to Kitsap, Pierce, and Snohomish counties from King County. During this final adjustment, the growth allocations for Cities & Towns, Urban Unincorporated, and Rural were held constant such that the shift only impacted Metropolitan Cities, Core Cities, and HCT Communities.

Table C.2-15. 2017-2050 Population and Employment Growth Allocations –
Reset Urban Growth

POPULATION	Metro Cities	Core Cities	HCT Comm	Cities & Towns	Urban Uninc	Rural	Total
King County	41% (354,000)	38% (331,000)	10% (83,000)	9% (75,000)	1% (4,000)	3% (24,000)	100% (872,000)
Kitsap County	21% (20,000)	9% (9,000)	30% (29,000)	N/A N/A	24% (23,000)	16% (15,000)	100% (97,000)
Pierce County	26% (96,000)	17% (62,000)	7% (26,000)	14% (50,000)	30% (108,000)	6% (22,000)	100% (364,000)
Snohomish County	19% (82,000)	8% (36,000)	42% (180,000)	3% (15,000)	16% (69,000)	10% (43,000)	100% (424,000)
Region	31% (551,000)	25% (438,000)	18% (318,000)	8% (139,000)	12% (205,000)	6% (104,000)	100% (1,756,000)
EMPLOYMENT	Metro Cities	Core Cities	HCT Comm	Cities & Towns	Urban Uninc	Rural	Total
King County	44% (303,000)	44% (300,000)	6% (38,000)	5% (35,000)	0% (1,000)	1% (5,000)	100% (682,000)
Kitsap County	29% (16,000)	24% (13,000)	28% (16,000)	N/A N/A	13% (7,000)	6% (3,000)	100% (57,000)
Pierce County	40% (78,000)	19% (36,000)	13% (25,000)	12% (23,000)	14% (27,000)	3% (6,000)	100% (195,000)
Snohomish County	34% (76,000)	11% (25,000)	28% (62,000)	7% (16,000)	16% (35,000)	5% (10,000)	100% (225,000)
Region	41% (473,000)	32% (374,000)	12% (141,000)	6% (74,000)	6% (71,000)	2% (25,000)	100% (1,158,000)

C.2.5 Modeling the Alternatives in UrbanSim

Once the growth assumptions for each SEIS alternative are defined at the county and regional geography levels, additional steps are taken to prepare the alternatives for simulation in the UrbanSim model framework.

Jurisdiction-Level Control Totals

To model the SEIS alternatives, UrbanSim uses jurisdiction-level growth assumptions for population, households, and employment as intermediate inputs for disaggregating county and regional geography-level growth allocations down to parcels. Within each jurisdiction, the model then simulates how the growth is likely to occur at the parcel level given the development parameters set by the jurisdiction's comprehensive plan and/or zoning regulations.

Local Growth Targets. PSRC used the latest available local population and employment growth targets established through countywide target-setting processes to proportionally disaggregate the 2017 to 2050 growth assumptions for each alternative from county regional geographies down to individual jurisdictions. In this approach, growth targets serve as a proxy for shared understanding between local jurisdictions as to the relative role each plays in accommodating their respective county's future growth.

In King County, where growth targets are established in housing units in lieu of population, a series of jurisdiction-specific factors for vacancy, average household size, and group quarter population are applied to convert local housing targets to population. In King and Snohomish counties, where employment targets do not include jobs in the construction & resource sector, those jobs are estimated and added so the targets represent total employment.

Base and Future Year Controls. Throughout the annual simulation process, jurisdiction-level controls are instituted in the 2017 base year and in 5-year increments from 2020 to 2050. The 2017 base year controls are based on actual population, household, and employment estimates. Jurisdictional growth assumptions (2017 to 2050) for each alternative are added to the base year estimates to produce 2050 horizon year controls. Controls for the remaining future year increments from 2020 to 2045 are interpolated on a straight-line basis from the 2017 and 2050 values, then adjusted to match regional controls from PSRC's Macroeconomic Forecast. All jurisdiction-level control totals reflect municipal and planning boundaries as of April 1, 2017.

Population and Household Controls. The UrbanSim household location choice model simulates the placement of new households and persons allocated to each jurisdiction, as well as a subset of movers, into vacant housing units. It does not account for persons in group quarter facilities (e.g., college dormitories, nursing homes, correctional facilities, etc.).

Preliminary jurisdiction-level controls for total population are adjusted to remove the group quarters component. Jurisdiction-specific factors for average household size are then applied to convert the household population controls into households. Lastly, household population is sorted into households by size of household (e.g., 1-person, 2-person, 3-person, etc.), which serve as the final inputs to the model. The group quarters component is added back in as a post-processing step subsequent to the modeling process to develop the evaluation metrics used in analyzing the modeling results.

Employment Controls. Similarly, the UrbanSim employment location choice model works to place new jobs as well as a subset of relocating firms/jobs into available commercial and industrial space. The model accounts for jobs by sector, home-based employment, and civilian military employment, but does not address non-civilian military employment (i.e., enlisted and service personnel).

PSRC does not forecast change on military bases which are assumed to maintain existing levels of non-civilian military employment across all alternatives. Uniformed military personnel counts are added back in as a post-processing step subsequent to the modeling process for reporting purposes.

Additional Modeling Assumptions

In simulating the three SEIS alternatives, the following adjustments to the UrbanSim model and model inputs were applied:

Capacity Adjustments. PSRC uses local zoning and development regulations to represent allowable future land uses. Future land use assumptions for local jurisdictions were compiled

from 2015/16 comprehensive plan updates and revised where significant zoning changes were adopted following the update. In some instances, the jurisdiction-level control totals resulting from the methodology described above may exceed the maximum development capacity as interpreted from local comprehensive plans and/or zoning. In these cases, PSRC increases capacity equally across all zones within the jurisdiction to accommodate the control total. These assumed capacity adjustments are for modeling and analysis purposes only – actual growth targets and future changes in development capacity would differ based on local circumstances and planning.

Stay the Course and Reset Urban Growth Alternatives. For jurisdictions with a designated regional growth center or centers, capacity is increased for all parcels located within centers to increase the likelihood of higher-density projects being developed through the simulation. The capacity boost is intended to direct a greater share of each jurisdiction's growth to its growth center or centers per VISION 2040 policy.

Transit Focused Growth Alternative. The Transit Focused Growth alternative explicitly directs 75 percent of future population and employment growth to designated regional growth centers and high-capacity transit station areas. To operationalize this concept within the UrbanSim model framework, PSRC used the following approach:

HCT Area Control Totals. First, jurisdictional population and employment control totals for each Metropolitan City, Core City, and HCT Community were apportioned to HCT and non-HCT areas within each jurisdiction based on estimated development capacity. In an iterative process, the growth assumptions for individual HCT areas were increased until the sum across all HCT areas met the 75 percent regional threshold. The non-HCT component of each jurisdiction's control totals were adjusted downward accordingly – but no lower than a 10 percent share – to maintain the original jurisdiction-wide control values. This approach ensures that the simulation process is guided by controls that place exactly 75 percent of regional population and employment growth into HCT areas.

HCT Area Capacity Adjustments. Secondly, capacity assumptions for HCT areas were scaled upwards in some jurisdictions as needed to accommodate the assigned growth.

UrbanSim Model Output

The UrbanSim land use modeling outputs serve as inputs to the regional travel demand forecasting model, and the travel modeling outputs in turn support the air quality analysis tool. Outputs from all three modeling processes were used to produce a set of evaluation metrics—presented in the Evaluating the VISION 2050 SEIS Alternatives section that follows—that quantify the differential environmental impacts of each SEIS alternative.

C.3 Evaluating the VISION 2050 SEIS Alternatives

C.3.1 Model-Based Evaluation Metrics

The analysis of the environmental impacts of the VISION 2050 SEIS alternatives—documented in the Environmental Effects and Mitigation chapter (Chapter 4) of this document—relied upon a series of quantitative evaluation metrics developed from PSRC’s land use, travel demand, and air quality models. These metrics will also serve as evaluation criteria to inform the selection of the preferred growth alternative as described in Appendix D.

The full set of model-derived indicators is presented below in Table C.3-1.

Table C.3-1. Model-Based Indicators for Evaluating VISION 2050 SEIS Alternatives

Indicator	Definition	Unit	Reporting Geography or Category
Population, Employment & Housing			
Population and Employment Density Change (map)	Change in activity unit density per acre – 2017-2050	Activity units (i.e., persons + jobs) per acre	Hexagonal (90-acre) grid cells
Population and Employment Density (map)	Activity unit density per acre – 2050	Activity units (i.e., persons + jobs) per acre	Hexagonal (90-acre) grid cells
Jobs-Housing Ratio	Jobs per housing unit ratios – 2017 and 2050; ratios indexed to regional average jobs-housing ratio	Jobs per housing unit	Region Regional subareas Equity geographies
Housing Choice	Housing units in areas zoned for low density (< 12 units/acre), moderate density (12-49 units/acre), and high density (50+ units/acre) residential and mixed-use development – 2017 and 2017-2050 change	Housing units, percent share	Region Counties Equity geographies
Land Use			
Population and Employment Density Change (map)	(Same as Population, Employment & Housing indicator above)		
Population and Employment Density (map)	(Same as Population, Employment & Housing indicator above)		

Table C.3-1. Model-Based Indicators for Evaluating VISION 2050 SEIS Alternatives
(continued)

Indicator	Definition	Unit	Reporting Geography or Category
Developed Land	Land area (acres) developed on vacant parcels vs. redeveloped parcels – 2017 (total developed land only) and 2017-2050 change; development types are defined as low density (<12 units/acre), moderate density (12-49 units/acre), and high density (50+ units/acre) residential and mixed-use development	Acres	Region Counties Development types Equity geographies
Development Proximity to UGA Boundary	Activity units within (inside and outside) one-quarter mile of urban growth area boundary – 2017 and 2017-2050 change	Activity units (i.e. persons + jobs), total and percent	Region Counties
Access to Transit Service	Activity units within one-half mile of light rail stations, commuter rail stations, and ferry terminals and/or within one-quarter mile of bus rapid transit and local transit stations – 2017 and 2017-2050 change	Activity units (i.e., persons + jobs), total and percent	Region Counties Equity geographies
Growth in TOD Areas	Activity units in regional growth centers and/or within one-half mile of light rail stations, commuter rail stations, and ferry terminals in urban growth areas and/or within one-quarter mile of bus rapid transit in urban growth areas – 2017 and 2017-2050 change	Activity units (i.e., persons + jobs), total and percent	Region Counties Equity geographies
Transportation			
Average Trip Distance – Commute Trips	Average weekday commute trip distance from home to work for residents – 2014 and 2050; excludes truck, visitor, external, and airport trips	Miles	Region Counties Regional subareas Equity geographies
Average Trip Distance – Non-Commute Trips	Average weekday non-commute trip distance for residents – 2014 and 2050; excludes truck, visitor, external, and airport trips	Miles	Region Counties Regional subareas Equity geographies
Mode Share – Commute Trips	Average weekday resident home to work commute mode share (SOV, HOV, Transit, Walk, Bike) – 2014 and 2050	Trips, percent share	Region Counties Equity geographies
Mode Share – Non-Commute Trips	Average weekday resident non-commute mode share (SOV, HOV, Transit and School Bus, Walk, Bike) – 2014 and 2050	Trips, percent share	Region Counties Equity geographies
Vehicle Miles Traveled – Residents	Average daily weekday vehicle miles traveled per resident – 2014 and 2050; excludes truck, visitor, and airport trips	Miles	Region Counties Regional subareas Equity geographies

Table C.3-1. Model-Based Indicators for Evaluating VISION 2050 SEIS Alternatives
(continued)

Indicator	Definition	Unit	Reporting Geography or Category
Vehicle Miles Traveled – System	Total daily weekday vehicle miles on the PSRC roadway network – 2014 and 2050; includes resident, truck, visitor, and airport trips	Miles	Region Counties
Vehicle Time Traveled – Residents	Average daily weekday vehicle minutes traveled per resident – 2014 and 2050; excludes truck, visitor, and airport trips	Minutes	Region Counties Regional subareas Equity geographies
Vehicle Time Traveled – System	Total daily weekday vehicle hours on the PSRC roadway network – 2014 and 2050; includes resident, truck, visitor, and airport trips	Hours	Region Counties
Vehicle Delay – Residents	Average annual delay hours per resident – 2014 and 2050; excludes truck, visitor, and airport trips	Hours	Region Counties Regional subareas Equity geographies
Vehicle Delay – System	Total daily weekday vehicle delay hours on the PSRC roadway network – 2014 and 2050; includes resident, truck, visitor, and airport trips	Hours	Region Counties
Transit Boardings	Annual PSRC region transit network boardings by operator – 2014 and 2050; excludes ferry boardings	Transit boardings	Region Transit agencies
Residents Walking, Biking, or Using Transit	Percent of residents walking, biking, or using transit on an average weekday – 2014 and 2050	Persons, percent	Region Counties Equity geographies
Job Accessibility by Travel Mode	Average number of jobs within a 45-minute transit trip, 1-mile walk, or 3-mile bike ride – 2014 and 2050; weighted by number of people in each zone	Jobs	Counties Equity geographies
Travel Time for Major Corridors	Average 2050 weekday travel times for passenger vehicles between select locations during peak morning (AM) and afternoon (PM) periods	Minutes	Travel Corridor
Air Quality			
Projected Pollutant Emissions	Total daily tons of emissions from all passenger vehicles and trucks on a typical weekday across the region for CO, NO _x , VOCs, CO ₂ e, PM ₁₀ , and PM _{2.5} – 2014 and 2050	Tons	Region

Table C.3-1. Model-Based Indicators for Evaluating VISION 2050 SEIS Alternatives
(continued)

Indicator	Definition	Unit	Reporting Geography or Category
Water Quality & Hydrology			
Impervious Surface	Acres of impervious surface – 2017 and 2017-2050 change; age of development is categorized as built before 1996, built 1996 or after, and built before 1996 but redeveloped 1996 or after	Acres	Region Counties Age of development
Developed Land	(Same as Land Use indicator above)		
Parks & Recreation			
Access to Parks	Population within one-quarter mile of “parks providing local urban access,” defined as parks, trails, and other open space facilities located in or within one-quarter mile of urban growth areas – 2017 and 2017-2050 change	Persons, total and percent	Region Counties Equity geographies
Social Equity & Environmental Justice			
Access to Opportunity	Population in census tracts defined as having moderate, high, or very high access to opportunity; i.e., tracts with the highest 60% of Opportunity Index scores per PSRC’s 2018 Opportunity Index	Persons, total and percent	Region Counties Equity geographies
Displacement Risk	Population in census tracts defined as having higher displacement risk; i.e., tracts with the highest 10% of Displacement Risk Index scores per PSRC’s 2018 Displacement Risk Index	Persons, total and percent	Region Counties Equity geographies

CO = carbon monoxide; CO₂e = carbon dioxide equivalent; HOV = high-occupancy vehicle; NO_x = nitrogen oxides; PM_{2.5} = fine particulates; PM₁₀ = coarse particulates; SOV = single-occupant vehicle; TOD = transit-oriented development; VOC = volatile organic compound

In addition to the model-based evaluation metrics detailed above, the analysis of the SEIS alternatives was also supplemented by a variety of non-modeled quantitative data metrics and qualitative assessments provided by the consultants at Parametrix.

C.3.2 Equity Geographies

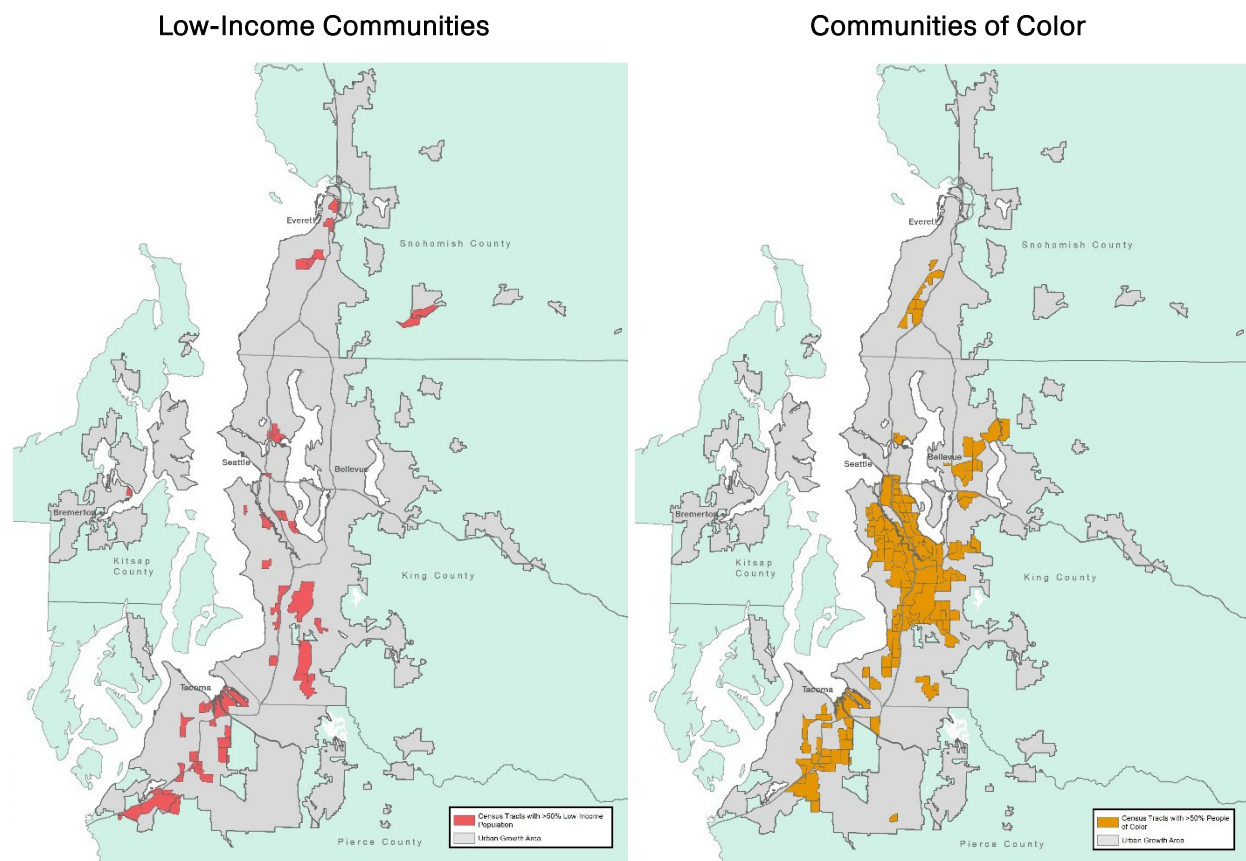
To support the Environmental Justice impacts analysis and social equity considerations described in Chapters 4 and 5 of this document, as well as the broader Social Equity Analysis presented in Appendix H, a subset of the evaluation metrics was produced for four “equity geographies” to facilitate an assessment of how the alternatives may differentially impact the region’s low-income communities and people of color.

The four equity geographies were defined as follows:

- **Low-Income Communities:** Census tracts in which more than half the population today is at or below 200 percent of the federal poverty threshold
- **Non-Low Income:** Census tracts in which 50 percent or less of the population today is at or below 200 percent of the federal poverty threshold
- **Communities of Color:** Census tracts in which more than half the population today is non-White, including White Hispanics
- **Non-Minority:** Census tracts in which 50 percent or less of the population today is non-White, including White Hispanics

The region's census tracts were assigned to the four equity geographies using data from the 2012 to 2016 American Community Survey 5-year estimates series.

Figure C.3-1. Equity Geographies



C.3.3 Access to Opportunity and Displacement Risk

Two metrics were developed to facilitate discussions regarding social equity and environmental justice in the evaluation of the alternatives. “Access to Opportunity” measures population growth for the different alternatives in “Areas of Moderate to Very High Opportunity,”

defined as census tracts with the highest 60 percent of Opportunity Index scores per PSRC's 2018 Opportunity Index.

"Displacement Risk" measures population growth in "Areas of Higher Displacement Risk," defined as census tracts with the highest 10 percent of Displacement Risk Index scores per PSRC's 2018 Displacement Risk Index. Both measures were calculated for the region, the four counties, and the four equity geographies. The methodologies for the Opportunity Index and the Displacement Risk Index are described below.

Opportunity Index

The Access to Opportunity measure is based on PSRC's 2018 Opportunity Index, which was originally developed as part of the Growing Transit Communities work done by PSRC and the Kirwan Institute for the Study of Race and Ethnicity at The Ohio State University and published in May 2012.

In 2011, a variety of stakeholders and advocates throughout the region contributed to the development of the regional Opportunity Index. This participation process resulted in a set of opportunity indicators representing five key elements of neighborhood opportunity: Education, Economic Health, Housing and Neighborhood Quality, Mobility and Transportation, and Health and Environment. The data from these five opportunity indicators were compiled into a comprehensive index of opportunity for all census tracts within the urbanized growth area of the region. A background report with a more detailed discussion of individual metrics and data sources, and an interactive online map are available on PSRC's website:

<https://www.psrc.org/opportunity-mapping>.

In 2018, the Opportunity Index was updated with the most recent applicable data and expanded to include all census tracts in the region. The level of opportunity (very low, low, moderate, high, very high) is determined by sorting all census tracts into quintiles based on their index scores. The census tracts identified as having "very high" opportunity represent the top 20 percent of scores among all tracts, "high" the next 20 percent, etc. As such, "Areas of Moderate to Very High Opportunity" represent the top 60 percent of scores among all tracts.

Displacement Risk Index

The Displacement Risk measure is based on a new regional Displacement Risk Index, which was developed by PSRC following a similar approach used by the City of Seattle for their analysis in the 2035 Growth and Equity report. The index is a composite of displacement indicators representing five elements of neighborhood displacement risks: Socio-Demographics, Transportation Qualities, Neighborhood Characteristics, Housing, and Civic Engagement. The data from these five groups of displacement indicators were compiled into a comprehensive index of displacement risk for all census tracts in the region. "Areas of Higher Displacement Risk" is determined by sorting all census tracts based on their index scores and represent the top 10 percent of scores among all tracts.

VISION 2050

Draft Supplemental Environmental Impact Statement

Appendix D Evaluation Criteria for Selecting a Preferred Growth Alternative



Puget Sound Regional Council

FEBRUARY 2019

Appendix D: Evaluation Criteria to Select a Preferred Alternative

This appendix includes measures that are proposed to assess the alternatives studied in the Draft Supplemental Environmental Impact Statement (SEIS). These criteria are intended to be used for public review and comment.

Process to Select a Preferred Alternative

The purpose of the evaluation criteria is to assess the alternatives studied in the Draft SEIS to assist the Growth Management Policy board in their selection of a preferred growth alternative. The evaluation criteria are one tool among many. Other tools to select the preferred alternatives include public comment, supplemental technical evaluation, and board priorities.

The evaluation criteria may evolve based on public comment and board discussion. Once the evaluation criteria are finalized and assessed by alternative, they will help the Growth Management Policy Board to compare alternatives on a variety of measures and in relationship to a series of outcomes that the Board identified to be advanced by VISION 2050. Any ranking of alternatives implied by the evaluation criteria when they are assessed will inform the Board's decision, not drive or bind it.

VISION 2050 Outcomes

The Growth Management Policy Board identified the following outcomes that VISION 2050 should be advancing.

- **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 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 that 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.

Evaluation Criteria

To evaluate the alternatives against the outcomes listed above, a draft set of criteria has been developed. The criteria include a subject and associated unit of measurement, and are organized under the following nine categories:

- Climate Change
- Development Patterns
- Economy
- Environment
- Health
- Housing
- Public Services
- Social Equity
- Transportation

Climate Change

- Greenhouse gas emissions (quantity of greenhouse gases emitted)
- Carbon sequestration (acres of land developed)

Development Patterns

- Growth in proximity to the urban growth boundary (population and employment within one-quarter mile of both sides of the urban growth boundary)
- Growth in proximity to high-capacity transit station areas (percentage of population and employment growth in high-capacity transit station areas)
- Developed land (acres of land developed)
- Land use (overall judgement from Draft SEIS land use analysis)

Economy

- Access to jobs (jobs accessible per resident by travel mode: within a one-mile walk trip, 3-mile bike trip, or 45-minute transit trip)
- Jobs-housing balance (jobs-housing ratio indexed to regional average)
- Economy (overall judgement from Draft SEIS population, employment, and housing analysis)

Environment

- Air quality (quantity of pollutants of concern)
- Ecosystems (overall judgement from Draft SEIS ecosystems analysis)
- Water quality (overall judgement from Draft SEIS water quality analysis)
- Stormwater (acres of impervious surface)
- Noise (overall judgement from Draft SEIS noise analysis)
- Earth (overall judgement from Draft SEIS earth analysis)
- Visual/aesthetic quality (overall judgement from Draft SEIS visual and aesthetic resources analysis)
- Historic and cultural resources (overall judgement from Draft SEIS historic, cultural, and archaeological resources analysis)
- See climate section for climate change criteria

Equity

- Growth in high- and low-opportunity areas and in equity geographies (population)
- Growth in areas at risk of displacement and in equity geographies (population)
- Job access in equity geographies (jobs accessible per resident by travel mode: within a one-mile walk trip, 3-mile bike trip, or 45-minute transit trip)
- Housing choice in equity geographies (housing units at low, moderate, and high densities)

- Jobs-housing balance in equity geographies (jobs-housing ratio indexed to regional average)
- Growth in high-capacity transit station areas in equity geographies (percentage of population and employment growth in high-capacity transit station areas)
- Average trip distance in equity geographies (miles per work and non-work trip)
- Vehicle miles traveled in equity geographies (vehicle miles traveled per person per day)
- Vehicle minutes traveled in equity geographies (vehicle hours traveled per person per day)
- Delay in equity geographies (annual and total hours of delay per person)
- Mode share in equity geographies (percentage of trips for all modes)
- Active transportation in equity geographies (percent and number of people walking, biking, and using transit)
- Access to parks and recreation in equity geographies (urban population within one-quarter mile of parks and open space)

Health

- Potential for reducing automobile injuries (average daily drive time and distance)
- Potential for physical activity (percent and number of people walking, biking, and using transit)
- Air and water pollutants (overall judgement from Draft SEIS air and water quality analyses)
- Environmental health (overall judgement from Draft SEIS environmental health analysis)
- Access to nature (overall judgement from Draft SEIS parks and recreation analysis)

Housing

- Housing choice (housing units at low, moderate, and high densities)
- Housing (overall judgement from Draft SEIS population, employment, and housing analysis)

Public Services

- Public services and utilities (overall judgement from Draft SEIS public services and utilities analysis)
- Energy use (overall judgement from Draft SEIS energy analysis)
- Parks and recreation (overall judgement from Draft SEIS parks and recreation analysis)

Transportation

- Vehicle miles traveled (average daily vehicle miles traveled per resident)
- Vehicle minutes traveled (average daily vehicle minutes traveled per resident)
- Delay (average annual hours of delay per resident)
- Transit ridership (annual transit boardings)
- Mode share (percentage of trips for all modes)

VISION 2050

Draft Supplemental Environmental Impact Statement

Appendix E Background and Information Papers



Puget Sound Regional Council

FEBRUARY 2019

Appendix E: Background and Information Papers

This appendix includes an overview of the background papers and other resources used to inform specific policy areas.

Overview

PSRC developed background papers for a variety of topics related to VISION 2050. These papers address topics raised during the scoping process that took place in 2018 and present information, research, and data trends that help to shape VISION 2050. The background papers are included in this appendix. In addition, other projects and papers, such as the Regional Centers Framework Update project and Regional Open Space Conservation Plan, have provided further information on regional planning topics. Information papers can be accessed online via the links provided.

Information and recommendations contained in these papers has been used in developing the Draft SEIS. Below is a summary of each of the background and information papers.

Background Papers

Annexation – This paper provides background context on the annexation process, challenges to annexation, and related policy considerations for VISION 2050. Published December 2018. Link: <https://www.psrc.org/sites/default/files/vision2050annexationpaper.pdf>

Climate – The purpose of this background paper is to summarize information on regional climate change issues. It provides an overview of state and regional actions, sources of greenhouse gases, impacts from climate change, and current and potential regional strategies to address mitigation and resilience. Link: <https://www.psrc.org/sites/default/files/vision2050climatepaper.pdf>

Equity – This paper provides background on PSRC’s work on equity to date and provides additional information from peer organizations. It identifies the products PSRC will develop as part of VISION 2050 and considerations for how equity could be addressed in VISION 2050 and future PSRC work. Link: <https://www.psrc.org/sites/default/files/rsc-vision-2050-equitybriefingpaper-10jan2019.pdf>

Health – This paper summarizes human health in the region and includes discussion on overall trends, health disparities, healthy planning strategies, and stakeholder input related to health. It also provides policy considerations for VISION 2050. Published December 2018. Link: <https://www.psrc.org/sites/default/files/vision2050healthpaper.pdf>

Housing – This paper reviews current policy frameworks, recent housing initiatives, and a range of housing tools to consider in developing VISION 2050. Published June 2018. Link: https://www.psrc.org/sites/default/files/vision_2050_housing_background_paper.pdf

Regional Growth Strategy – The Regional Growth Strategy is the long-range approach in VISION 2040 for the distribution of population and employment growth within the four-county central Puget Sound region. This paper provides background, data, and policy context to consider as PSRC extends VISION 2040 to 2050 and develops growth strategy alternatives for environmental review. Published October 2018. Link: <https://www.psrc.org/sites/default/files/rgs-background-paper.pdf>

Information Papers, Strategies, and Plans

Amazing Place: Growing Jobs and Opportunity in the Central Puget Sound Region – Amazing Place, the Regional Economic Strategy, identifies key sectors of the regional economy that are driving the region’s job growth. It then establishes goals, strategies, initiatives, and implementation actions to sustain growth in key sectors and the overall economy. Published September 2017. Link: <https://www.psrc.org/sites/default/files/amazingplacestrategy.pdf>

Central Puget Sound Region Demographic Profile – The profile presents updated 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. Published October 2018. Link: <https://www.psrc.org/sites/default/files/demographicprofile.pdf>

Growing Transit Communities Strategy – This initiative focused on equitable development outcomes in high-capacity transit station areas to benefit both existing and future residents. The strategy outlined actions for PSRC, transit agencies, local governments, and other stakeholders. Published in October 2013. Link: <https://www.psrc.org/sites/default/files/gtcstrategy.pdf>

Planning for Whole Communities Toolkit – The Toolkit is divided into 25 resource guides describing specific tools and how to put them to work at the local level. The resource guides help to connect the dots between planning and health, equity, and sustainability efforts, and provide new and innovative ways to think about plans and policies in relation to health. Published July 2014. Link: https://www.psrc.org/sites/default/files/compilations_final_final.pdf

Regional Centers Framework Update – Centers guide regional growth allocations, advance local planning, inform transit service planning, and represent priority areas for PSRC’s federal transportation funding. The Regional Centers Framework outlines a revised structure and criteria for regional and countywide centers and direction to update policies and procedures to update to the regional centers framework. Published March 2018. Link: https://www.psrc.org/sites/default/files/final_regional_centers_framework_march_22_version.pdf

Regional Open Space Conservation Plan – This plan envisions a complete regional open space network that enhances the region’s many open space resources. The plan maps out the region’s open space network, identifies the parts of the network that are already protected, highlights remaining conservation needs, and presents an action plan. Published June 2018.

Link: <https://www.psrc.org/sites/default/files/regionalopenspaceconservationplan.pdf>

Regional Transportation Plan—2018 – This plan maps a regional transportation system that would catch up and keep pace with expected growth. It outlines investments the region is making to improve highway, transit, rail, ferry, bicycle, and pedestrian systems to support the safe and efficient movement of people and goods. Published May 2018. Link:

<https://www.psrc.org/sites/default/files/rtp-may2018.pdf>

Taking Stock 2016: Regional and Local Perspectives on Local Plan Updates and VISION 2040 Implementation – Taking Stock 2016 is an assessment of the collective efforts of the region’s counties and cities to implement VISION 2040 and looks ahead to the next update of VISION 2040. This report highlights key VISION 2040 strategies that are positively influencing local plans and shaping the region as well as strategies and tools that require additional work. Published March 2017. Link:

<https://www.psrc.org/sites/default/files/takingstock.pdf>

VISION 2050

Draft Supplemental Environmental Impact Statement

Appendix F List of Preparers



Puget Sound Regional Council

FEBRUARY 2019

Appendix F: List of Preparers

Puget Sound Regional Council Staff

Anne Avery
Senior Communications Specialist

Ben Bakkenta, AICP
Director of Regional Planning

Laura Benjamin, AICP
Senior Planner

Josh Brown
Executive Director

Peter Caballero
Senior Planner

Gil Cerise, AICP
Principal Planner

Suzanne Childress
Principal Modeler

Doug Clinton
Senior Graphic Designer

Stefan Coe
Principal Modeler

Lauren Engel
Senior Planner/GIS Analyst

Drew Hanson
Associate Planner/GIS Analyst

Erika Harris, AICP
Senior Planner,
SEPA Responsible Official

Andrea Harris-Long, AICP
Senior Planner

Craig Helmann
Director of Data

Paul Inghram, AICP
Director of Growth Management

Michael Jensen
Senior Planner

Ben Johnson
Growth Management Intern

Ben Kahn
Assistant Planner

Neil Kilgren
Senior Planner

Christy Lam
Senior Planner

Brian Lee
Principal Planner

Michele Leslie
Sr. Communications &
Public Involvement Coordinator

Andi Markley
Library Manager

Diana Martinez
Senior GIS Analyst

Kelly McGourty
Director of Transportation Planning

Kristin Mitchell
Administrative Assistant II

Maggie Moore
Associate Planner

Carol Naito
Program Manager

Brice Nichols
Senior Modeler

Rick Olson
Director of Government Relations and
Communications

Kris Overby
Senior Modeler

Pavithra Parthasarathi, PE
Principal Planner

Hana Sevcikova
Data Scientist

Mark Simonson
Program Manager

Rebecca Stewart
Senior Graphic Designer

Jason Thibedeau
Principal Economic
Development Manager

Liz Underwood-Bultmann, AICP
Principal Planner

Angela Yang
Associate Modeler

Environmental Analysis Consultants

Julie Brandt
Surface Water Engineer

Jill Czarnecki
Environmental Planner

Debbie Fetherston
Documentation Specialist

Mike Hall
Biologist

John Perlic, PE
Senior Vice President

Michelle Speir
Technical Editor

Brian Woodburn, PE
Transportation Planner

Claire Woodman, AICP
Environmental Planner

Patricia Yi
Graphic Designer

Jenifer Young
Project Manager

VISION 2050

Draft Supplemental Environmental Impact Statement

Appendix G Distribution List



Puget Sound Regional Council

FEBRUARY 2019

Appendix G: Distribution List

This appendix consists of the list of stakeholders that were sent a notice of availability of this Draft SEIS. Additional copies are available through the PSRC's Information Center, <https://www.psrc.org/contact-center/information-center>, 206-464-7532.

PSRC Board and Committee Members:

Executive Board
Growth Management Policy Board
Transportation Policy Board
Economic Development District Board
Regional Staff Committee

Counties:

Chelan County	Lewis County
Clallam County	Mason County
Island County	Pierce County
Jefferson County	Skagit County
King County	Snohomish County
Kitsap County	Thurston County
Kittitas County	Yakima County

Cities & Towns:

Algona	Enumclaw	Monroe	Stanwood
Arlington	Everett	Mountlake Terrace	Steilacoom
Auburn	Federal Way	Mukilteo	Sultan
Bainbridge Island	Fife	Newcastle	Sumner
Beaux Arts Village	Fircrest	Normandy Park	Tacoma
Bellevue	Gig Harbor	North Bend	Tukwila
Black Diamond	Gold Bar	Orting	University Place
Bonney Lake	Granite Falls	Pacific	Wilkeson
Bothell	Hunts Point	Port Orchard	Woodinville
Bremerton	Index	Poulsbo	Woodway
Brier	Issaquah	Puyallup	Yarrow Point
Buckley	Kenmore	Redmond	
Burien	Kent	Renton	
Carbonado	Kirkland	Roy	
Carnation	Lake Forest Park	Ruston	
Clyde Hill	Lake Stevens	Sammamish	
Covington	Lakewood	SeaTac	
Darrington	Lynnwood	Seattle	
Des Moines	Maple Valley	Shoreline	
DuPont	Marysville	Skykomish	
Duvall	Medina	Snohomish	
Eatonville	Mercer Island	Snoqualmie	
Edgewood	Mill Creek	South Prairie	
Edmonds	Milton		

Federal Agencies:

Bureau of Reclamation
Federal Aviation Administration
Federal Emergency Management Agency
Federal Highways Administration
Federal Transit Administration
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
National Park Service
U.S. Army Corps of Engineers
U.S. Department of Agriculture
U.S. Bureau of Indian Affairs
U.S. Bureau of Land Management
U.S. Department of Interior
U.S. Department of Transportation
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
U.S. Forest Service
U.S. Geological Survey
U.S. Navy

Regional Agencies:

Benton Franklin Regional Council
Cowlitz-Wahkiakum Council of Governments
Grays Harbor Council of Governments
King County Growth Management Planning Council
Kitsap Regional Coordinating Council
Kitsap Regional Planning Commission
Puget Sound Clean Air Agency
Skagit Council of Governments
Snohomish County Tomorrow
Sound Cities Association
SW Washington Regional Transportation Council
Spokane Regional Transportation Council
Thurston Regional Planning Council
Whatcom County Council of Government
Yakima Valley Conference of Government

Ports:

Northwest Seaport Alliance
Port of Bremerton
Port of Edmonds
Port of Everett
Port of Seattle
Port of Tacoma

State Agencies:

Department of Agriculture
Department of Commerce
Department of Corrections
Department of Ecology, SEPA Unit
Department of Environmental Services
Department of Fish and Wildlife
Department of Health
Department of Natural Resources
Department of Social and Health Services
Department of Transportation
Office of Archaeology and Historic Preservation
Office of the Attorney General
Office of the Governor
Parks and Recreation Commission
Puget Sound Partnership
Recreation and Conservation Office
Transportation Improvement Board
Washington State Ferries
Washington State Utilities & Transportation Commission

Transit Agencies:

Community Transit
Everett Transit
Intercity Transit
King County Metro Transit
Kitsap Transit
Pierce Transit
Sound Transit

Tribes:

Duwamish Tribal Office
Muckleshoot Indian Tribe
Nisqually Indian Tribe
Northwest Indian Fisheries Commission
Port Gamble S’Klallam Tribe
Puyallup Tribe of Indians
Sauk-Suiattle Indian Tribe
Snoqualmie Indian Tribe
Steilacoom Tribe
Stillaguamish Tribe of Indians
Suquamish Tribe
Tulalip Tribes

Utilities:

Alderwood Water & Wastewater District
Bonneville Power Administration
Cascade Natural Gas
Cascade Water Alliance
Kitsap Public Utility District
Northwest Power and Conservation Council
Peninsula Light Company
Pierce County Department of Utilities
Puget Sound Energy
Seattle City Light
Seattle Public Utilities
Snohomish County Public Utility District
Soos Creek Water and Sewer District
Spanaway Water Company
Tacoma Power
Tacoma Public Utilities
Water Supply Forum

Libraries:

Everett Public Library
King County Library System for Distribution at:
 Bellevue Library
 Bothell Library
 Burien Library
 Covington Library
 Federal Way Library
 Issaquah Library
 Kent Library
 Redmond Library
 Renton Library
 Shoreline Library
 Woodinville Library
Kitsap Regional Library
Pierce County Public Library for Distribution at:
 Lakewood Public Library
 South Hill Library
Puyallup Public Library
Seattle Public Library
Seattle University
Sno-Isle Regional Library for Distribution at:
 Lynnwood Library
 Marysville Library
 Snohomish Library
Sound Transit Research Library
Tacoma Public Library
University of Washington
Washington State Library
WSDOT Library

School Districts:

Arlington School District No. 16
Auburn School District No. 408
Bainbridge Island School District No. 303
Bellevue School District No. 405
Bethel School District No. 403
Bremerton School District No. 100-C
Carbonado School District No. 19
Central Kitsap School District No. 401
Clover Park School District No. 400
Darrington School District No. 330
Dieringer School District No. 343
Eatonville School District No. 404
Edmonds School District No. 15
Enumclaw School District No. 216
Everett School District No. 2
Federal Way School District No. 210
Fife School District No. 417
Franklin Pierce School District No. 402
Granite Falls School District No. 332
Highline School District No. 401
Index School District No. 63
Issaquah School District No. 411
Kent School District No. 415
Lake Stevens School District No. 4
Lake Washington School District No. 414
Lakewood School District No. 306

Marysville School District No. 25
Mercer Island School District No. 400
Monroe School District No. 103
Mukilteo School District No. 6
North Kitsap School District No. 400
Northshore School District No. 417
Orting School District No. 344
Peninsula School District No. 401
Puyallup School District No. 3
Renton School District No. 403
Riverview School District No. 407
Seattle School District No. 1
Shoreline School District No. 412
Skykomish School District No. 404
Snohomish School District No. 201
Snoqualmie Valley School District No. 410
South Kitsap School District No. 402
Stanwood-Camano School District No. 401
Steilacoom Historical School District No. 1
Sultan School District No. 311
Sumner School District No. 320
Tacoma School District No. 10
Tahoma School District No. 409
Tukwila School District No. 406
University Place School District No. 83
Vashon Island School District No. 402
White River School District No. 416

Academic/Community/Environmental:

350 Seattle
AARP
American Farmland Trust
ARCH
Bates College
Bellevue College
Bellevue Downtown Association
Bellweather Housing
Bicycle Alliance of Washington
Black Hills Audubon Society
Bremerton Housing Authority
Cascade Bicycle Club
CommenSpace
Daniel J. Evans School of Public Affairs
Downtown Transportation Alliance/Commute Seattle
Emerald Alliance
Ethnic Unity Coalition

Executive Alliance
Everett Community College
Everett Housing Authority
Feet First
Forterra
Futurewise
Greater Maple Valley Unincorporated Area Council
Highline Community College
Homesight
Hopelink Housing Authority of Snohomish County
Housing Development Consortium of Seattle-King County
Housing Kitsap
Imagine Housing
Intercommunity Mercy Housing
Interfaith Association of Snohomish County
King Conservation District
King County Housing Authority

Kingston Citizens Advisory Council - Transportation Committee	Seattle Housing Authority
Kitsap Alliance of Property Owners	Seattle Pacific University
Kitsap Community and Agricultural Alliance	Seattle University
Kitsap Conservation District	7-Lakes
Kitsap County Democrats Central Committee	Sierra Club
Kitsap County Health District	Sierra Club, Washington Chapter
Korean Women's Association	Sightline
Las Americas Business Center	Snohomish Conservation District
League of Women Voters	Snohomish Health District
Low Income Housing Institute	Tacoma Area Coalition of Individuals with Disabilities
Mountains To Sound Greenway	Tacoma Housing Authority
Municipal League	Tacoma-Pierce County Health Department
National Association for the Advancement of Colored People	Tacoma/Pierce County EDB
National Wildlife Federation	Tahoma Audubon Society
Nature Conservancy	Transportation Choices Coalition
North Seattle College	Trust for Public Land
Olympic College	United Way of Pierce County
OneAmerica	United Way of Snohomish County
Paratransit Services of Pierce County	University of Puget Sound
Partnership for Rural King County	University of Washington
Peninsula School Board	University of Washington, Bothell
People for Puget Sound	University of Washington, Climate Impacts Group
Pierce Conservation District	University of Washington, Department of Urban Design & Planning
Pierce County Housing Authority	University of Washington, Tacoma
Public Health Seattle & King County	Vashon-Maury Island Community Council
Puget Sound Sage	Washington Audubon
Puget Sound School Coalition	Washington Bikes
Puyallup Watershed Alliance	Washington Chapter American Planning Association
Refugee Forum	Washington Environmental Council
Regional Commission on Airport Affairs	Washington State University
Renton Housing Authority	Washington State University, Everett
Seattle Chinatown International District Preservation and Development Authority	Washington Toxics Coalition
Seattle Freight Advisory Board	Whale and Dolphin Conservation
	Wilderness Society
	The William D. Ruckelshaus Center

Business:

AAA Washington
AHBL Inc., Consultants
AMTRAK
Barclay's North Inc.
BHC Consultants
Bellevue Chamber of Commerce
Burnstead Construction
Chinese Chamber of Commerce
Economic Development Board for Tacoma-Pierce County
Economic Development Council of Seattle & King County
Economic Alliance Snohomish County
enterpriseSeattle
Everett Area Chamber of Commerce
International Longshore and Warehouse Union Local 19
Kemper Development Company
Kitsap Economic Development Alliance
Lqh-Inc.
LMN Architects
Master Builders Association of King & Snohomish Counties
Master Builders Association of Pierce County
Makers Architects and Urban Design
Michael Baker International
Mithun Partners

Olympic Workforce Development Council
Pacific Communications Consultants, Inc.
Pacific Ridge Homes
Pacifica Law Group
Pertee Engineering Inc.
Seattle 2030 District
Seattle King County Realtors
Seattle Metropolitan Chamber of Commerce
Snohomish Association of Realtors
Tacoma-Pierce County Chamber of Commerce
Triangle Associates
Union Pacific Railroad
Vulcan Inc.
Washington Association of Realtors
Weyerhaeuser
Workforce Development Council of Seattle-King County
Workforce Snohomish
YWCA of Seattle-King County-Snohomish County

Other:

VISION 2040 and VISION 2050 Interested Parties
(includes individuals)

VISION 2050

Draft Supplemental Environmental Impact Statement

Appendix H Equity Analysis



Puget Sound Regional Council

FEBRUARY 2019

Contents

Part 1: Introduction	H-1
VISION 2040	H-1
Draft Supplemental Environmental Impact Statement	H-1
Definitions	H-3
Part 2: Existing Conditions	H-5
Regional Demographics	H-5
Housing Affordability and Transportation	H-10
Centers and Station Areas	H-18
Equity Geographies	H-24
Part 3: Alternatives Analysis	H-29
Description of Alternatives	H-29
Population, Employment, Housing	H-33
Land Use	H-40
Transportation	H-44
Public Services and Utilities, Energy	H-51
Parks and Recreation	H-51
Environmental Health	H-57
Climate Change	H-57
Growth in Opportunity Areas	H-58
Growth in Areas at Risk of Displacement	H-63
Part 4: Findings and Next Steps	H-70

Appendix H: Equity Analysis

Part 1: Introduction

VISION 2040

VISION 2040 is the region's current plan for managing growth forecast 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. It also includes implementation actions at the regional, county, and local levels. As required under the state Growth Management Act (GMA), VISION 2040 has policy chapters addressing the environment, development patterns, housing, the economy, transportation, and public services.

The region has had important successes implementing VISION 2040. At the same time, the region continues to face challenges, including the rising cost of housing and increased travel times that can reduce access to jobs and services. While recent economic growth has been at historic levels, prosperity has not benefited everyone or all parts of the region.

Since the adoption of VISION 2040 in 2008, PSRC has taken a closer look at how to evaluate plans and policies for their potential outcomes for different populations and has provided tools, information, and guidance for local jurisdictions.

PSRC is updating VISION 2040, the region's growth management, economic, and transportation strategy, to reflect new information, priorities and other changes since it was adopted in 2008, including information on the region's changing demographics.

PSRC's members and community stakeholders have identified a heightened concern for racial and social equity, elevating the different impacts that regional growth alternatives may have on people of color and people with low incomes in discussion of how the region should grow over the long term.

Draft Supplemental Environmental Impact Statement

The VISION 2050 Draft Supplemental Environmental Impact Statement (Draft SEIS) evaluates the impacts the Regional Growth Strategy alternatives might have across a variety of measures. The analysis in this appendix includes special emphasis on how the alternatives may affect people of color and people with low incomes. To evaluate and compare the alternatives, the Draft SEIS considers impacts in areas with particularly high concentrations of those communities today, looking at areas with over

50 percent people of color or over 50 percent people with low incomes where possible. These include a selection of the land use, transportation, and housing measures drawn from the Draft SEIS.

This appendix consolidates these measures to more thoroughly understand the impacts on people with low incomes and people of color in the region. The analysis of alternatives for these geographies is based on current conditions in the region. Although the locations of people of color and people with low incomes is unknown for 2050, this analysis provides a window on how continued growth may impact current and future residents and their ability to maintain existing communities and access to jobs, transit, and other community amenities.

To support the analysis of alternatives in the Draft SEIS, additional demographic information is included on populations with special needs, including special transportation needs. This includes data on race and ethnicity, age, disability, limited English proficiency, and zero vehicle households. These demographics are displayed in a series of maps in Part 5 showing geographic distribution by census tract in 2000, 2016, and the percent change between 2000 and 2016. While the demographic section looks at individual and household characteristics, people may fall into more than one of these categories. It is important to consider how these intersecting characteristics may affect the ability for people to access the region's opportunity and benefits of regional growth.

This appendix also provides information about housing affordability, including cost burden and combined housing and transportation costs. This information is important to consider in the context of analyzing displacement risk and access to opportunity in the region.

To varying degrees, the alternatives in the Draft SEIS concentrate growth in regional growth centers and near high-capacity transit. These areas generally have higher concentrations of people of color and people with low incomes. This appendix includes demographic characteristics of regional growth centers and high-capacity transit station areas to help better understand how the amount of growth in these locations may impact existing communities.

Definitions

This appendix uses terms to describe specific populations related to equity. These terms are defined below.

Environmental Justice

Equal protection from environmental hazards for individuals, groups, or communities regardless of race, ethnicity, or economic status. This applies to the development, implementation, and enforcement of environmental laws, regulations, and policies, and implies that no population of people should be forced to shoulder a disproportionate share of negative environmental impacts of pollution or environmental hazard due to a lack of political or economic strength. Environmental justice also promotes equal access to the decision-making process to have a healthy environment in which to live, learn, and work.

Environmental Justice Populations

Populations included in Environmental Justice are defined by Executive Order 12898, *Federal Actions to Address Environmental Justice Populations in Minority Populations and Low-Income Populations*.¹ This includes minority populations, referred to in this document as people of color, or Black, Hispanic, Asian, American Indian, Alaskan Native, Native Hawaiian, other, Pacific Islander, or two or more races or ethnicities and low-income populations, people with household income at or below U.S. 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.

Equity Geographies

Areas where impacts can be differentiated between the entire regional population and social equity populations. Examples are:

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.

¹ Executive Order 12898 of February 11, 1994, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Code of Federal Regulations, Title 3. Available at: <https://www.archives.gov/files/federal-register/executive-orders/pdf/12898.pdf>.

People of Color

Individuals who report as Black, Hispanic, Asian, American Indian, Alaskan Native, Native Hawaiian, other, Pacific Islander, or two or more races or ethnicities. People of color are sometimes referred as “minority populations” in other PSRC publications or elsewhere.

People with Low Incomes

An individual with a household income less than 200 percent of the federal poverty level. Note that this designation applies only to those people whose poverty status can be determined.

Special Needs Populations

Federal orders on environmental justice require consideration of people of color and people with low incomes. Other populations are protected by Title VI and related nondiscrimination statutes, such as the elderly, disabled, etc. These are referred to as “special needs populations” and are addressed through environmental justice and Title VI in federally sponsored transportation programs, policies, and activities. State law also identifies special needs populations, including people with disabilities, youth, seniors and seniors aging in place, limited-English proficient residents, homeless school-aged children, families who have experienced domestic violence, veterans, and limited literacy residents.

Part 2: Existing Conditions

This section describes the existing conditions and trends of regional demographics. Additional demographic information can be found in PSRC's [Demographic Profile](#).

Regional Demographics

Between 2000 and 2016, the region's population grew by more than 650,000 people. This growth led to changing demographics in the region, which are highlighted below. Additional maps showing these demographics can be found in Part 5.

People of Color

People of color make up about one-third of the region's current population and increased by 543,000 residents, or 70 percent, from 2000 to 2016. The White population in the region has grown at a much slower rate of just 4 percent (Table 1). People of color represent 83 percent of the region's population growth since 2000.

Table 1. Communities of Color, 2000-2016

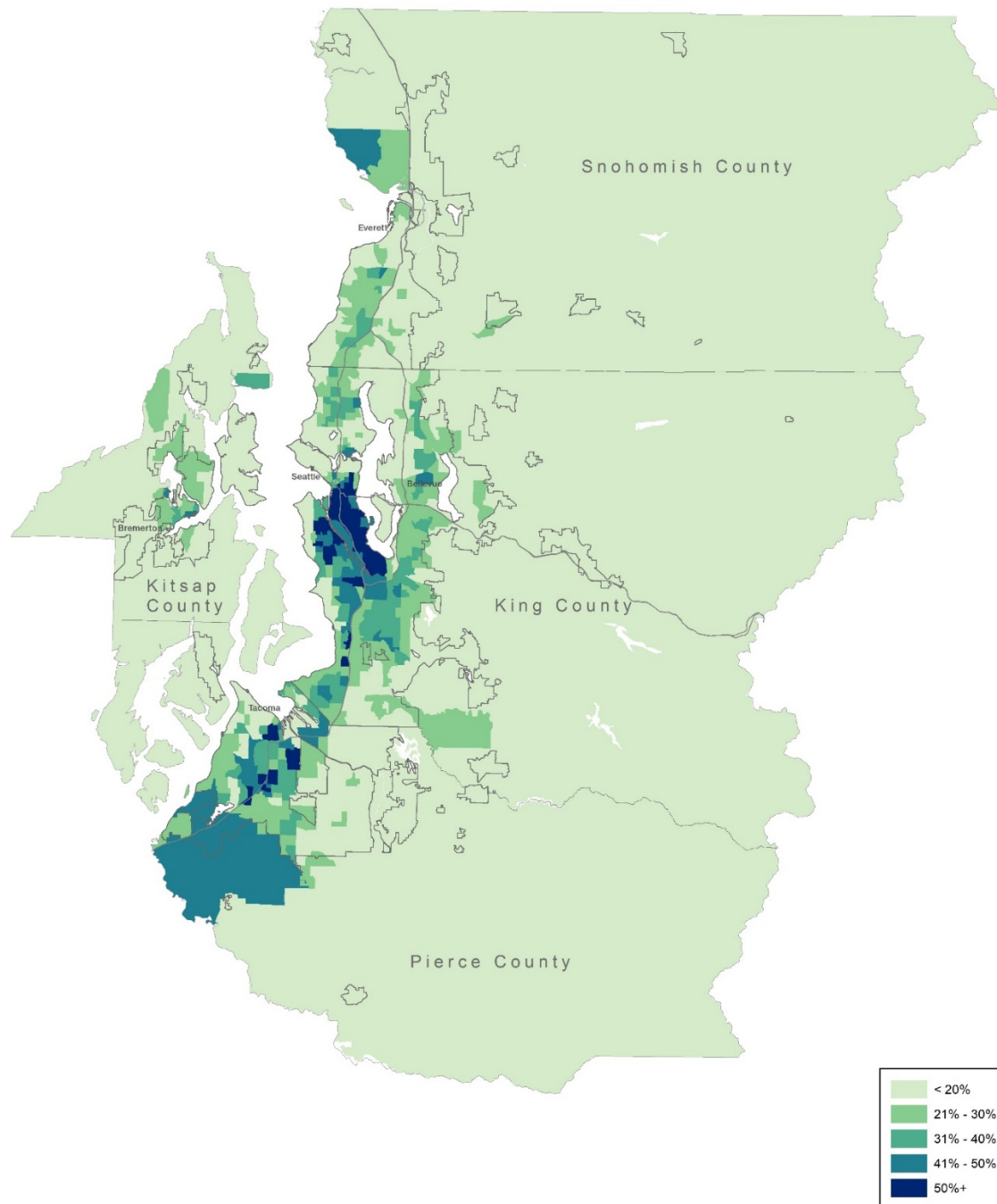
	2000		2016		2000-2016 Change	
	#	%	#	%	#	% change
People of Color ¹	774,000	24%	1,316,900	34%	542,800	70%
White (Alone)	2,501,800	76%	2,611,700	66%	109,900	4%
Total	3,275,800	100%	3,928,600	100%	652,700	20%

Source: 2000 US Decennial Census, 2012-16 ACS 5-Year Estimates

¹ Per the US Census Bureau, racial categories included in the census questionnaire generally reflect a social definition of race recognized in this country and not an attempt to define race biologically, anthropologically, or genetically. People may choose to report more than one race to indicate their racial mixture, such as "American Indian" and "White." People who identify their origin as Hispanic, Latino, or Spanish may be of any race. For more information, please see the US Census Bureau website.

Figure 1 shows the share of people of color by census tract in the region. Communities of color are concentrated in the denser areas of the region, particularly along the Interstate 5, Interstate 405, SR 99 and SR 520 corridors and in southwest King County and northwest Pierce County.

Figure 1. People of Color, Central Puget Sound: 2016



Source: American Community Survey 5-year estimates

People with Low Incomes

The number of residents with low income increased by about 40 percent in the region between 2000 to 2016 (as seen in Table 2). Residents are considered to have low income if their total family income is below 200 percent of the Federal Poverty Level². About 24 percent of residents have income below this threshold in the region.

Table 2. People with Low Incomes

	2000		2016		2000-2016	
	#	%	#	%	#	% change
Low-Income Population	674,636	21%	942,431	24%	267,795	40%
Non-Low-Income Population	2,533,544	79%	2,922,537	76%	388,993	15%
Total ¹	3,208,180	100%	3,864,968	100%	656,788	20%

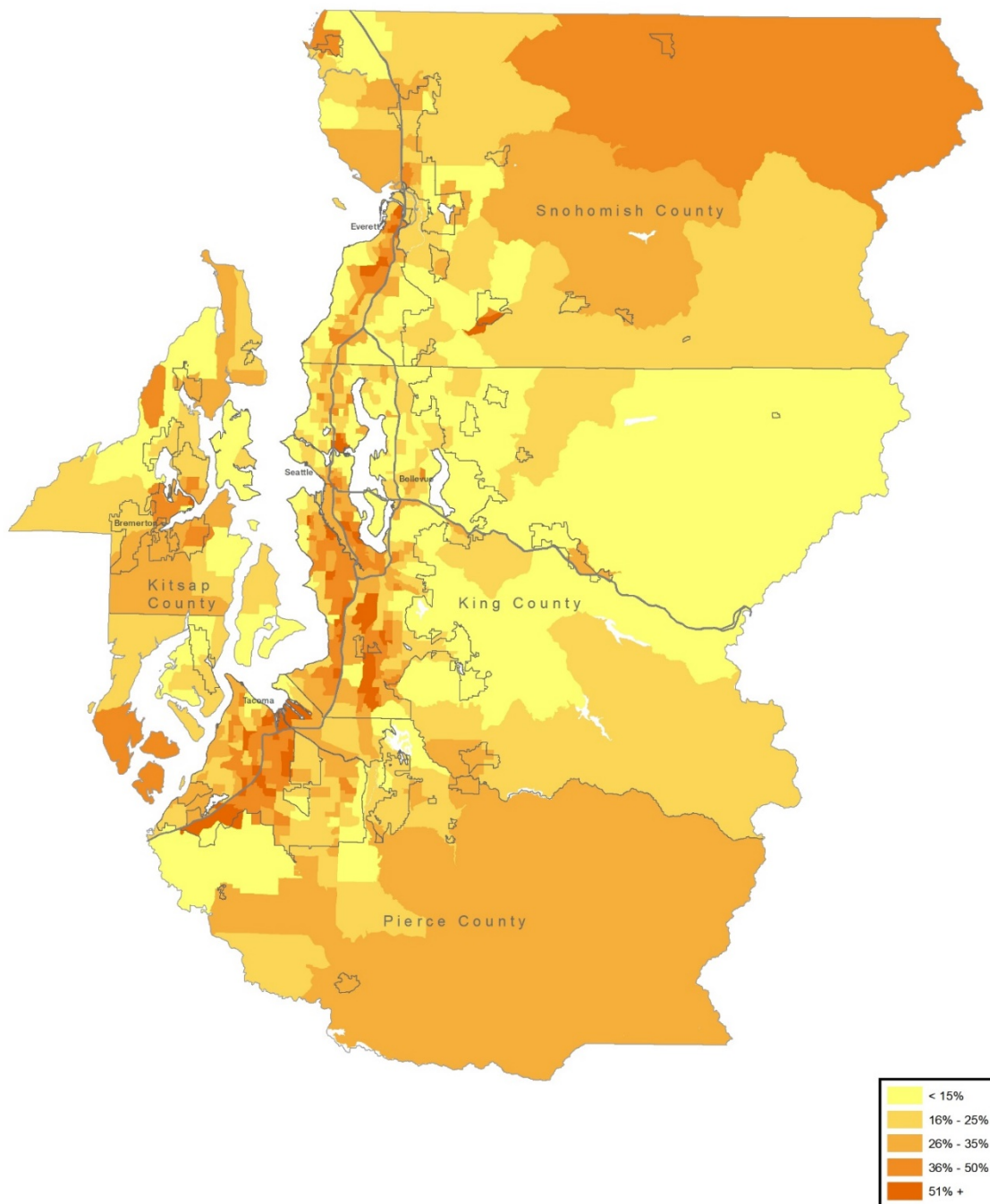
Source: 2000 US Decennial Census, 2012-16 ACS 5-Year Estimates

¹ Total for whom poverty status is determined.

Figure 2 shows the share of residents with low incomes for each census tract. Many of the concentrations of people with low incomes are located similarly to those where concentrations of people of color reside, concentrated in areas along the Interstate 5 corridor in Snohomish County and in central and south Seattle, southwest King County, Bremerton, and northwest Pierce County.

² The poverty threshold for a family of four is \$24,036. See “Computations for the 2016 HHS Poverty Guidelines” at <https://aspe.hhs.gov/computations-2016-poverty-guidelines>.

Figure 2. People with Low Incomes, Central Puget Sound: 2016



Source: American Community Survey 5-year estimates

Limited English Proficiency

The region has also seen growth in the number of people that report speaking English less than “very well.” This group has grown by about 51 percent between 2000 and 2016 and accounts for 8 percent of the total population of the region (Table 3).

Table 3. Limited English Proficiency (LEP)

	2000		2016		2000-2016	
	#	%	#	%	#	% change
People with LEP	203,800	7%	307,200	8%	103,400	51%
Non-LEP	2,859,400	93%	3,374,300	92%	514,900	18%
Total ¹	3,063,200	100%	3,681,600	100%	618,400	20%

Source: 2000 U.S. Decennial Census, 2012-16 ACS 5-Year Estimates

¹ Population 5 years and over.

Age Groups

Since 2000, the region has seen an increase in the number of people 65 years old or older. This group grew at a rate of 47 percent between 2000 and 2016 and makes up about 12 percent of the region’s population (Table 4). Conversely, the rate of growth for people under the age of 18 is lower at 7 percent, well below the regional population growth rate of 20 percent (Table 4).

Table 4. Age Groups

	2000		2016		2000-2016	
	#	%	#	%	#	% change
Under 18	806,863	25%	864,625	22%	57,762	7%
18-64	2,136,002	65%	2,572,978	65%	436,976	20%
Age 65+	332,982	10%	490,980	12%	157,998	47%
Total	3,275,847	100%	3,928,583	100%	652,736	20%

Source: 2000 U.S. Decennial Census, 2012-16 ACS 5-Year Estimates

Persons with Disabilities

Persons with disabilities ages 18 or older make up about 14 percent of the total population of the region (Table 5).³

³ The 2000 Census documented the population of people with disabilities ages 16 and older (Figure 9). Since the Decennial Census and American Communities Survey questions differ, there is no comparable data set to measure change from 2000 to 2016.

Table 5. Persons with a Disability Ages 18 and Older

	2016	
	#	%
People with a Disability	404,200	14%
Remainder of Population	2,586,700	86%
Total ¹	2,990,900	100%

Source: 2012-16 ACS 5-Year Estimates

¹ Non-institutionalized civilians over 18.

Zero Vehicle Households

The percentage of households that have a vehicle has stayed constant between 2000 and 2016. About 92 percent of households in the region have a vehicle, while 8 percent do not (Table 6).

Table 6. Households without a Vehicle

	2000		2016		2000-2016	
	#	%	#	%	#	% change
Households without a vehicle	101,400	8%	119,400	8%	18,000	18%
Households with a vehicle	1,181,600	92%	1,396,600	92%	215,000	18%
Total	1,283,00	100%	1,516,000	100%	233,000	18%

Source: 2000 US Decennial Census, 2012-16 ACS 5-Year Estimates

Demographic Trend Analysis

The central Puget Sound region is becoming more diverse, with people of color making up an increasing share of the population. Although the region is often characterized by economic growth, the number of people with incomes below 200 percent of the Federal Poverty Line has increased since 2000. Finally, the proportion of the region's population that is 65 or older is growing. The region's changing demographic groups may have different needs for the anticipated growth between now and 2050.

Housing Affordability and Transportation

Many factors contribute to how affordable it is to live in this region. As the largest expense for most households, housing affordability is an important data point to understand more about residents of the region. Further understanding of job accessibility and transportation costs is also important.

More information on housing affordability in the region can be found in the 2018 VISION 2050 Housing Background Paper⁴ on the [PSRC website](#).

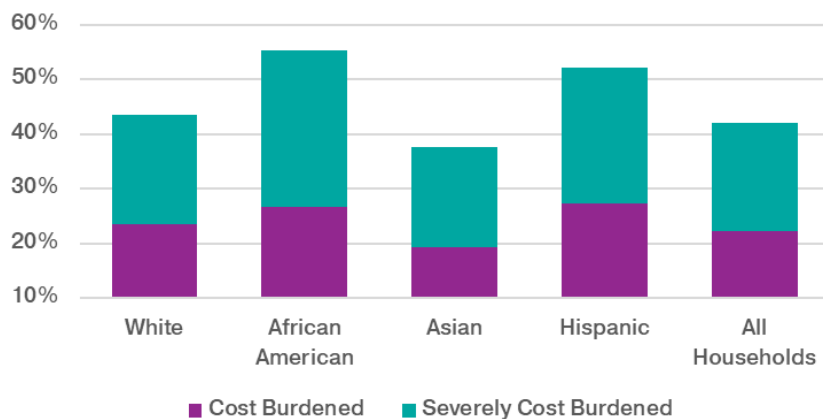
Cost Burden

A household is considered cost-burdened if it pays more than 30 percent of its income on housing. This includes rent or mortgage payments, and utilities. A household is considered severely cost-burdened if it pays more than 50 percent of income on housing. Cost burden is a relative metric; a high-income, cost-burdened home-owner is most likely in a different financial position than a low-income cost-burdened renter. Lower-income individuals have less disposable income to manage changing housing costs and other household expenses.

Across the region, about 30 percent of homeowners and 45 percent of renters are cost-burdened or severely cost-burdened.⁵ Generally, renters across the region experience higher levels of cost burden than home-owners.

Cost burden varies by the race/ethnicity of households, as highlighted in Figure 3. Overall, Black/African American and Hispanic households are more likely to be cost-burdened, regardless of housing tenure.

Figure 3. Cost-Burdened Renters by Race/Ethnicity, 2014



Source: CHAS

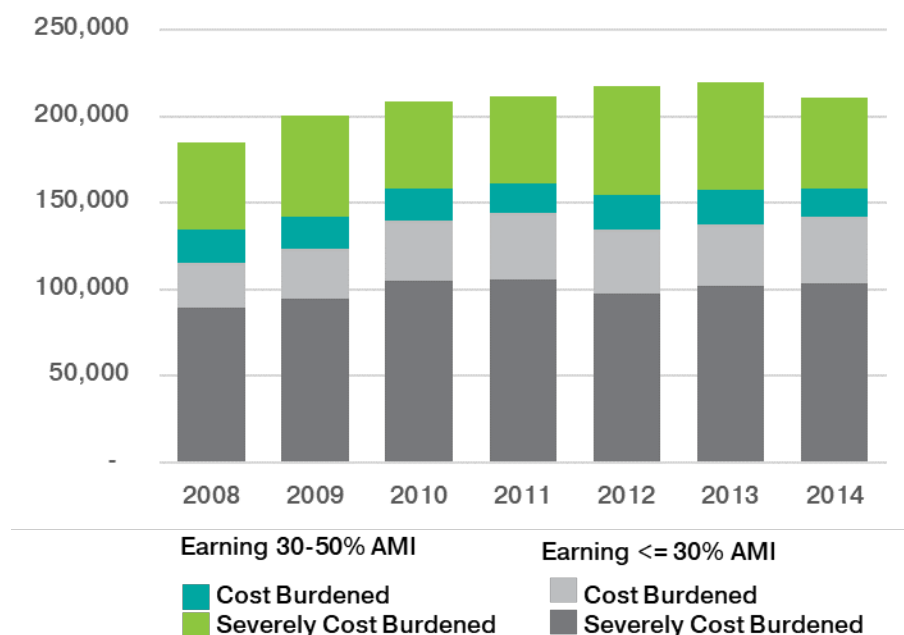
The number of cost-burdened households making less than 50 percent of the area median income is increasing (Figure 4). These households are often the most at risk to

⁴ PSRC. 2018g. VISION 2050 Housing Background Paper. Puget Sound Regional Council. Seattle, WA. June 2018.

⁵ CHAS (Comprehensive Housing Affordability Strategy) data.

lose their housing and experience homelessness. National research shows a connection between rent increases and homelessness; a \$100 increase in rent is associated with an increase in homelessness of between 6 and 32 percent.⁶

Figure 4. Low-Income Cost-Burdened Renters



Source: U.S. Census, PUMS

Housing Tenure

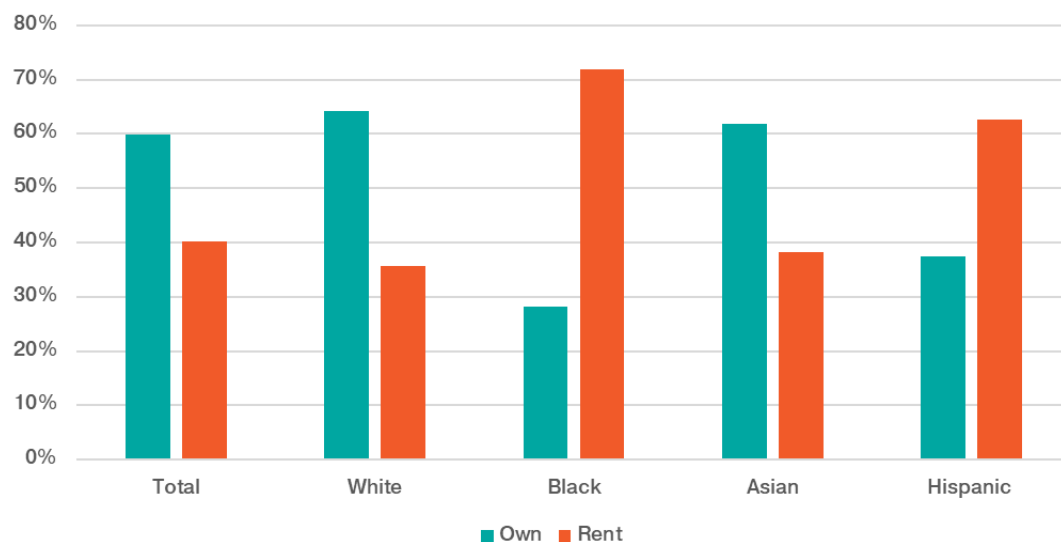
The majority of households in the region, 60 percent, own their homes.⁷ However, the percentage of homeowners dropped during the recession of 2007-2009 and has marginally improved since. One factor driving this trend is the relatively low supply of homes for sale. Other demand factors, such as the influx of job-seeking renters and Millennials waiting longer to buy homes than previous generations, are likely in play as well.

There are variations in housing tenure when analyzed by the race/ethnicity of the households. The majority of Black and Hispanic households are renters, while the majority of White and Asian households are home-owners, as shown in Figure 5.

⁶ Housing Development Consortium. 2018. <https://www.housingconsortium.org/>.

⁷ PSRC. 2018. VISION 2050 Housing Background Paper. Puget Sound Regional Council. Seattle, WA. June 2018.

Figure 5. Housing Tenure by Race/Ethnicity



Source: ACS

Housing Costs

Affordable housing⁸ is commonly defined as housing costs not exceeding 30 percent of household income. Paying more than 30 percent of income on housing costs reduces a household's budget available for other basic necessities.

With a surge in demand for housing that has outpaced the increase in housing supply, the region is experiencing an affordability crisis.⁹ Many middle- and lower-income households struggle to find housing that fits their income in an increasingly competitive and expensive housing market. As affordable housing options become scarce, households are forced to move farther from their jobs and communities, resulting in increased traffic congestion and fragmentation of communities.

⁸ This appendix refers to "affordable housing" as any housing that meets the threshold of not exceeding 30% of a household's income. Housing that is deemed affordable because of subsidies or income/rent restrictions is expressly noted.

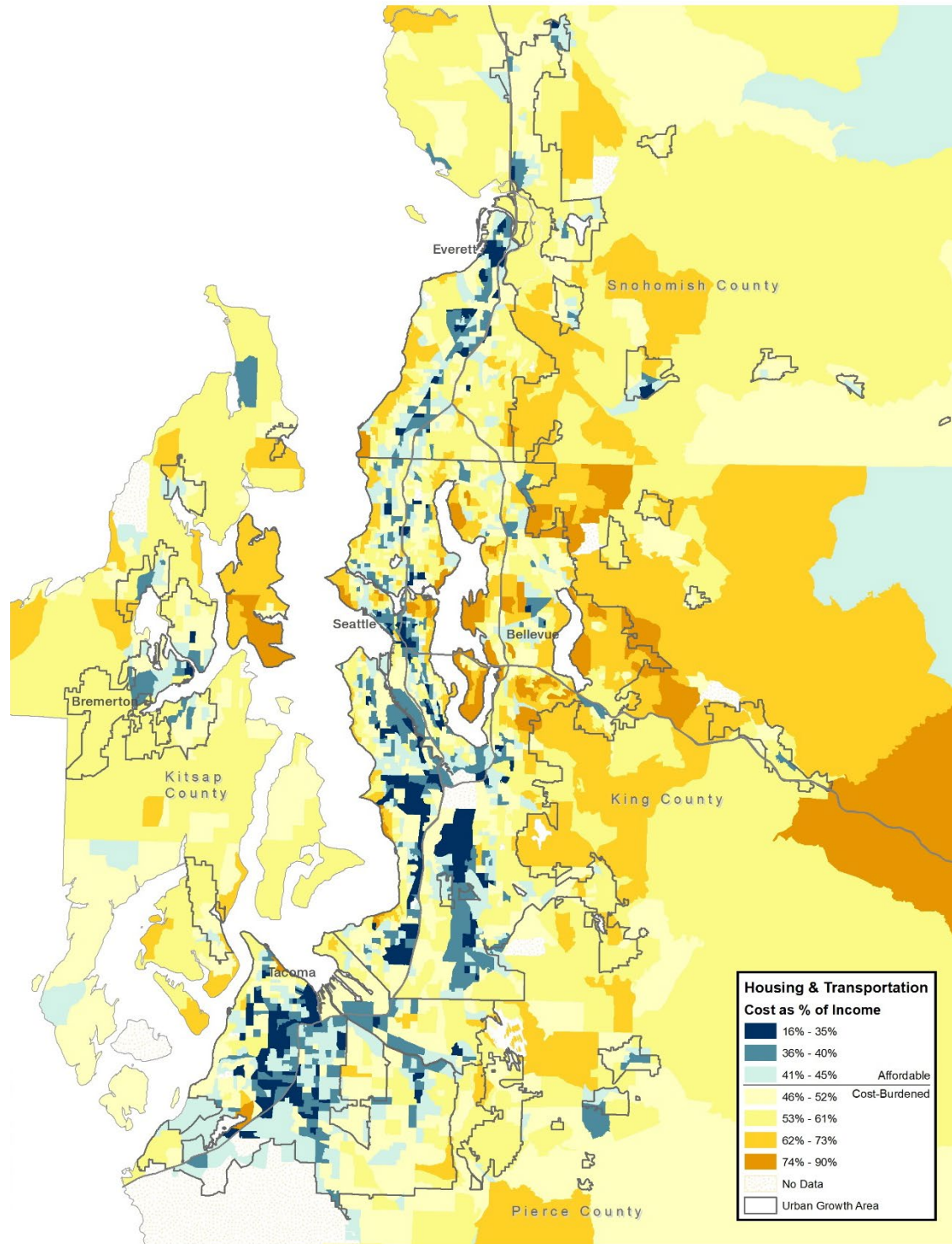
⁹ City of Seattle. (2015) Housing Affordability and Livability Agenda. Available at: http://murray.seattle.gov/wp-content/uploads/2015/07/HALA_Report_2015.pdf.

Housing and Transportation Costs

Since 1984, the Bureau of Labor Statistics has reported that transportation costs are the second largest expense for households after housing.¹⁰ A more complete understanding of household cost burden looks at housing and transportation costs together (H+T). A household is considered cost-burdened if their combined housing and transportation costs exceed 45 percent of their income. Factoring in the recommended 30 percent of income spent on housing, the formula allows for 15 percent of a household's income to be spent on transportation costs. Figure 6 shows estimated housing plus transportation affordability for a household earning the area median income.

¹⁰ Bernstein, Scott, Carrie Makarewicz, and Kevin McCarty. (2005) *Driven to Spend*. Available at: http://www.busadvocates.org/articles/householdcosts/Driven_to_Spend_Report.pdf.

Figure 6. Housing and Transportation Costs as Percentage of Income



Source: Center for Neighborhood Technology

Housing Need

PSRC's recent forecast anticipates the region will add about 1.8 million more people by 2050. That growth will result in about 830,000 new households. While most current residents have been able to rent or purchase a home, many are living in homes that are beyond their financial means or do not meet needs, such as those that are too small for their family size or lack accommodation for aging residents. A significant challenge facing the region is producing enough new housing units as the population grows, and providing more affordable housing that matches the needs of current residents.

Future household incomes cannot be accurately predicted but, for this analysis, are assumed to be similar to the current distribution. Today, 31 percent of the region's households pay at least 30 percent of their income towards housing, and 60 percent of these cost-burdened households have moderate to low income. In the future, demand by households with lower income is assumed to be similar to today, with 27 percent of households being very low income and 45 percent low income.¹¹

Applying these shares to the future needs of 830,000 additional households in the region means that the region needs to house more than 370,000 households at 80 percent or less of area median income (AMI) by 2050 (Figure 7).

Figure 7. Anticipated Households Growth by Income Group



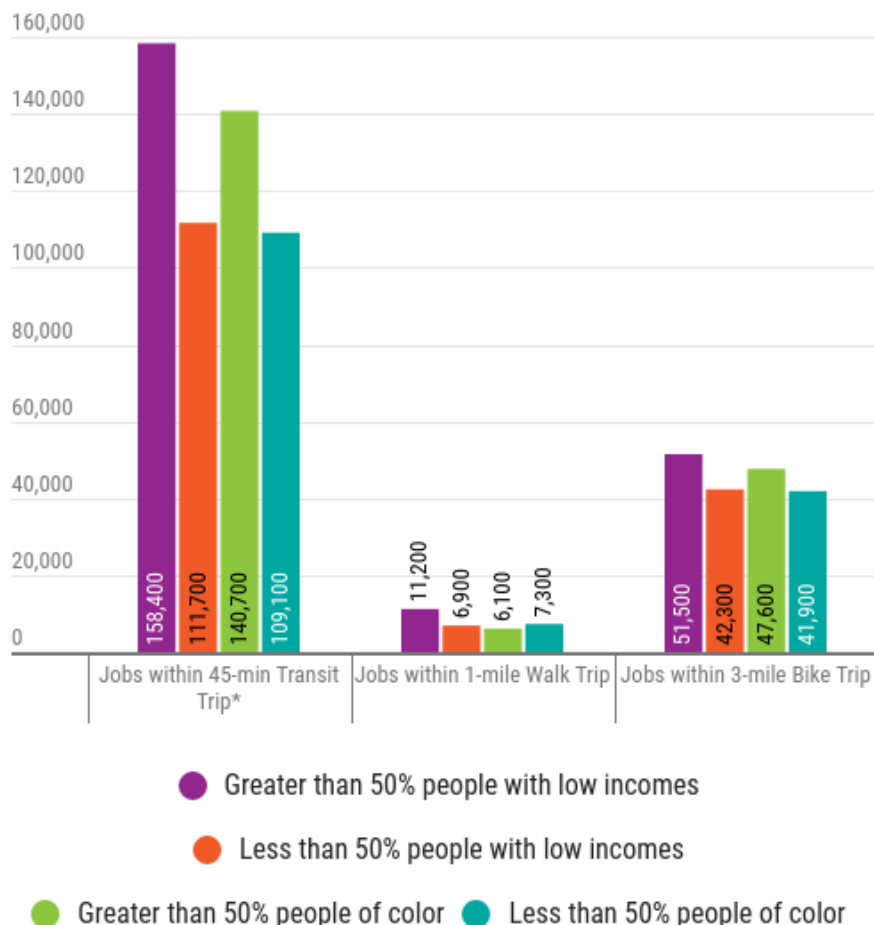
¹¹ 2016 ACS 1-YEAR PUMS.

Assuming a constant rate of growth of 1.22 percent, housing these new residents would require the region to produce about 20,500 housing units in 2018, growing annually up to 30,300 units in 2050. In 2017, approximately 23,300 housing units were produced, exceeding the annual need. However, this current increase in production follows a long, slow economic recovery when housing production did not keep up with demand. To serve different household incomes, the region should be producing about 9,225 units a year that are accessible to those earning 80 percent or less of the area median income. Of that amount, more than 5,500 new housing units are needed each year for very low-income households earning less than 50 percent of the area median income.

Jobs Accessible by Mode

Communities with higher concentrations of people with low incomes and people of color generally have access to more jobs within 45 minutes of transit, a 1-mile walk, or a 3-mile bike trip than the rest of the population. This is consistent with data that show these residents are more concentrated in centers and high-capacity transit station areas in King, Snohomish, and Pierce counties.

Figure 8. Jobs Accessible by Mode



Source: PSRC

*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.

Additional existing conditions related to transportation accessibility can be found in the Alternatives Analysis section of this document.

Centers and Station Areas

Centers and station areas are places surrounding regional growth centers and high-capacity transit (HCT) stations (Figure 9). Concentrating growth in these areas is a key strategy to achieve VISION 2040's goals for regional mobility, economic prosperity, and environmental sustainability. Providing a variety of housing choices, employment types, and access to opportunity for all residents in centers and transit station areas is critical to achieving equitable outcomes in VISION. This highly concentrated planning around transit and in regional growth centers can present significant opportunities and

challenges, such as for displacement of existing communities and equitable outcomes across the region.

The demographics described in this section compare population shares in these areas to the rest of the region. This analysis includes two types of places: regional growth centers and areas around HCT stations. They have the following characteristics:

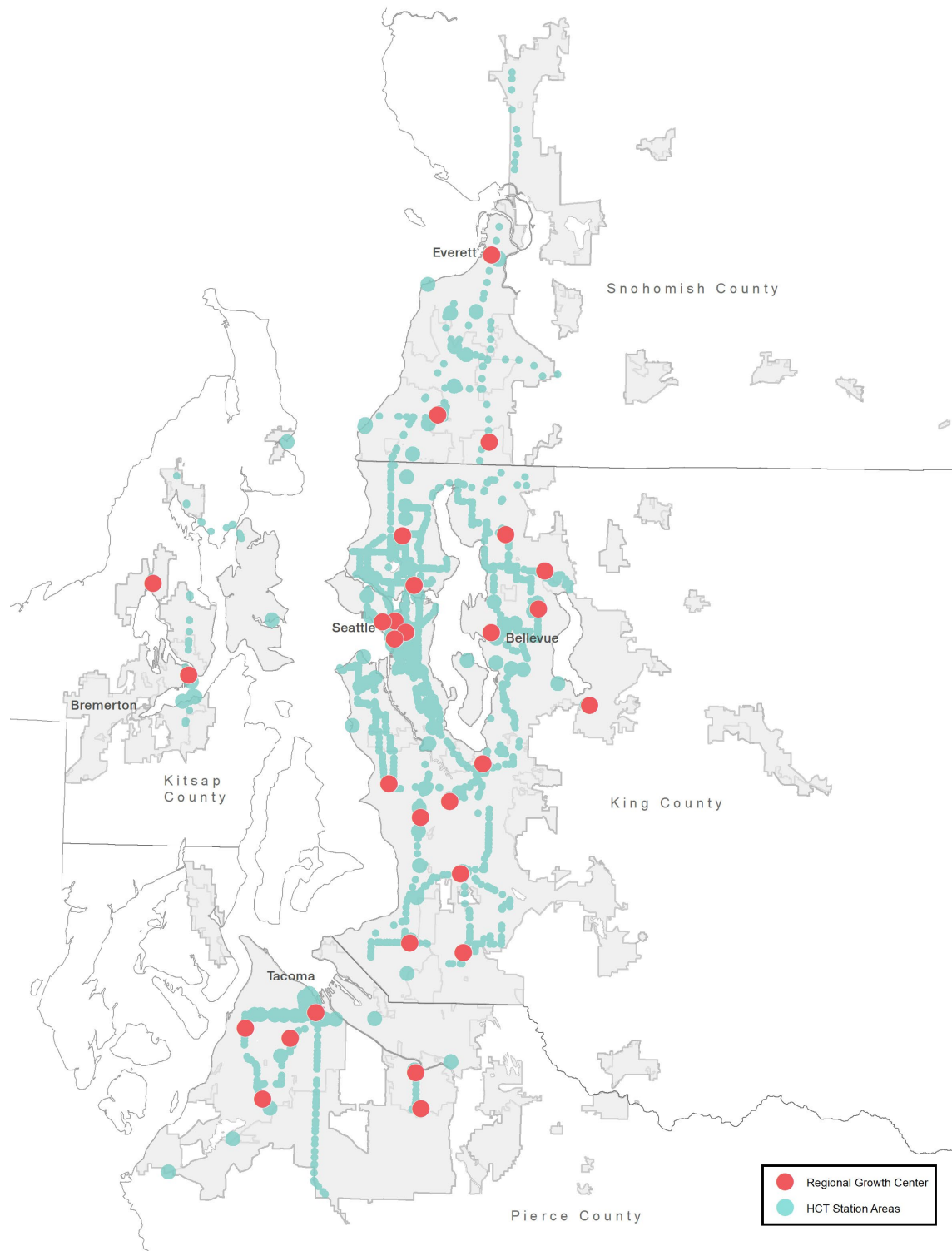
Regional growth centers. The 29 regional growth centers designated by PSRC are focal points for new growth and are identified to receive a sizable portion of the region's population and employment growth. Regional growth centers are expected to achieve densities sufficient to support HCT through long-term growth and development.

High-capacity transit station areas. These include areas $\frac{1}{2}$ mile around light rail stations, commuter rail stations, streetcar stops, and ferry terminals and $\frac{1}{4}$ mile around bus rapid transit stations.

This analysis focuses on transit-oriented places. Although manufacturing/industrial centers are important job locations for the region, they are not included in this analysis. Manufacturing/industrial centers are often difficult to serve by transit and are not intended for residential or non-industrial commercial activity.

As the region continues to invest in its high-capacity transit system, knowing more about communities in station areas will help us better understand the needs of their current and future residents.

Figure 9. Regional Growth Centers and High-Capacity Transit Station Areas



Source: PSRC

Population

Table 7. Population – Centers & HCT

	Centers & HCT		Non-Centers & HCT		Region
	#	%	#	%	
Total Population	727,800	19%	3,200,800	81%	3,928,600

Source: 2012-16 ACS 5-Year Estimates

The share of population residing in the region's centers and HCT station areas is 19 percent, while 81 percent currently live outside these areas.

Demographics

Table 8. People of Color and People with Low incomes – Centers & HCT

	Centers & HCT	Non-Centers & HCT	Region
People of Color	42%	32%	34%
People with Low Incomes	32%	23%	24%

Source: 2012-16 ACS 5-Year Estimates

Overall, people living in proximity to high-capacity transit are more diverse and lower-income than the region as a whole. Forty-two percent of people living in centers and HCT station areas are people of color, compared to 34 percent of the total regional population. Similarly, a higher concentration of people who are low income live in these areas (32 percent) compared to the rest of the region (24 percent).

Table 9: Additional Demographics – Centers & HCT

	Centers & HCT	Non-Centers & HCT	Region
Limited English Proficiency	12%	8%	8%
65+	11%	13%	12%
Under 18	17%	23%	22%
Persons with a disability	13%	14%	14%
Households with no vehicle	18%	5%	8%

Source: 2012-16 ACS 5-Year Estimates

Centers and HCT station areas have higher concentrations of households with zero vehicles than the rest of the region. These areas also have fewer youth under the age

of 18 and more people with limited English proficiency. These areas have similar shares of the elderly and people with disabilities as the rest of the region.

Rent in Centers vs City

Apartment rents within regional growth centers¹², overall, are higher than the regional average. However, there is great variability in rents among centers. Centers in Seattle, Bellevue, and Redmond, all of which have seen significant new multifamily development¹³, have the highest average rents, pushing above \$2,000 in some locations. At the lower end are centers which contain some of the region's most affordable market rate housing, typically in older buildings.

¹² Regional growth centers are regionally designated places characterized by compact, pedestrian-oriented development, with a mix of uses. While relatively small geographically, centers are strategic places to receive a significant proportion of future population and employment growth.

¹³ PSRC Residential Permits Database, 2016.

Table 10. Average Rent in Regional Growth Centers, 2017

	Average Rent	Difference - Center and City Avg. Rent
Total Units in Centers	\$1,871	17%
Bothell Canyon Park	\$1,736	-1%
Redmond-Overlake	\$2,220	10%
Silverdale	\$1,565	15%
Bellevue	\$2,260	12%
Redmond Downtown	\$2,078	3%
Sea-South Lake Union	\$2,234	17%
Kent	\$1,627	16%
Sea-Downtown	\$2,261	18%
Renton	\$1,613	4%
Kirkland Totem Lake	\$1,712	-12%
Sea-Uptown	\$1,834	-1%
Sea-First Hill/Cap Hill	\$1,790	-4%
Bremerton	\$1,484	23%
Sea-Northgate	\$1,539	-21%
Sea-University	\$1,677	-11%
Tacoma Downtown	\$1,319	5%
Puyallup South Hill	\$1,388	8%
Tacoma Mall	\$1,268	1%
Everett	\$1,285	-3%
University Place	\$1,141	1%
Auburn	\$1,423	12%
Lakewood	\$1,046	-1%
SeaTac	\$1,212	-11%
Burien	\$1,058	-17%
Lynnwood	\$1,370	-1%
Puyallup Downtown	\$1,042	-23%

Source: Dupre + Scott

The alternatives presented in the SEIS include varying levels of growth to regional growth centers and transit station areas, with the Transit Focused Growth alternative concentrating 75 percent of future regional population and employment growth in these areas. Analysis of demographics can help identify existing conditions, potential for displacement, and strategies to address highly concentrated growth in these communities.

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 are low income.

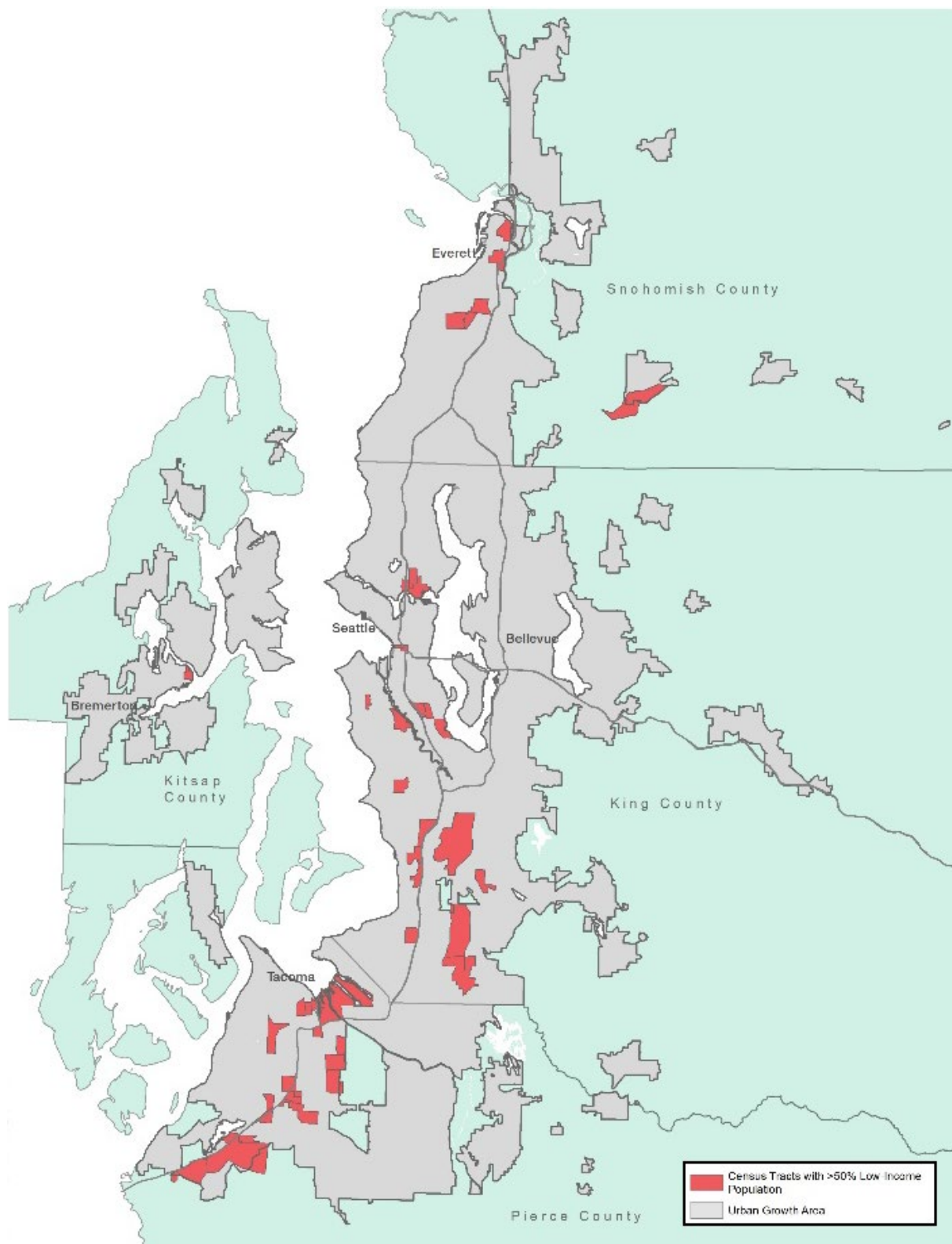
The equity geographies were determined using data from the 2012-2016 American Community Survey 5-year estimates series. The thresholds were set based on a similar equity analysis¹⁴ performed by the Metropolitan Transportation Commission in the San Francisco Bay area and qualitative judgements to select a reasonably descriptive and unique set of geographies.

The locations of the equity geographies are illustrated in Figures 10 and 11. 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 of color and people with low incomes. These impacts are discussed in detail in Part 3 of this document.

As stated previously, there are some limitations in this analysis that are important to understand. PSRC does not forecast future distribution of race and income, so the equity geographies identify a geographic area based on current demographics in the region. Because of the use of census data, the analysis includes residents in census tracts who may be neither low income nor a person of color and does not include low-income residents or people of color located elsewhere in the region. While there are limitations to this approach, there is also significant interest in better understanding the potential equity implications of the alternatives. The equity geographies allow additional understanding of how the alternatives may affect existing communities in the region and provide a method to measure change over time in the region.

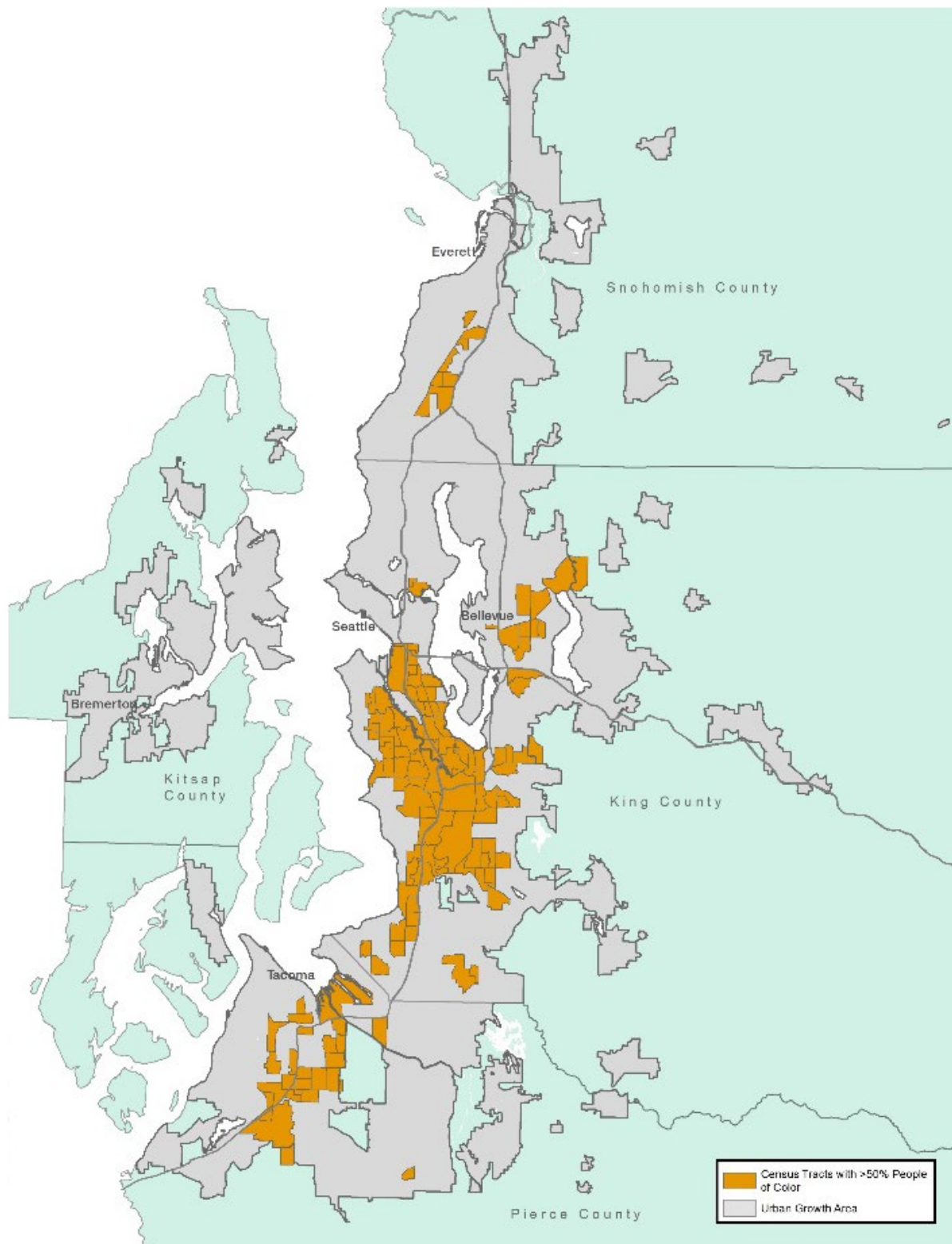
¹⁴ Metropolitan Transportation Commission. 2017. Plan Bay Area Equity Analysis. Available at: <https://www.planbayarea.org/2040-plan/plan-details/equity-analysis>.

Figure 10. Census Tracts That Are Greater Than 50 Percent People With Low Incomes



Source: U.S. Census Bureau, PSRC

Figure 11. Census Tracts That Are Greater Than 50 Percent People of Color



Source: U.S. Census Bureau, PSRC

Census tracts with over 50 percent low-income residents represent a small share of the overall regional population at 6 percent. These tracts are dispersed throughout the region, with concentrations along Interstate 5 in Snohomish and Pierce counties, south King County, and Bremerton.

Seventeen percent of the region's population lives in census tracts with over 50 percent people of color. These communities are found in Snohomish County along SR 99, south and east King County, and along Interstate 5 in Pierce County.

Table 11. Regional Population Share of Equity Geographies

Census tracts that are:	Total Population in Geography	Total Regional Population	Regional Share in Geography
Greater than 50% People with Low Incomes	233,800	3,928,600	6%
Greater than 50% People of Color	681,700	3,928,600	17%

Source: 2012-16 ACS 5-Year Estimates

People with Low Incomes

Table 12 provides additional demographic information on census tracts with over 50 percent people with low incomes, census tracts with 50 percent people with low incomes and under, and the total regional population for different demographic characteristics.

Table 12. Low-Income Population – Demographics

	Census Tracts that are Greater than 50% People with Low Incomes	Census Tracts that are Less than 50% People with Low Incomes	Region
Low Income Population	57%	22%	24%
People of Color	57%	32%	34%
Limited English Proficiency	19%	8%	8%
65+	9%	13%	12%
Under 18	23%	22%	22%
Persons with disability	18%	13%	14%
Zero vehicle households	22%	7%	8%

Source: 2012-16 ACS 5-Year Estimates

A higher share (57 percent) of people living in communities with over 50 percent low income residents are people of color than in other communities. Similarly, higher concentrations of people with limited English proficiency, persons with disabilities, and households with zero vehicles live in these communities.

Communities of Color

Table 13 provides additional demographic information on census tracts with over 50 percent people of color, census tracts with 50 percent people of color or less, and the total regional population for different demographic characteristics.

Table 13. Communities of Color – Demographics

	Census Tracts that are Greater than 50% People of Color	Census Tracts that are Less than 50% People of Color	Region
Low Income Population	40%	21%	24%
People of Color	62%	28%	34%
Limited English Proficiency	20%	6%	8%
65+	11%	13%	12%
Under 18	24%	22%	22%
Persons with disability	15%	13%	14%
Zero vehicle households	12%	7%	8%

Source: 2012-16 ACS 5-Year Estimates

A higher concentration of people with low incomes (40 percent) live in areas with over 50 percent people of color than the region as a whole (24 percent). These areas also have a much higher share of people with limited English proficiency and households without a vehicle.

Part 3: Alternatives Analysis

The analysis in this appendix consolidates data from the main document of the Draft SEIS, focusing on census tracts with over 50 percent people of color and census tracts with over 50 percent people with low incomes as compared to the rest of the region. It includes additional information on these measures and their significance for these populations, along with potential mitigation measures.

As mentioned previously, discussions of 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.

For several of the elements, impacts or burdens are not anticipated to be different between alternatives at the regional level for people of color and people with low incomes. These include air quality; ecosystems; water quality and hydrology; historic, cultural, and archaeological resources; visual quality and aesthetic resources; noise; and earth.

Mitigation measures are procedures or actions taken to avoid, minimize, and mitigate project effects. Mitigation in context of this Draft SEIS includes potential measures that could be used to inform policies that will be developed to implement the regional growth strategy.

Description of Alternatives

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. The VISION 2050 Draft SEIS considers two new growth pattern alternatives, in addition to a “no action” alternative. They provide distinct options for analysis and consideration, while falling within the range of growth alternatives considered in the VISION 2040 Final Environmental Impact Statement.

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. Stay the Course serves as the required “no action alternative” that must be evaluated in accordance with the State Environmental Policy Act.

The Transit Focused Growth alternative considers a more compact growth pattern that assumes accelerated growth near the region’s existing and planned transit investments.

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

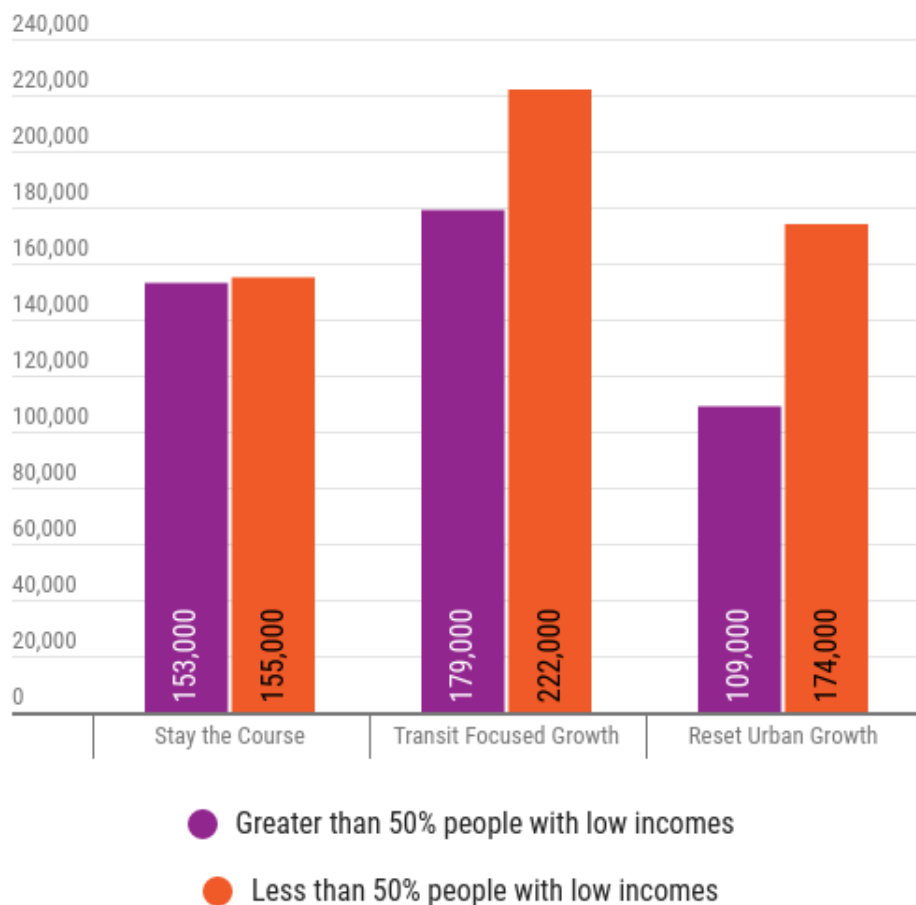
Table 14. 2017-2050 Population Change by Alternative

Census Tracts That Are:	Base Year	Stay the Course		Transit Focused Growth		Reset Urban Growth	
	Population 2017	Population Change 2017-2050	% change	Population Change 2017-2050	% change	Population Change 2017-2050	% change
Greater Than 50% People with Low Incomes	168,000	153,000	91%	179,000	107%	109,000	65%
Less Than 50% People with Low Incomes	244,000	155,000	64%	222,000	91%	174,000	71%
Greater Than 50% People of Color	275,000	143,000	52%	205,000	75%	156,000	57%
Less Than 50% People of Color	136,000	166,000	122%	195,000	143%	126,000	93%
Region	412,000	310,000	75%	402,000	98%	284,000	69%

Source: PSRC

The three alternatives assign varying amounts of growth to census tracts with over 50 percent people with low incomes. Reset Urban Growth directs the least amount of growth to these areas, while Transit Focused Growth has the most, more than doubling the current population in these census tracts.

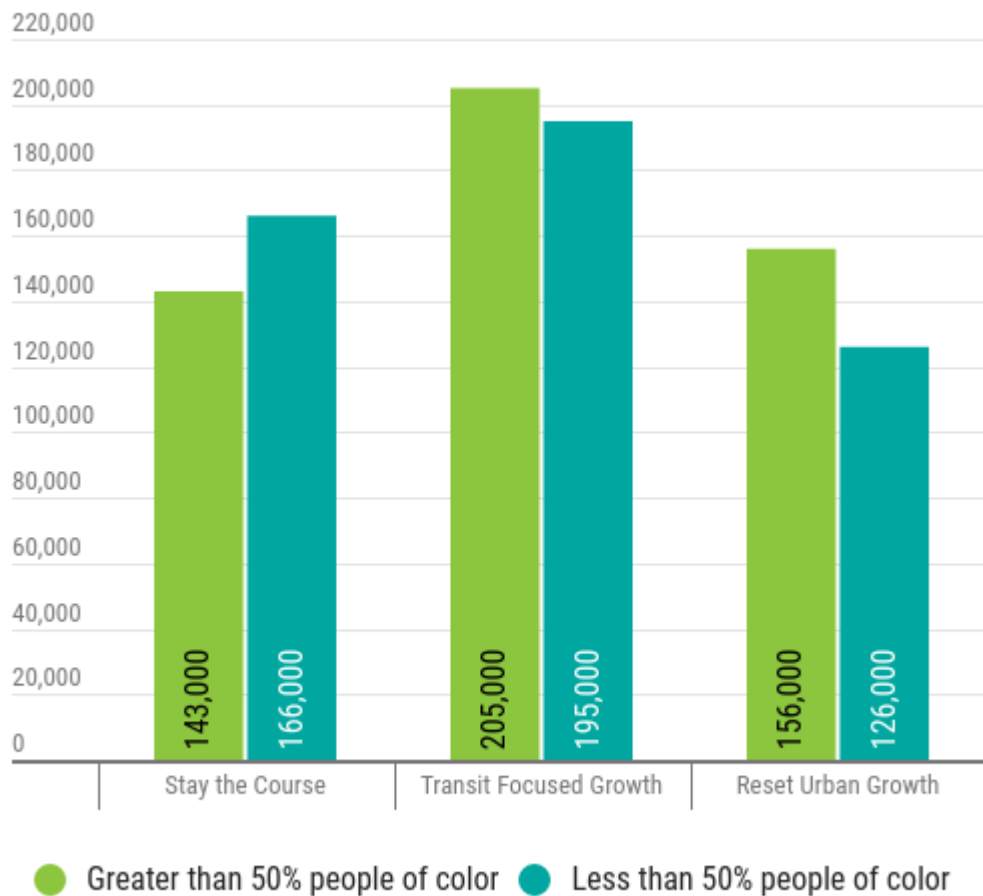
Figure 12. 2017-2050 Population Change by Alternative, Low Income



Source: PSRC

In the two action alternatives, growth in census tracts with over 50 percent people of color is higher than in Stay the Course. The Transit Focused Growth alternative would have the most growth in these census tracts, with over 200,000 new people, an increase of 75 percent above the current population in these areas.

Figure 13. 2017-2050 Population Change by Alternative, People of Color



Source: PSRC

Growth between now and 2050 will affect the communities living in these census tracts. The following sections describe the potential impacts of the growth patterns associated with the alternatives to better understand implications for these areas compared to the rest of the region.

Population, Employment, Housing

Table 15. Summary of Impacts and Benefits to Environmental Justice Populations:
Population, Employment, Housing

Stay the Course	Transit Focused Growth	Reset Urban Growth
<p>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.</p> <p>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.</p>	<p>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 of color compared to Stay the Course, but is still above the regional average for the region as a whole.</p> <p>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.</p>	<p>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.</p> <p>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.</p>

Housing affordability, displacement risk, and growth pressures are issues throughout the region for environmental justice populations. Housing affordability is described in Section 2.3 of the Draft SEIS and in the existing conditions section of this appendix. The region is experiencing an affordability crisis that is impacting environmental justice populations.

The continued population growth out to 2050 in the region may contribute to greater stress on the housing availability for the region's residents.

Jobs-Housing Balance

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.

Table 16. Jobs-Housing Ratios

	Base Year	Stay the Course	Transit Focused Growth	Reset Urban Growth
Census Tracts That Are:	2017	2050	2050	2050
Greater Than 50% People with Low Incomes	2.07	1.64	1.60	1.76
Less Than 50% People with Low Incomes	0.94	0.94	0.94	0.94
Greater Than 50% People of Color	1.58	1.51	1.40	1.43
Less Than 50% People of Color	0.89	0.89	0.90	0.90
Region	1.00	1.00	1.00	1.00

Source: PSRC

The jobs-housing ratios show improvement from 2017 under all alternatives for the region as a whole. 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 ratios well over the regional average of 1.0. A high jobs/housing ratio indicates that housing for these communities may be unaffordable or unavailable and could lead to housing affordability challenges and displacement risk. The jobs-housing ratio for census tracts that are greater than 50 percent people of color and people with low incomes show the most improvement under Transit Focused Growth compared to Stay the Course. Under Reset Urban Growth, the jobs-housing ratio improves for census tracts that are greater than 50 percent people of color and worsens for census tracts that are greater than 50 percent people with low incomes.

Housing Density

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 in the recession of 2007-2009 to the recent economic upswing and job growth that has led to rapid increases in rents and home prices.

Homeownership opportunities are becoming less accessible to middle- and lower-income households. 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, moderate density occurs in smaller quantities throughout the region¹⁵.

Census tracts that are greater than 50 percent people with low incomes and people of color show 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 will decrease the overall percentage of moderate-density housing. 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 lower income households unless mitigated.

People with Low Incomes

Table 17. Housing Growth in Areas Zoned for Low-, Moderate-, and High-Density Development in Areas with Over 50% Low Income and the Rest of the Region

		Base Year	Stay the Course	Transit Focused Growth	Reset Urban Growth
Census Tracts That Are:		2017	2017-2050	2017-2050	2017-2050
Greater Than 50% People with Low Incomes	Low Density	31%	11%	6%	11%
	Moderate Density	35%	10%	9%	8%
	High Density	34%	80%	85%	81%
Less Than 50% People with Low Incomes	Low Density	66%	42%	26%	45%
	Moderate Density	19%	16%	20%	14%
	High Density	15%	42%	54%	41%
Region	Low Density	64%	39%	24%	43%
	Moderate Density	20%	15%	19%	13%
	High Density	16%	46%	57%	44%

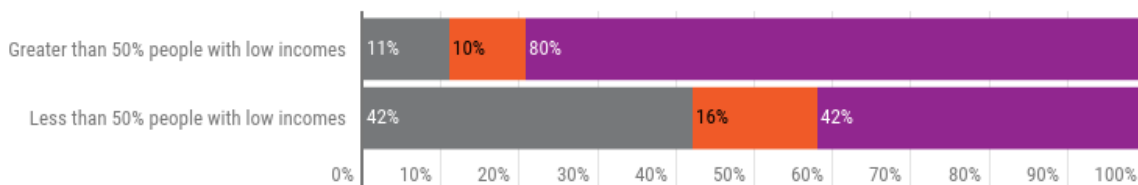
Source: PSRC

¹⁵ PSRC. 2018. "Middle" Housing is Scarce in Region. Puget Sound Regional Council. Seattle, WA. October 2018. Available at: <https://www.psrc.org/whats-happening/blog/%E2%80%9Cmiddle%E2%80%9D-housing-scarce-region>.

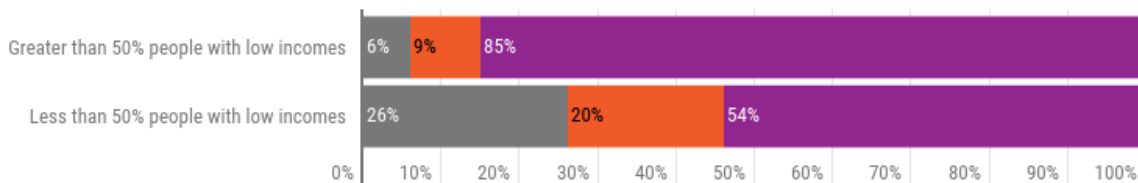
In each of the alternatives, areas with over 50 percent people with low incomes have large amounts of growth in areas zoned for high-density. This increase in high-density housing could put greater stress on the residents of these areas due to the often-high cost of high-density housing and displacement pressures. Growth in moderate density housing, housing that tends to be more affordable, is significantly less (ranging from 6 to 11 percent less) in areas with over 50 percent people with low incomes compared to the rest of the region.

Figure 14. Regional Housing Growth in Areas Zoned for Low-, Moderate-, and High-Density Development in Areas with Over 50% Low Income, 2017-2050

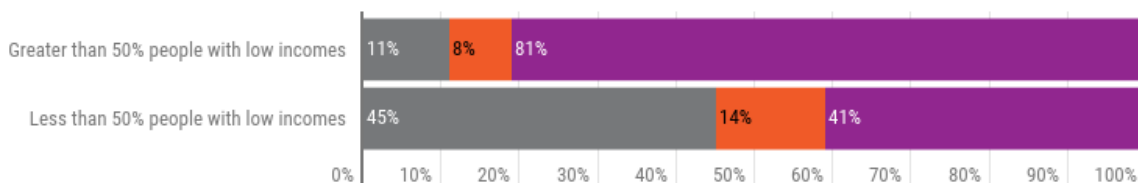
Stay the Course



Transit Focused Growth



Reset Urban Growth



● Low Density ● Moderate Density ● High Density

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.

People of Color

Table 18. Housing Growth in Areas Zoned for Low-, Moderate-, and High-Density Development in Areas with Over 50% People of Color and the Rest of the Region

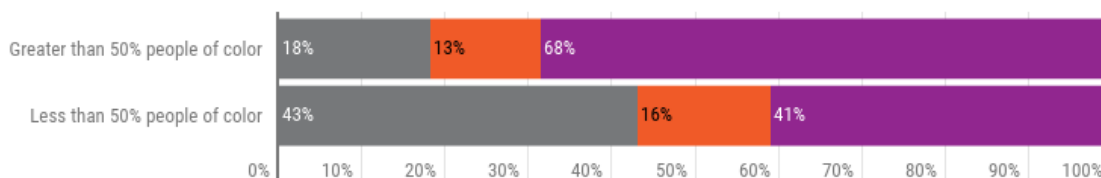
		Base Year	Stay the Course	Transit Focused Growth	Reset Urban Growth
Census Tracts That Are:		2017	2017-2050	2017-2050	2017-2050
Greater Than 50% People of Color	Low Density	46%	18%	10%	23%
	Moderate Density	37%	13%	14%	13%
	High Density	17%	68%	76%	64%
Less Than 50% People of Color	Low Density	68%	43%	28%	48%
	Moderate Density	17%	16%	20%	13%
	High Density	15%	41%	52%	39%
Region	Low Density	64%	39%	24%	43%
	Moderate Density	20%	15%	19%	13%
	High Density	16%	46%	57%	44%

Source: PSRC

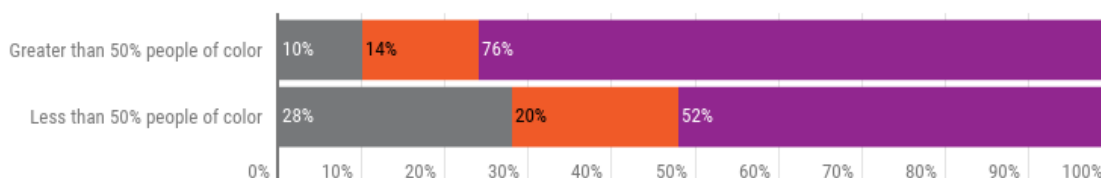
In each of the alternatives, areas with over 50% people of color have larger amounts of growth in areas zoned for high-density than the rest of the region. Growth in moderate density housing varies by the alternative. Stay the Course and Transit Focused Growth have less growth (3 and 6 percent less respectively) in areas with over 50% people of color compared to the rest of the region. Reset Urban Growth has the same amount of growth in moderate density housing in both geographies (13%).

Figure 15. Housing Growth in Areas Zoned for Low-, Moderate-, and High-Density Development in Areas with Over 50% People of Color and the Rest of the Region, 2017-2050

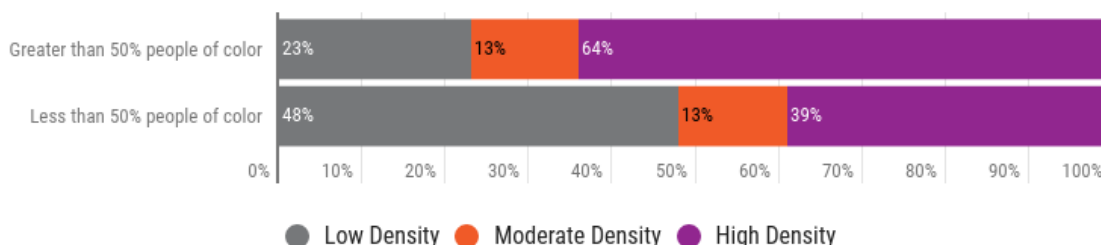
Stay the Course



Transit Focused Growth



Reset Urban Growth



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.

Potential Mitigation Measures

Without targeted intervention and local action, there's potential for inequitable outcomes for residents of these census tracts under each of the alternatives. To improve the jobs-housing ratio, planning processes that account for living-wage jobs within reasonable commute distances could be promoted in addition to affordable housing initiatives in proximity to employment centers. Measures to address cost barriers to attaining and preserving housing, including preservation and tenant protections, could be enacted. Potential mitigation measures and tools can be found in Table 19.

Table 19. Potential Mitigation Measures: Housing and Employment

<p>Topic: Preserve and Encourage the Creation of Affordable Housing</p> <p>Potential Mitigation Measures:</p> <ul style="list-style-type: none"> • 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
<p>Topic: Support Regional Economy and Employment</p> <p>Potential Mitigation Measures:</p> <ul style="list-style-type: none"> • 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 2017b) strategy • Support economic activity and employment in rural and natural resources areas that is compatible with those lands

*Denotes measure from the VISION 2040 FEIS

Land Use

Table 20. Summary of Impacts and Benefits to Environmental Justice Populations:
Land Use

Stay the Course	Transit Focused Growth	Reset Urban Growth
<p>Proximity to HCT: 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.</p>	<p>Proximity to HCT: Communities of color and low-income communities would see the largest increase of growth in proximity to transit compared to Stay the Course.</p> <p>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).</p>	<p>Proximity to HCT: Communities of color and low-income communities would see reduced growth in proximity to transit compared to Stay the Course.</p> <p>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).</p>

Land use policies drive urban and rural growth. The investments in high-capacity transit between now and 2050 provide an opportunity for people of color and people with low incomes to have greater access to transportation options and the opportunities and affordability these may provide. However, these investments could increase displacement pressures on current residents.

Growth around existing and planned¹⁶ high-capacity transit—light rail, commuter rail, bus rapid transit, and ferry terminals—can encourage transit-oriented development. Transit-oriented development results in numerous benefits such as reducing vehicle use, promoting walking and biking, and reducing sprawl.

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, the areas immediately surrounding high-capacity transit service, 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.

¹⁶ Planned transit investments included those anticipated in the 2040 Regional Transportation Plan.

- 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.

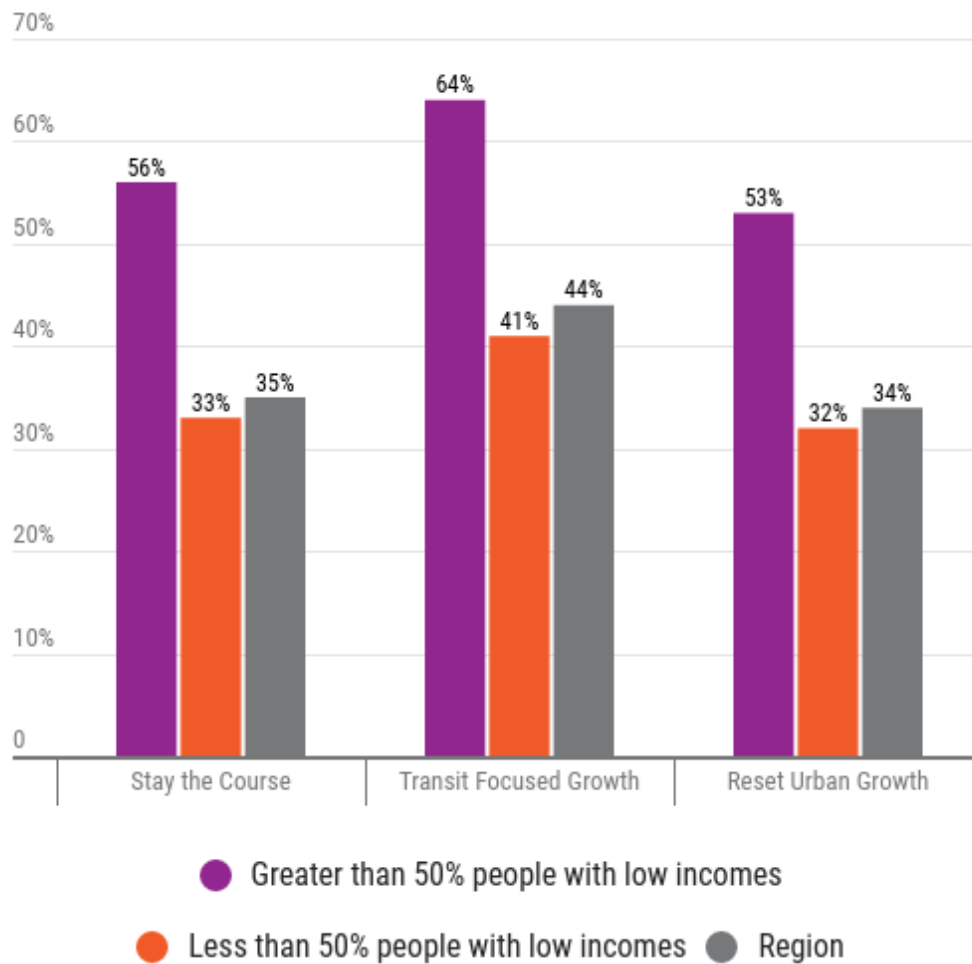
Table 21. Population and Employment in Proximity to High-Capacity Transit, 2050, Low Income

Census Tracts That Are:	Stay the Course	Transit Focused Growth	Reset Urban Growth
Greater Than 50% People with Low Incomes	56%	64%	53%
Less Than 50% People with Low Incomes	33%	41%	32%
Greater Than 50% People of Color	48%	57%	48%
Less Than 50% People of Color	32%	40%	30%
Region	35%	44%	34%

Source: PSRC

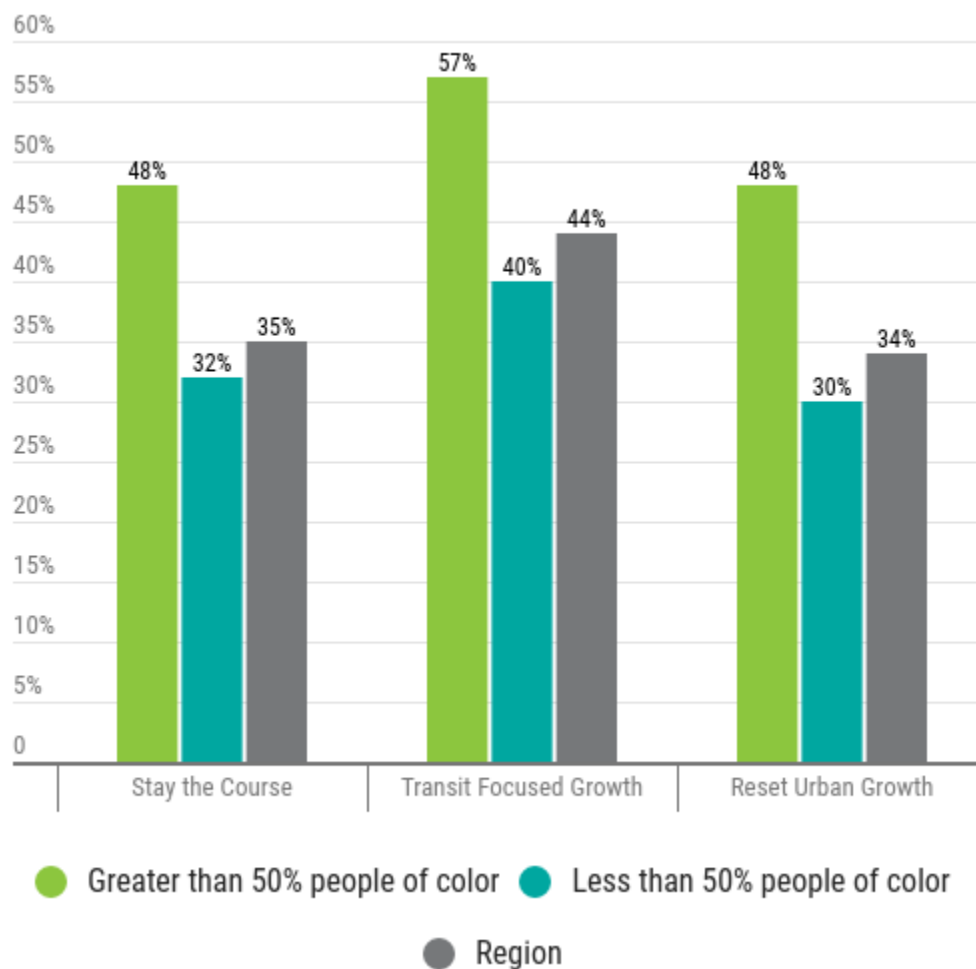
Census tracts that have more than 50 percent people of color and people with low incomes have a larger percentage of population and employment located in proximity to high-capacity transit compared to the region as a whole. This indicates that residents in these communities would have improved access to transit but also could experience an elevated risk of displacement. The measure evaluating the risk of displacement is examined later in this document. 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.

Figure 16. Population and Employment in Proximity to High-Capacity Transit, 2050,
Low Income



Source: PSRC

Figure 17. Population and Employment in Proximity to High-Capacity Transit, 2050,
People of Color



Source: PSRC

Transportation

Table 22. Summary of Impacts and Benefits to Environmental Justice Populations:
Transportation

Stay the Course	Transit Focused Growth	Reset Urban Growth
Mode Share and Access: 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.	Mode Share and Access: 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.	Mode Share and Access: 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.

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 Plan¹⁷ 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 driving each day 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

Personal vehicle travel costs households a significant amount of money in vehicle ownership, operation, and maintenance. Reducing time spent in a vehicle could decrease these costs along with increasing time for other activities. Households with low incomes could be most impacted by these high costs and may benefit most by shorter trip distances and times, the availability of other, more affordable, modes of travel, and jobs within close proximity to where they live.

¹⁷ PSRC. 2018. The Regional Transportation Plan—2018. Puget Sound Regional Council. Seattle, WA. May 2018.

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 spend less time driving and have greater access to jobs via other modes.

Average Daily Vehicle Minutes Traveled and Delay by Residents

Table 23. Average Daily Vehicle Minutes Traveled by Residents

	Base Year	Stay the Course	Transit Focused Growth	Reset Urban Growth
Census Tracts That Are:	2014	2050	2050	2050
Greater Than 50% People with Low Incomes	27	23	22	24
Less Than 50% People with Low Incomes	38	36	34	36
Greater Than 50% People of Color	32	29	29	30
Less Than 50% People of Color	39	36	34	37
Region	38	35	33	35

Source: PSRC

Note: This measure is calculated for all trips that use a private vehicle (both drive alone and shared ride) for residents in each defined geography. This metric does not include miles driven by trucks or by people who live outside the region.

Table 24. Average Annual Vehicle Delay Hours by Residents

	Base Year	Stay the Course	Transit Focused Growth	Reset Urban Growth
Census Tracts That Are:	2014	2050	2050	2050
Greater Than 50% People with Low Incomes	15	19	18	21
Less Than 50% People with Low Incomes	22	32	30	33
Greater Than 50% People of Color	18	25	24	26
Less Than 50% People of Color	22	33	30	34
Region	21	31	29	32

Source: PSRC

Note: This measure is calculated for all trips that use a private vehicle (both drive alone and shared ride) for residents in each defined geography. This metric does not include delay for trucks or for people who live outside the region. Delay is measured as the difference between travel in the middle of the night (considered "free-flow") and travel during a specific time of day.

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 spend less time in a car and less time stuck in traffic.

Mode Share

Table 25. Share of Commute Trips by Travel Mode

Census Tracts That Are:		Base Year (2014)	Stay the Course (2050)	Transit Focused Growth (2050)	Reset Urban Growth (2050)
Greater Than 50% People with Low Incomes	SOV	71%	59%	56%	60%
	HOV	14%	13%	13%	13%
	Transit	6%	9%	11%	9%
	Walk	6%	15%	16%	13%
	Bike	4%	5%	5%	5%
Less Than 50% People with Low Incomes	SOV	72%	63%	60%	63%
	HOV	14%	14%	14%	14%
	Transit	7%	10%	11%	10%
	Walk	5%	9%	10%	9%
	Bike	3%	4%	5%	4%
Region	SOV	71%	64%	62%	64%
	HOV	14%	13%	13%	13%
	Transit	6%	9%	10%	9%
	Walk	6%	10%	11%	10%
	Bike	3%	4%	5%	4%

Source: PSRC

SOV – single-occupancy vehicle

HOV – high-occupancy vehicle

Table 26. Share of Non-Commute Trips by Travel Mode

Census Tracts That Are:		Base Year (2014)	Stay the Course (2050)	Transit Focused Growth (2050)	Reset Urban Growth (2050)
Greater Than 50% People with Low Incomes	SOV	32%	26%	25%	27%
	HOV	40%	35%	34%	36%
	Transit and School Bus	6%	7%	7%	7%
	Walk	21%	30%	32%	28%
	Bike	2%	2%	2%	2%
Greater Than 50% People of Color	SOV	33%	29%	28%	29%
	HOV	43%	40%	39%	39%
	Transit and School Bus	5%	7%	7%	7%
	Walk	17%	23%	25%	23%
	Bike	1%	2%	2%	2%
Region	SOV	33%	29%	28%	30%
	HOV	42%	40%	39%	40%
	Transit and School Bus	5%	6%	6%	6%
	Walk	18%	23%	25%	23%
	Bike	1%	2%	2%	2%

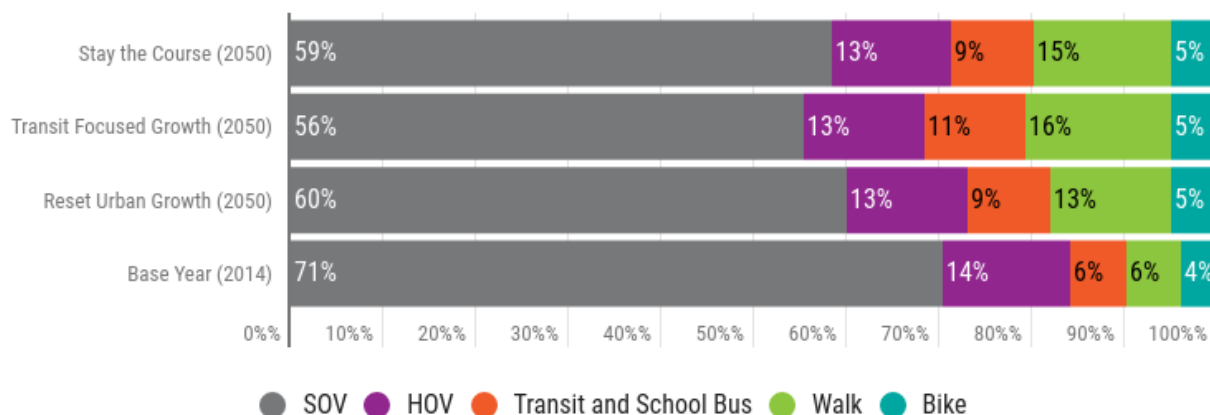
Source: PSRC

SOV – single-occupancy vehicle

HOV – high-occupancy vehicle

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.

Figure 18. Share of Commute Trips by Travel Mode, Low Income



Source: PSRC

Access to Jobs

Table 27. Average Jobs Accessible per Resident by Travel Mode

Census Tracts That Are:		Base Year (2014)	Stay the Course (2050)	Transit Focused Growth (2050)	Reset Urban Growth (2050)
Greater Than 50% People with Low Incomes	Jobs within 45-min Transit Trip*	158,400	340,600	368,800	374,300
	Jobs within 1-mile Walk Trip	11,200	28,900	30,800	27,200
	Jobs within 3-mile Bike Trip	51,500	100,100	102,600	101,500
Less Than 50% People with Low Incomes	Jobs within 45-min Transit Trip*	111,700	236,500	275,600	247,600
	Jobs within 1-mile Walk Trip	6,900	16,400	18,200	17,100
	Jobs within 3-mile Bike Trip	42,300	76,600	83,400	79,300
Greater Than 50% People of Color	Jobs within 45-min Transit Trip*	140,700	345,800	372,300	353,600
	Jobs within 1-mile Walk Trip	6,100	15,000	17,800	15,500
	Jobs within 3-mile Bike Trip	47,600	93,300	97,800	95,000
Less Than 50% People of Color	Jobs within 45-min Transit Trip*	109,100	224,100	263,200	235,600
	Jobs within 1-mile Walk Trip	7,300	17,700	19,400	18,200
	Jobs within 3-mile Bike Trip	41,900	75,400	82,000	77,800

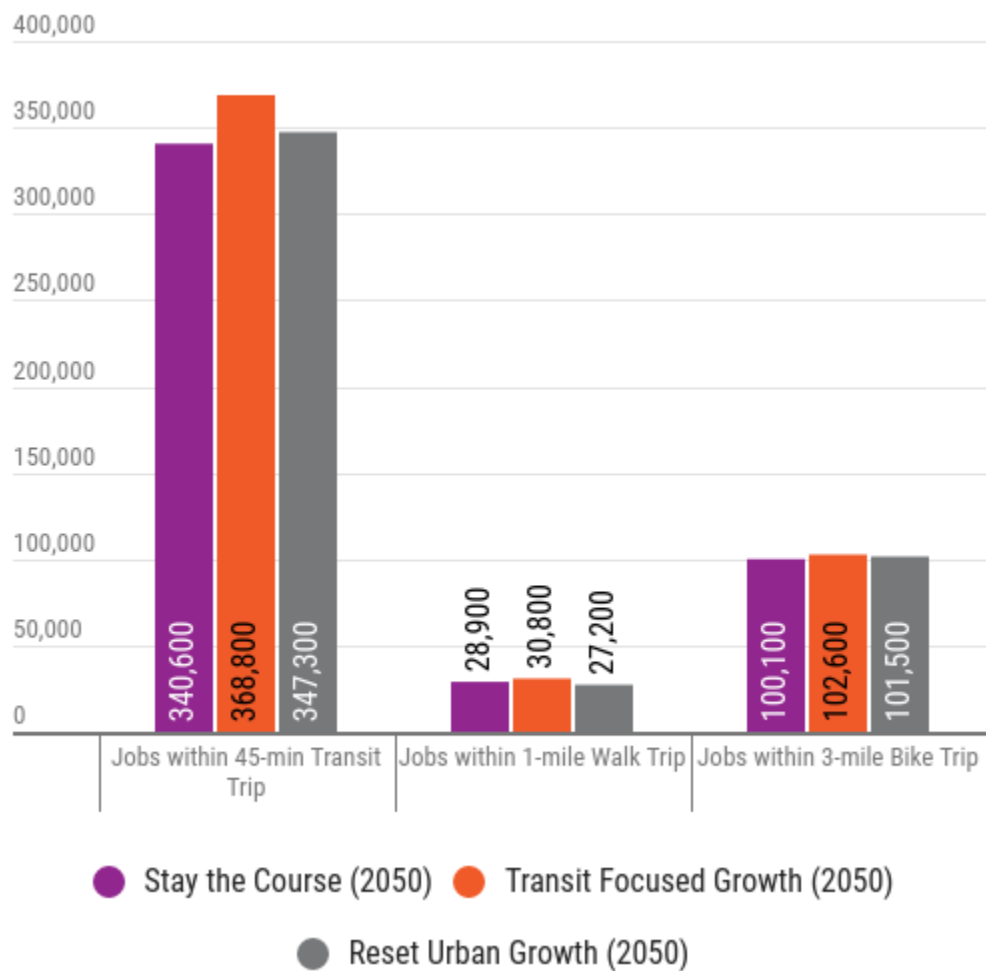
Source: PSRC

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.

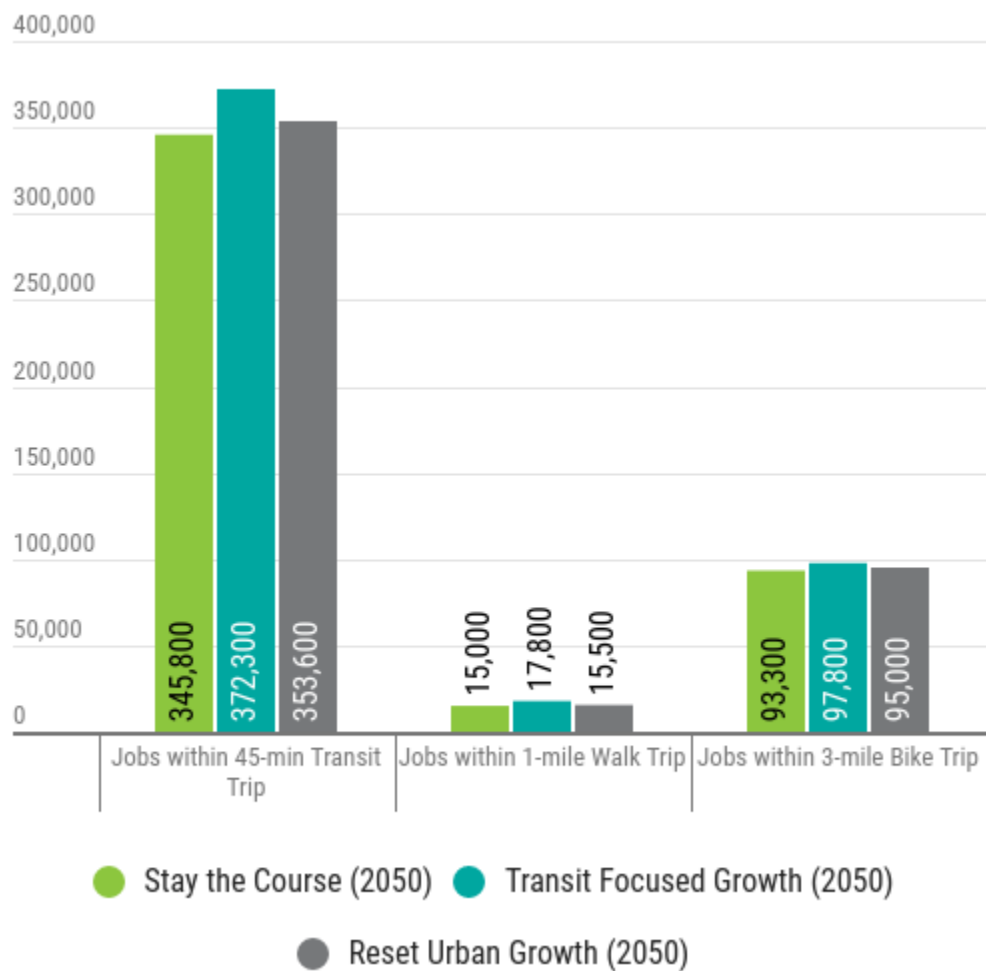
Residents of census tracts that were greater than 50 percent people with low incomes have greater access to jobs via walking, biking, or transit than residents who live in the rest of the region. Residents of census tracts that are greater than 50 percent people of color have greater access to more jobs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

Figure 19. Average Jobs Accessible per Resident by Travel Mode, Over 50% People with Low Incomes



Source: PSRC

Figure 20. Average Jobs Accessible per Resident by Travel Mode, Over 50% People of Color



Source: PSRC

Public Services and Utilities, Energy

Table 28. Summary of Impacts and Benefits to Environmental Justice Population:
Public Services and Utilities, Energy

Stay the Course	Transit Focused Growth	Reset Urban Growth
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 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.

As the region adds approximately 1.8 million people and 1.2 million jobs between now and 2050, demand for additional utilities, including energy, solid waste, sanitary sewer, water, and stormwater, are anticipated. In addition, expansions of fire and police services, health and medical services, and schools would be expected.

Compact development patterns where pre-existing utilities are located in the Stay the Course and Transit Focused Growth alternatives would help keep utility and living costs down for all residents of the region—especially beneficial for residents with low incomes. More dispersed development may require extensions to underserved areas and could add utility and living costs, an adverse impact to low-income populations.

Parks and Recreation

Table 29: Summary of Impacts and Benefits to Environmental Justice Population:
Parks and Recreation

Stay the Course	Transit Focused Growth	Reset Urban Growth
<p>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).</p> <p>Regional parks resources: Low-income communities would experience reduced access to regional resources that are primarily accessed by car. 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 camping¹.</p>	<p>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.</p> <p>Regional parks resources: Access would be similar to Stay the Course.</p>	<p>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.</p> <p>Regional parks resources: Access would be similar to Stay the Course.</p>

¹ PSRC. 2018. Regional Open Space Conservation Plan. Puget Sound Regional Council. Seattle, WA. June 2018. Available at: <https://www.psrc.org/open-space>.

Under all alternatives, impacts on parks, open space, and recreational facilities within the urban growth areas 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.
- Growth 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. Without mitigation, trailheads would likely become increasingly congested, impacting natural resources around access points and creating safety concerns.

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, as they are less likely to own a car. Other barriers for people with low incomes include the cost of access passes, lack of leisure time, equipment, and familiarity with hiking and camping¹⁸.

¹⁸ PSRC. 2018. Regional Open Space Conservation Plan. Puget Sound Regional Council. Seattle, WA. June 2018. Available at: <https://www.psrc.org/open-space>.

Urban Growth Area population in proximity to parks providing local urban access

Under all alternatives and compared to the region as a whole, census tracts that are greater than 50 percent people with low incomes and people of color would have slightly greater access to local parks (Table 30). 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. 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 but would affect all populations similarly.

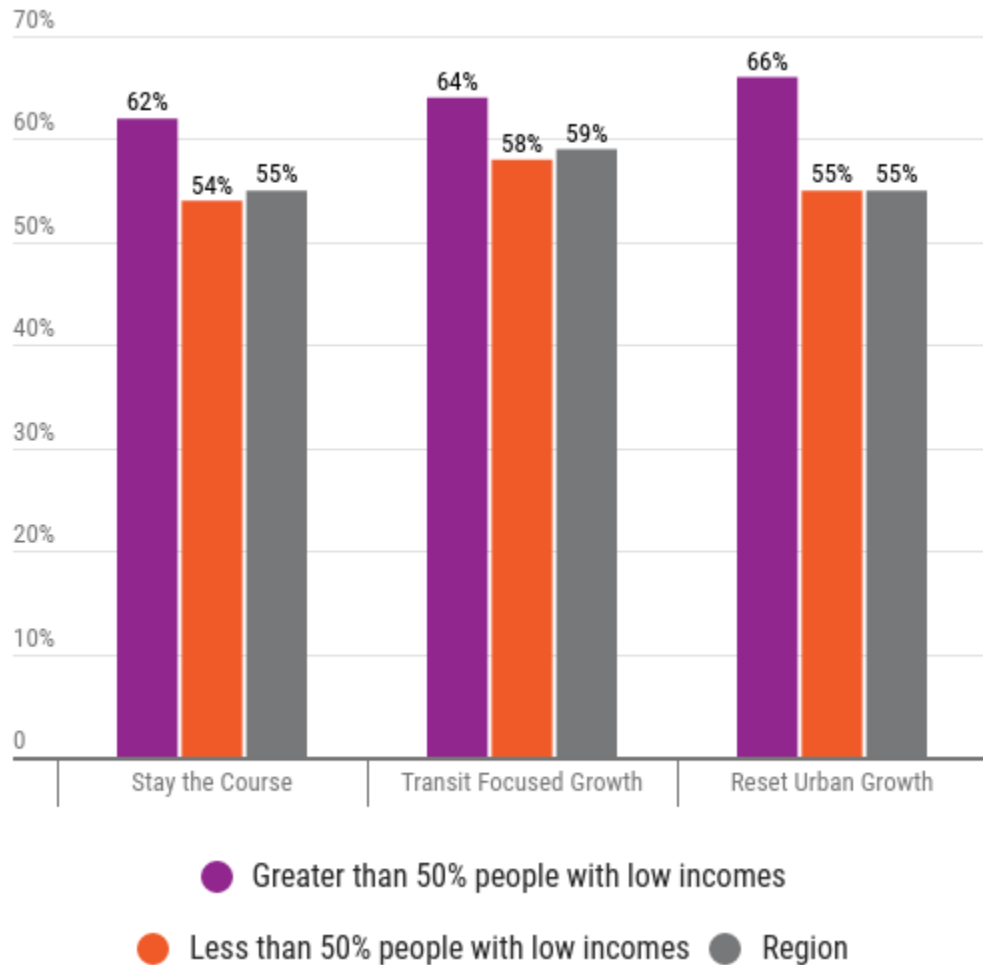
Table 30. Urban Growth Area Population in Proximity to Parks Providing Local Urban Access

	Base Year		Stay the Course		Transit Focused Growth		Reset Urban Growth	
Census Tracts That Are:	UGA Population 2017	Percent in Proximity to Parks	UGA Population Change 2017-2050	Percent in Proximity to Parks	UGA Population Change 2017-2050	Percent in Proximity to Parks	UGA Population Change 2017-2050	Percent in Proximity to Parks
Greater Than 50% People with Low Incomes	237,000	60%	169,000	62%	194,000	64%	122,000	66%
Less Than 50% People with Low Incomes	3,294,000	60%	1,491,000	54%	1,526,000	58%	1,527,000	55%
Greater Than 50% People of Color	695,000	60%	266,000	60%	343,000	61%	296,000	60%
Less Than 50% People of Color	2,835,000	59%	1,393,000	54%	1,378,000	58%	1,353,000	54%
Region	3,532,000	59%	1,658,000	55%	1,719,000	59%	1,648,000	55%

Source: PSRC

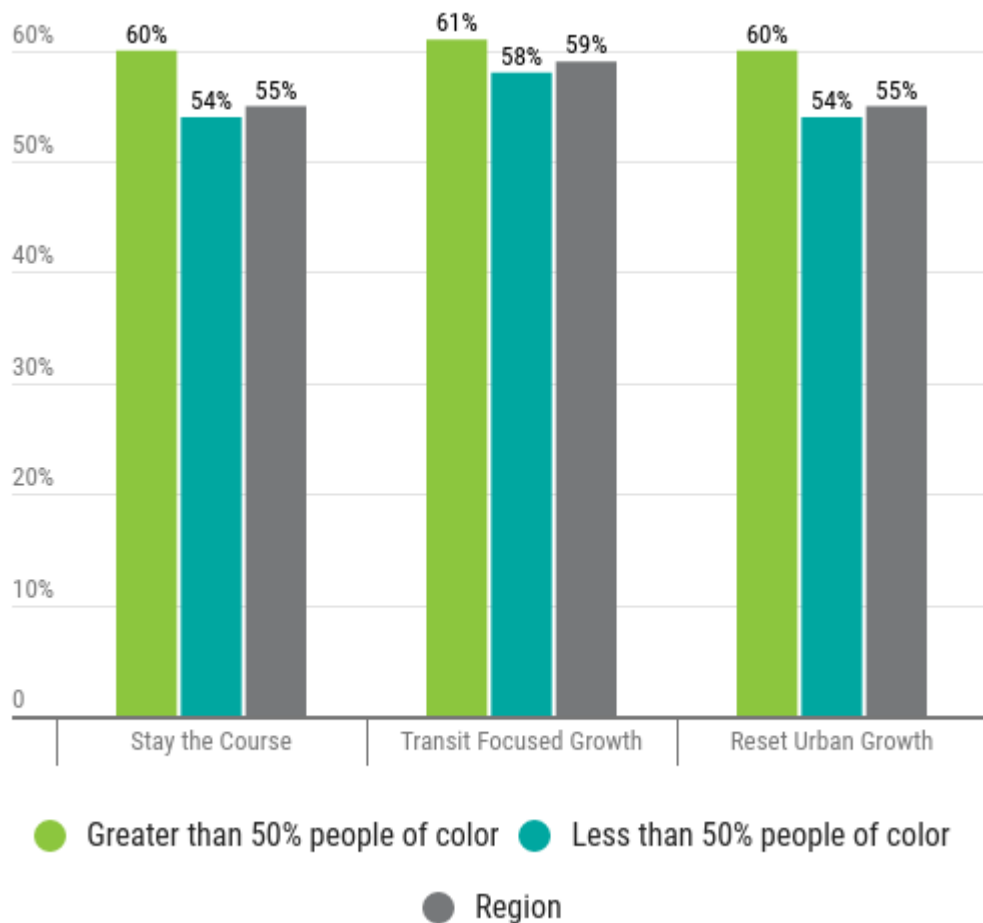
Note: Proximity is defined as within 1/4 mile; parks providing local urban access is defined as currently existing parks, trails, and other open space facilities located in the urban growth area or within 1/4 mile of the urban growth area boundary.

Figure 21. Urban Growth Area Population in Proximity to Parks Providing Local Urban Access, People With Low Incomes



Source: PSRC

Figure 22. Urban Growth Area Population in Proximity to Parks Providing Local Urban Access, People of Color



Source: PSRC

Potential Mitigation Measures

Mitigation measures for the entire region are applicable to lower income households and communities of color. Mitigation measures include, but are not limited to:

- Commit to planning, funding, and constructing new and updated parks and recreational facilities.
- Adopt local park development, enhancement, and maintenance levies.
- Ensure that new neighborhood parks are located near the greatest number of people.
- Plan for and provide public transportation, sidewalks, and trail systems that enhance access to recreational facilities.

Environmental Health

Table 31. Summary of Impacts and Benefits for Environmental Justice Populations:
Environmental Health

Stay the Course	Transit Focused Growth	Reset Urban Growth
<p>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.</p> <p>As described in Section 2.11.2 of the Draft SEIS, 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.</p>		

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. At a regional level, there are no discernable differences between alternatives on environmental justice populations.

Climate Change

Table 31. Summary of Impacts and Benefits for Environmental Justice Populations:
Environmental Health

Stay the Course	Transit Focused Growth	Reset Urban Growth
<p>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).</p>		

As discussed in the VISION 2040 FEIS, the effect of climate change is complex and interrelated. Climate change is of growing urgency, and intersects with many resources including air quality, ecosystems, and water. However, at a regional level, there are no discernable differences between alternatives on environmental justice populations.

Growth in Opportunity Areas

Table 32. Summary of Impacts and Benefits to Environmental Justice Populations:
Growth in Opportunity Areas

Stay the Course	Transit Focused Growth	Reset Urban Growth
<p>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.</p> <p>Mitigation measures would need to be considered to help prevent displacement of vulnerable populations.</p>	<p>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.</p> <p>Mitigation measures would need to be considered to help prevent displacement of vulnerable populations.</p>	<p>People of Color: 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</p> <p>Mitigation measures would need to be considered to help prevent displacement of vulnerable populations.</p> <p>Low Income: Growth in areas of opportunity for census tracts that are greater than 50 percent people with low incomes is similar to Stay the Course.</p>

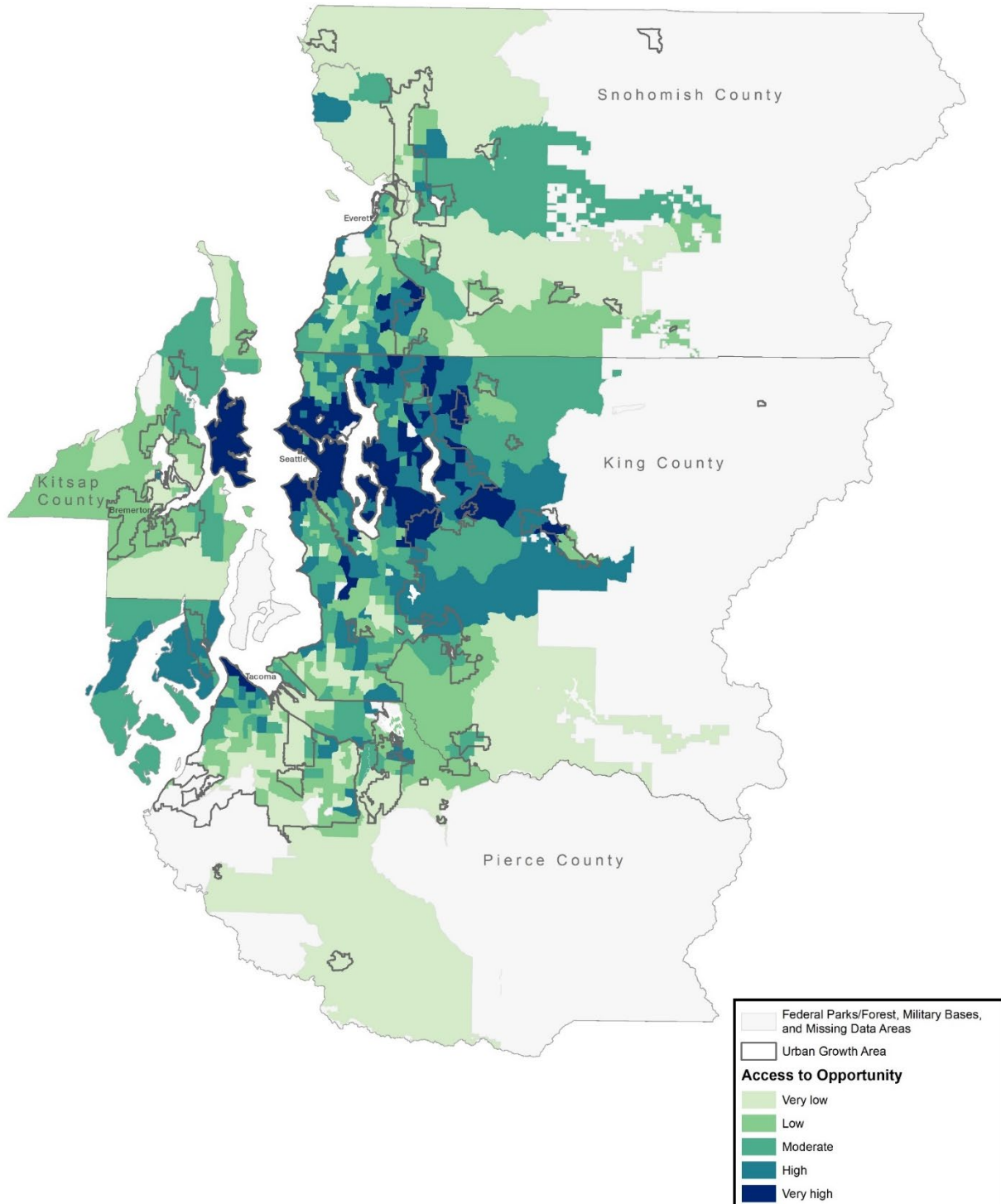
Opportunity Mapping Tool

To assess the amount of opportunity that exists in neighborhoods today, PSRC developed the opportunity mapping tool. This tool allows the analysis of growth that may take place in areas with moderate to high opportunity.

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 represents 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 opportunity index measures and methodology can be found in Appendix C of the Draft SEIS.

Figure 23. Map of Access to Opportunity Index



Source: PSRC

Table 33. Population in Areas of Moderate to Very High Opportunity

	Base Year		Stay the Course		Transit Focused Growth		Reset Urban Growth	
	Population 2017	Percent in Areas of Moderate to Very High Opportunity	Population Change 2017-2050	Percent in Areas of Moderate to Very High Opportunity	Population Change 2017-2050	Percent in Areas of Moderate to Very High Opportunity	Population Change 2017-2050	Percent in Areas of Moderate to Very High Opportunity
Counties								
King County	1,723,000	80%	550,000	82%	727,000	83%	714,000	82%
Kitsap County	88,000	33%	67,000	37%	42,000	45%	30,000	32%
Pierce County	283,000	33%	188,000	44%	151,000	41%	128,000	35%
Snohomish County	307,000	39%	174,000	36%	136,000	32%	161,000	38%
Equity Geographies - Census Tracts That Are:								
Greater Than 50% People with Low Incomes	83,000	35%	74,000	44%	100,000	51%	55,000	45%
Less Than 50% People with Low Incomes	2,317,000	61%	905,000	57%	956,000	61%	976,000	60%
Greater Than 50% People of Color	365,000	52%	146,000	55%	216,000	63%	187,000	63%
Less Than 50% People of Color	2,036,000	60%	832,000	56%	840,000	59%	844,000	58%
Less Than 50% People of Color	2,400,000	59%	980,000	56%	1,057,000	60%	1,033,000	59%

Source: PSRC

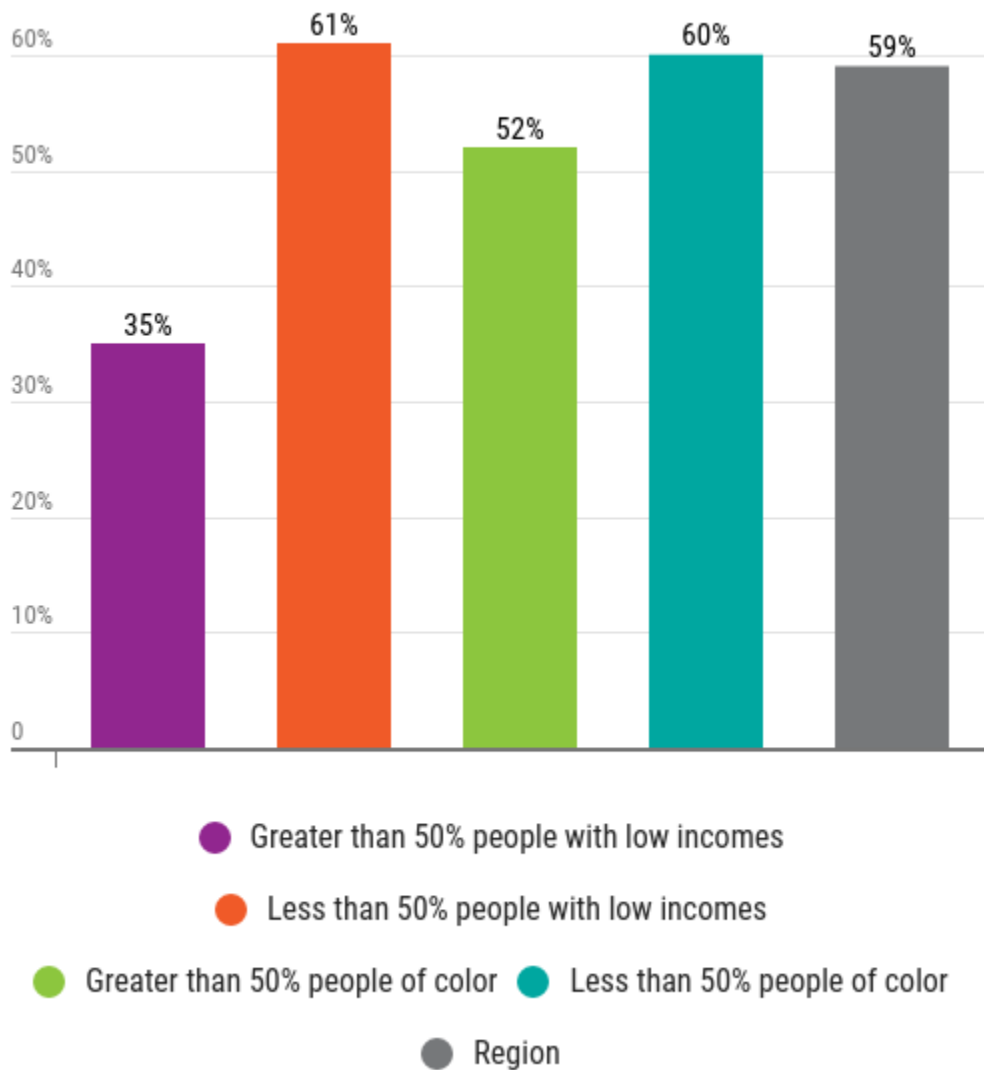
Note: Areas of moderate to very high opportunity is defined as the top 60th percentile of census tracts with respect to the opportunity index. Additional detail describing methodology for this measure can be found in Appendix C.

Table 33 shows the percentage of the population in areas of moderate- to very high-opportunity in 2017 and the percent population change in these areas between 2017 and 2050.

Figure 23 shows the opportunity index by census tract in the region. Census tracts in dark blue represent areas with very high opportunity and the lightest green are areas with very low opportunity. Areas with moderate to high opportunity are found frequently in King County, particularly in Seattle and east and north King County, Bainbridge Island in Kitsap County, Tacoma, and pockets of southern Snohomish County.

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.

Figure 24. Percentage of Population in Areas of Moderate to Very High Opportunity, 2017



Source: PSRC

Between 2017 and 2050 the Transit Focused Growth alternative will have the most growth in census tracts with over 50 percent people of color and people with low incomes that are in areas of moderate to very high opportunities. The focused growth in these areas could give more people access to opportunity, but could also put more displacement threats on these communities.

Stay the Course will have higher proportions of growth 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 policies 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 policies would need to be considered to help prevent displacement of vulnerable populations.

Growth in Areas at Risk of Displacement

Table 34. Summary of Impacts and Benefits to Environmental Justice Populations:
Growth in Areas at Risk of Displacement

Stay the Course	Transit Focused Growth	Reset Urban Growth
<p>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.</p> <p>For growth (2017-2050) in the region as a whole, 18% of population growth would occur in areas of higher displacement risk.</p>	<p>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.</p> <p>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 Stay the Course</p>	<p>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.</p> <p>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.</p>

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. People with low incomes, people of color, and neighborhoods where households are predominantly renters are at a higher risk of displacement and gentrification.

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.¹⁹ 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.²⁰

Displacement Risk Analysis Tool

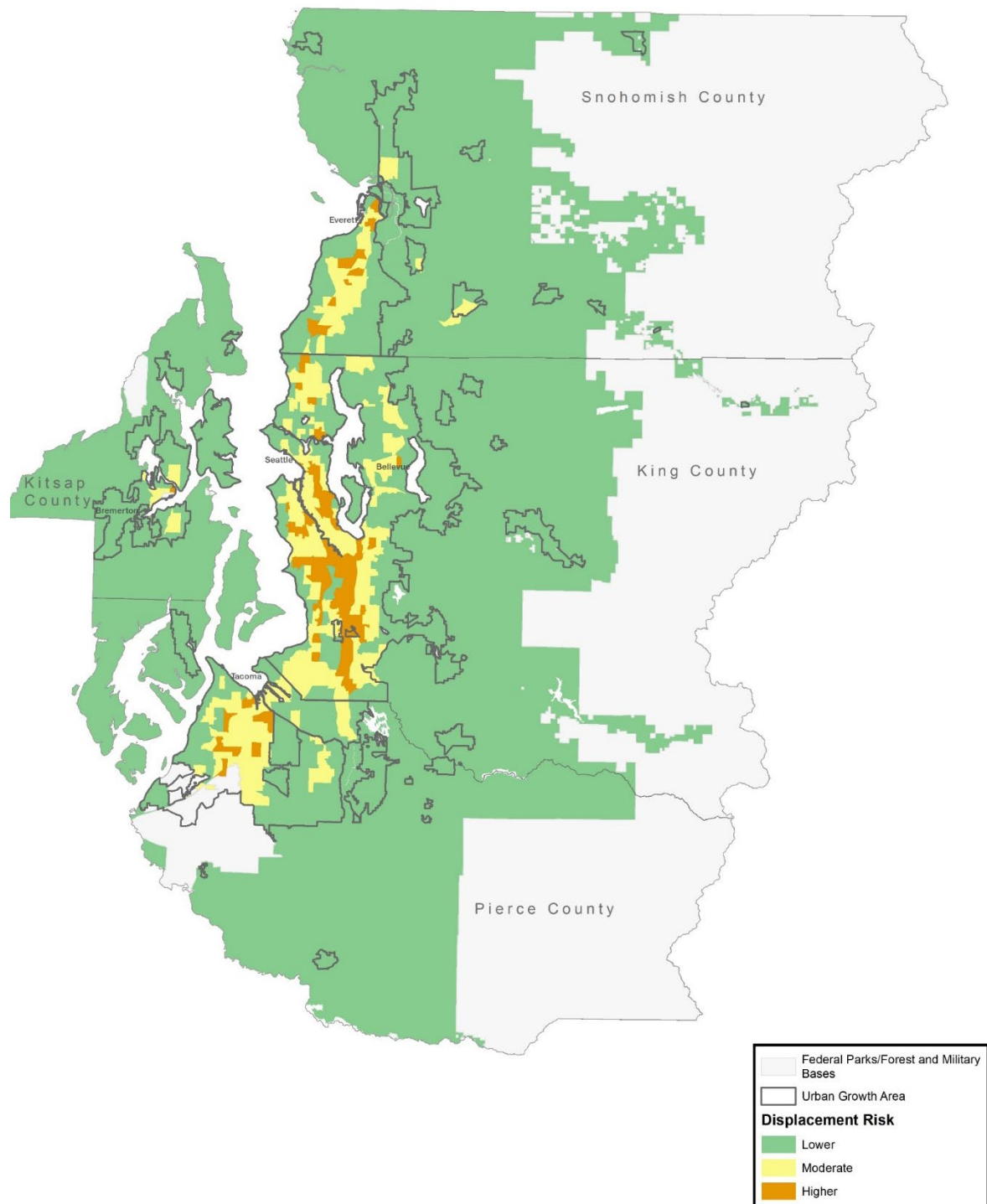
The addition of 1.8 million people to the region may put pressure on existing communities leading to displacement. The displacement risk tool was developed to identify areas at greater risk of displacement based on current neighborhood conditions.

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" is determined by sorting all census tracts based on their index scores and represents the top 10 percent of scores among all tracts.

¹⁹ PSRC. 2018. VISION 2050 Housing Background Paper. Puget Sound Regional Council. Seattle, WA. June 2018.

²⁰ Ibid.

Figure 25. Map of Displacement Risk



Source: PSRC

Table 35. Population in Areas of Higher Displacement Risk

	Base Year		Stay the Course		Transit Focused Growth		Reset Urban Growth	
	Population 2017	Percent in Areas of Higher Displacement Risk	Population Change 2017- 2050	Percent in Areas of Higher Displacement Risk	Population Change 2017- 2050	Percent in Areas of Higher Displacement Risk	Population Change 2017- 2050	Percent in Areas of Higher Displacement Risk
Counties								
King County	287,000	13%	169,000	25%	272,000	31%	204,000	23%
Kitsap County	3,000	1%	17,000	10%	21,000	22%	2,000	2%
Pierce County	57,000	7%	58,000	14%	52,000	14%	35,000	10%
Snohomish County	65,000	8%	66,000	14%	57,000	13%	43,000	10%
Equity Geographies – Census Tracts That Are:								
Greater Than 50% People with Low Incomes	168,000	70%	153,000	91%	179,000	92%	109,000	89%
Less Than 50% People with Low Incomes	244,000	6%	155,000	10%	222,000	14%	174,000	11%
Greater Than 50% People of Color	275,000	39%	143,000	53%	205,000	60%	156,000	53%
Less Than 50% People of Color	136,000	4%	166,000	11%	195,000	14%	126,000	9%
Region	412,000	10%	310,000	18%	402,000	23%	284,000	16%

Source: PSRC

Note: Areas of higher displacement risk is defined as the top 10th percentile of census tracts with respect to the displacement risk analysis index. Additional detail describing methodology for this measure can be found in Appendix C.

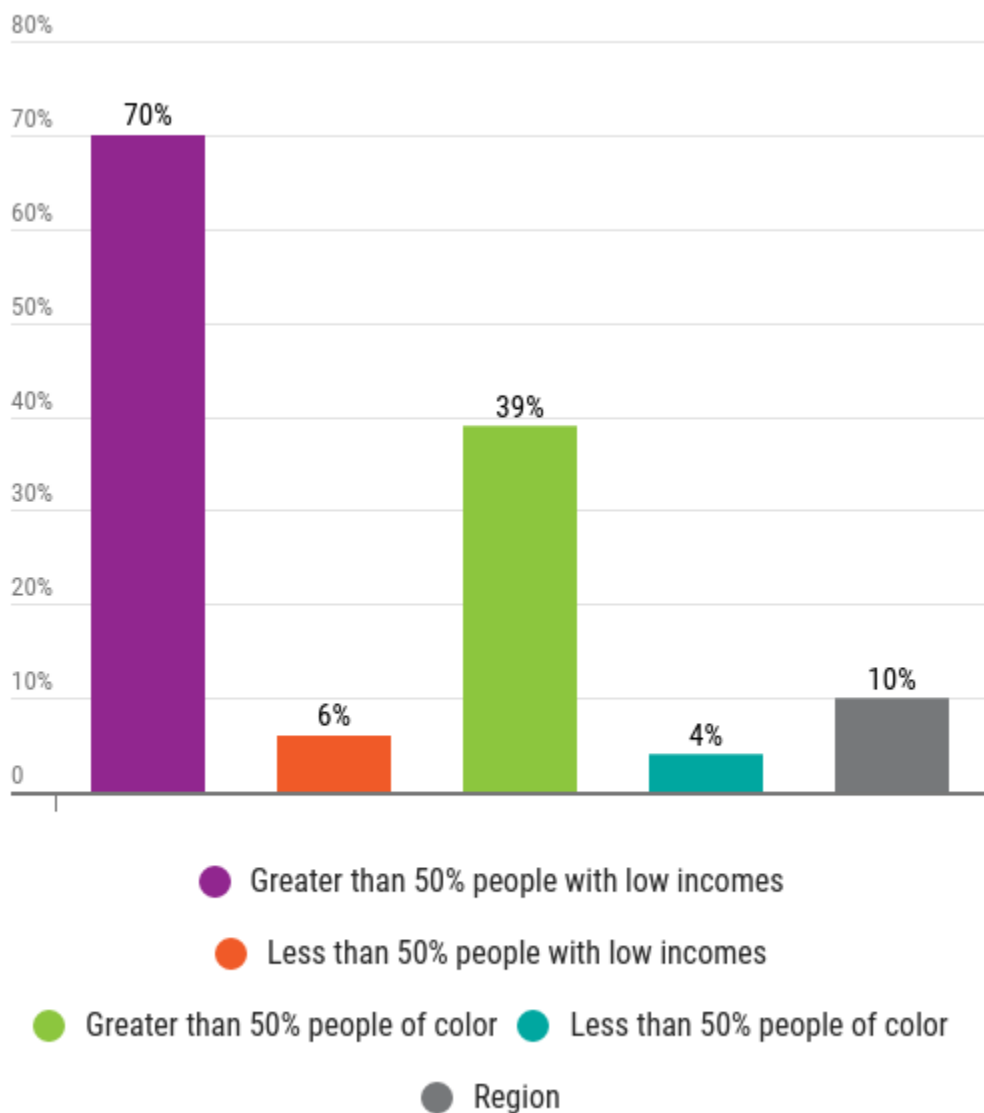
Table 35 shows the percentage of the population in areas of higher displacement risk in 2017 and the percent population growth occurring in these areas between 2017 and 2050. Figure 25 shows these areas in red and areas of moderate risk of displacement in yellow.

Areas at high risk of displacement are concentrated in the urbanized areas of the region, mainly in south King County, Tacoma, and along the Interstate 5 corridor in Snohomish County.

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 population in census tracts that are greater than 50 percent people with low incomes were at risk of displacement and 39 percent of the people in 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.

For the region as a whole, Transit Focused Growth (23 percent) would have the most growth in areas of higher displacement risk. Reset Urban Growth would have the least (16 percent) and Stay the Course would fall in the middle (18 percent).

Figure 26. Percent of Population in Areas of Higher Displacement Risk, 2017



Source: PSRC

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.

The risk of displacement is highest in the Transit Focused Growth alternative due to an increased amount of growth in census tracts with over 50 percent people of color and

people with low incomes. Risk of displacement is lowest in the Reset Urban Growth alternative.

Because many of the census tracts evaluated are at high risk of displacement, growth in these areas may exacerbate the risk existing residents have of being displaced.

Potential Mitigation Measures

Based on the existing conditions of many of the census tracts that are over 50 percent people of color or with low income, mitigation would be needed to help prevent displacement of these populations under all of the alternatives.

Increasing housing supply and retaining current housing, could help to mitigate displacement of existing residents. Potential mitigation measures for providing and maintaining housing were listed previously in Table 19.

Part 4: Findings and Next Steps

The central Puget Sound region is changing. Trends show that the region is becoming more racially diverse, residents are living longer, and where people live is shifting. People of color make up 35 percent of the region's populations—an 81 percent increase from 2000. 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.

Census tracts with greater than 50 percent people of color have a higher share of people with low incomes (40 percent) than other parts of the region (24 percent). These areas also have a much higher share of people with limited English proficiency and households without a vehicle. And Black/African American and Hispanic households are more likely to be cost-burdened, regardless of housing tenure.

Although people of color are more dispersed throughout the region, these populations are concentrated in areas with more overall population growth under all of the alternatives—along the Interstate 5 corridor, southwest and east King County, and northern Pierce County.

Local jurisdictions should continue to work with their residents to understand how shifting demographics and continued growth can change local needs. For example, the City of Seattle uses the Equitable Development Initiative to determine how neighborhood investments should be made to best support those in need by considering both history and current conditions. The goal is for future positive outcomes to be equitably distributed among Seattle residents and workers.²¹

This type of analysis of investments is important for understanding how planned changes may affect existing and future residents of the region. The mitigation measures highlighted throughout the Draft SEIS are crucial steps to ensure that the region's growth between now and 2050 does not adversely affect its residents, especially those with the highest needs.

Alternatives that concentrate growth have the most potential to provide greater opportunities to current residents, but increased growth may also impact communities

²¹ City of Seattle. Equitable Development Initiative. Available at: <https://www.seattle.gov/opcd/ongoing-initiatives/equitable-development-initiative>.

negatively. These impacts include changing housing affordability, redevelopment pressure on small businesses and community institutions, and displacement pressure.

The growth seen in the Transit Focused Growth alternative may provide some new affordable housing types for residents living in census tracts with over 50 percent people of color or people with low incomes. This alternative decreases time and distance traveled by driving alone and increases transportation options, potentially reducing household transportation costs. The compact development in this alternative could also decrease the cost of public services, based on the ability to use existing services and decreasing the need for new development.

The Transit Focused Growth and the Stay the Course alternatives provide the most moderate density housing in the areas with over 50 percent people of color or over 50 percent people with low income, which is often the most affordable type of market rate housing.

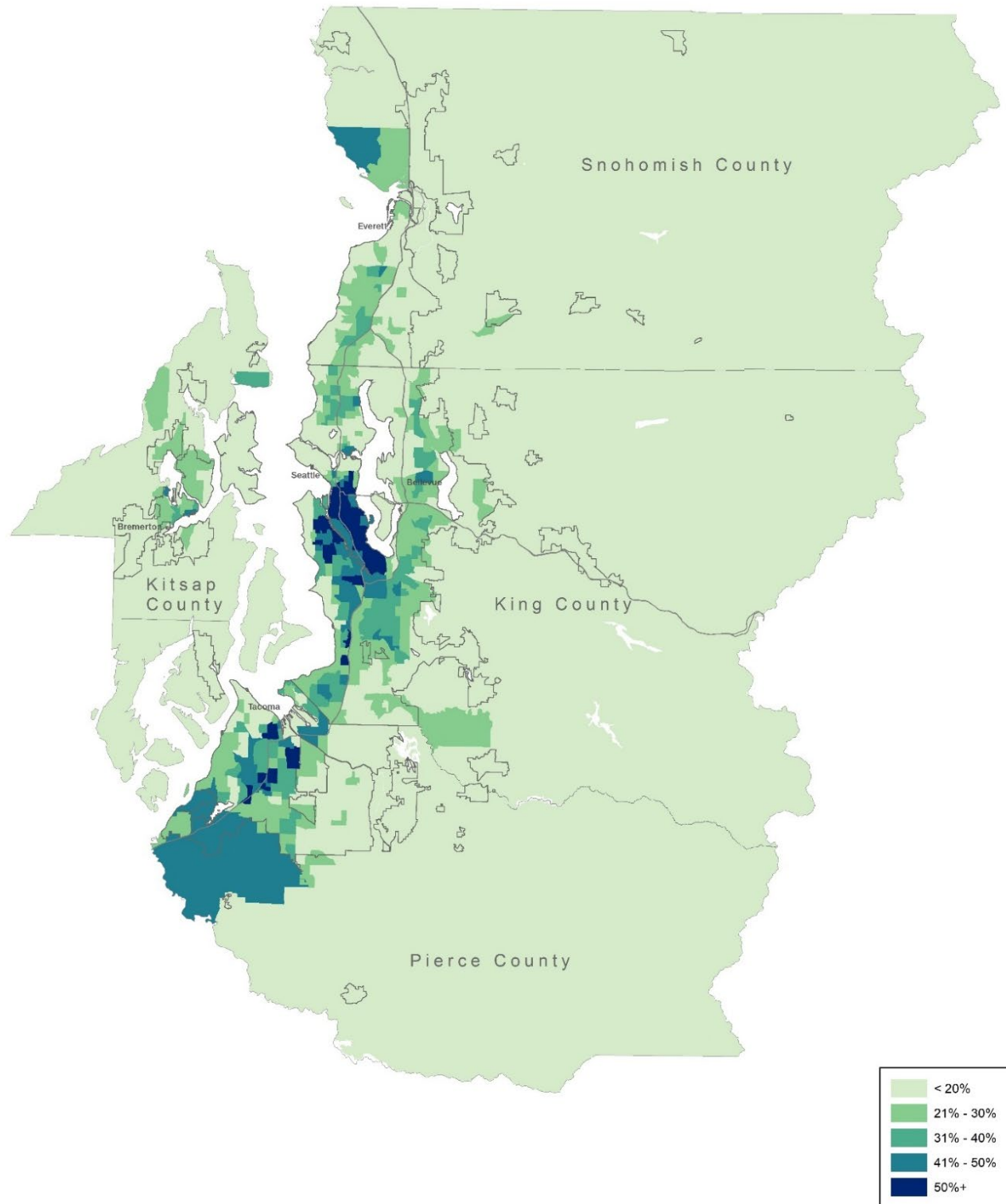
However, concentrated growth in census tracts with over 50 percent people of color and people with low incomes in the Transit Focused Growth and Stay the Course alternative could decrease affordability for current residents as additional pressure is put on the housing markets of these communities and high-density housing is built to accommodate population growth. The share of the population living in areas with higher risk of displacement in these alternatives is higher than Reset Urban Growth, which has a less compact pattern of development and could decrease the amount of high-density development pressure on these communities.

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. Identifying mitigation strategies in the preferred alternative can both allow residents of census tracts with over 50 percent people of color and 50 percent people with low incomes to have the greater access to opportunity and transportation options, while decreasing their risks of displacement and higher housing costs.

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. PSRC and local jurisdictions should conduct additional environmental justice and equity analyses as part of future plans, project-level planning, and environmental review, in addition to engaging the public to better understand the needs of the region's residents.

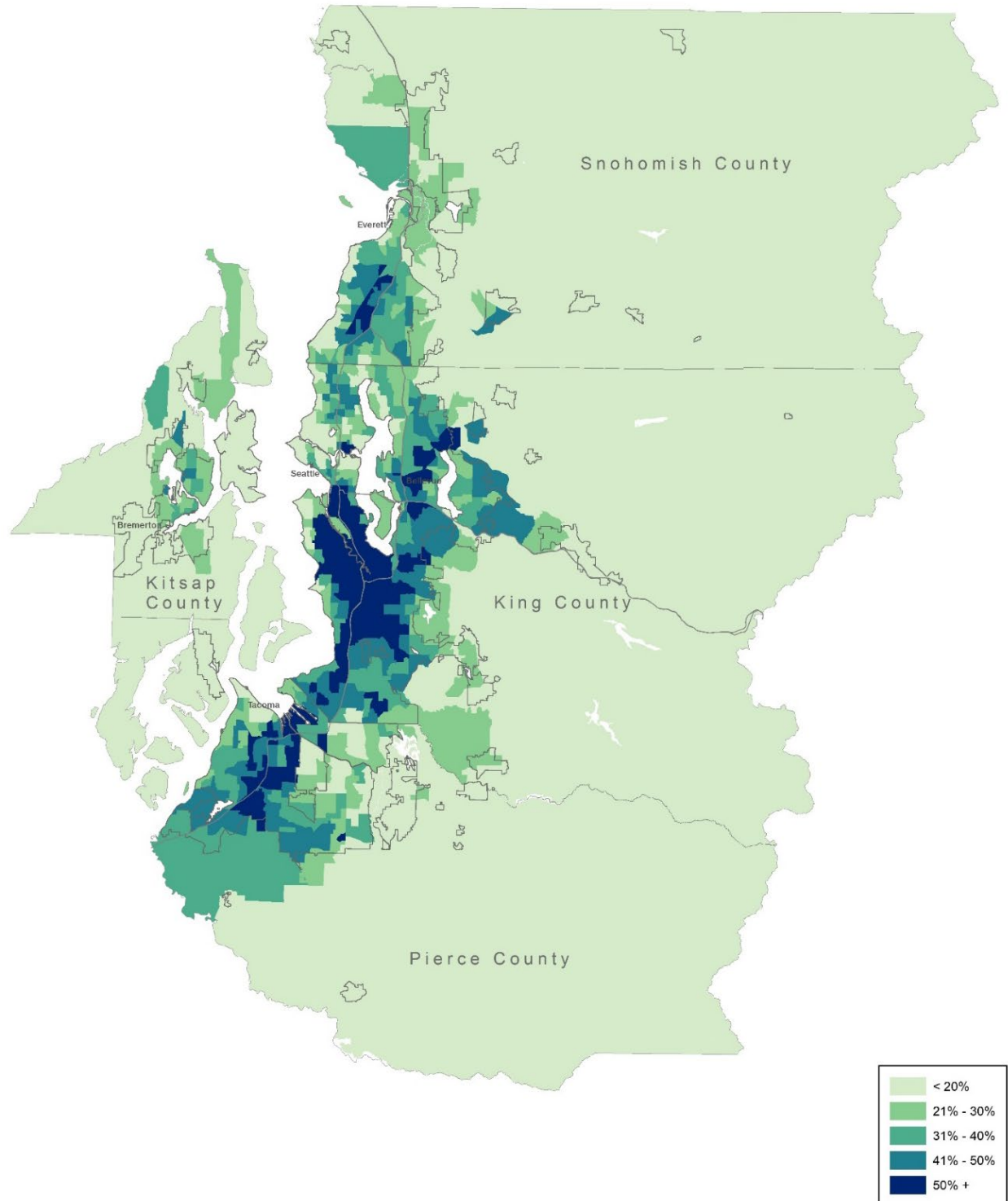
Part 5: Demographic Maps

Figure 27. People of Color, Central Puget Sound: 2000



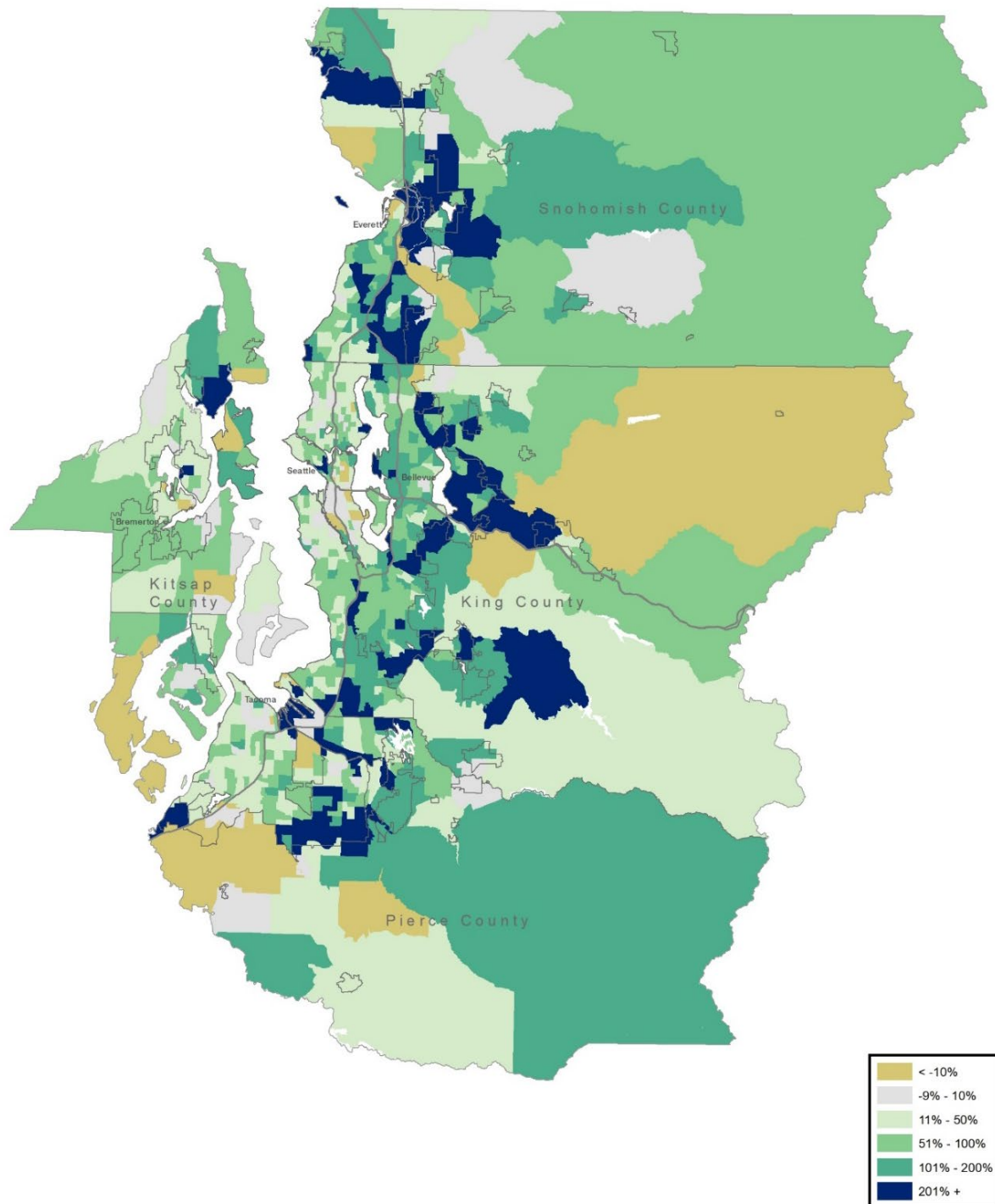
Source: American Community Survey 5-year estimates

Figure 28. People of Color, Central Puget Sound: 2016



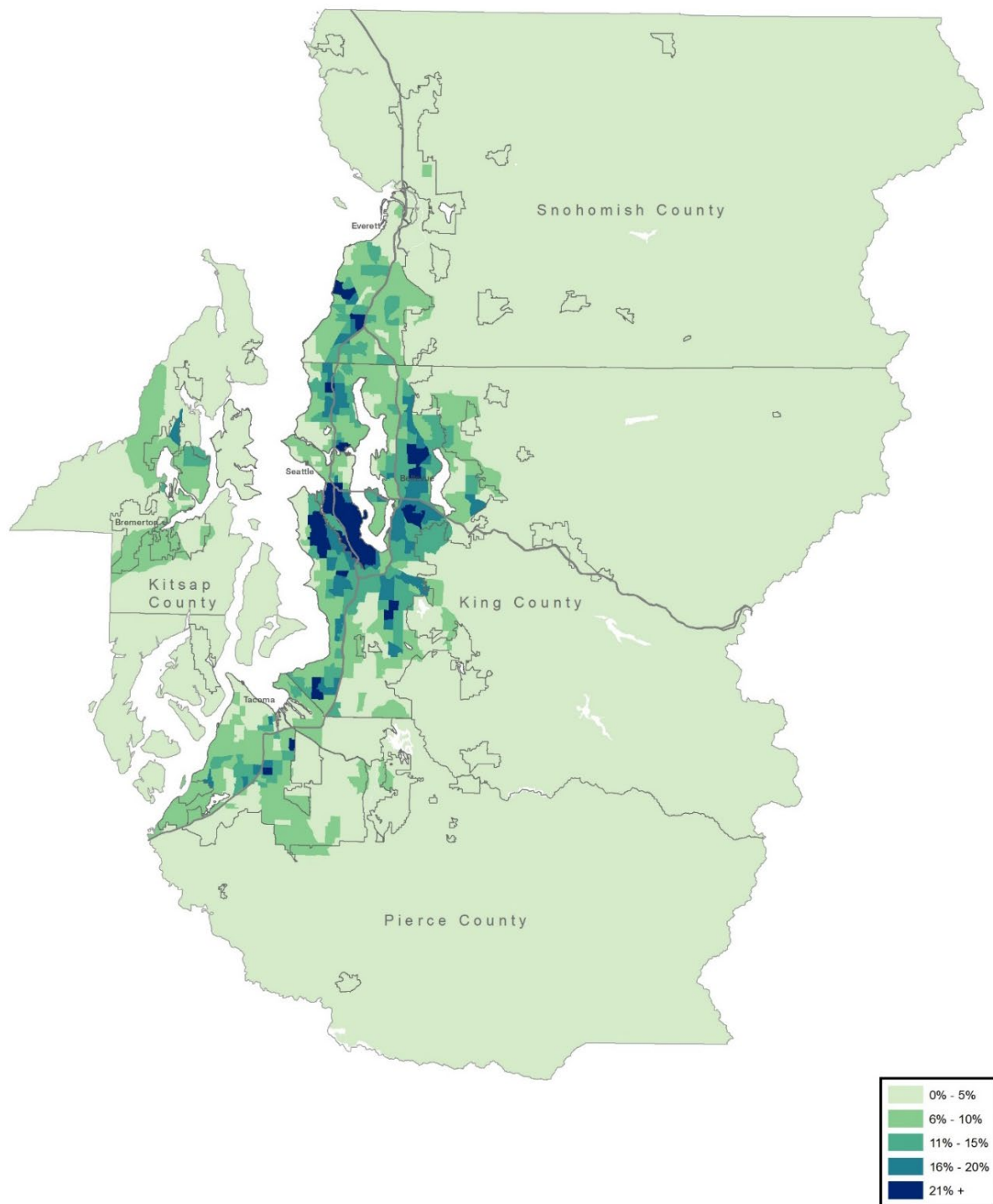
Source: American Community Survey 5-year estimates

Figure 29. Change in People of Color, Central Puget Sound: 2000-2016



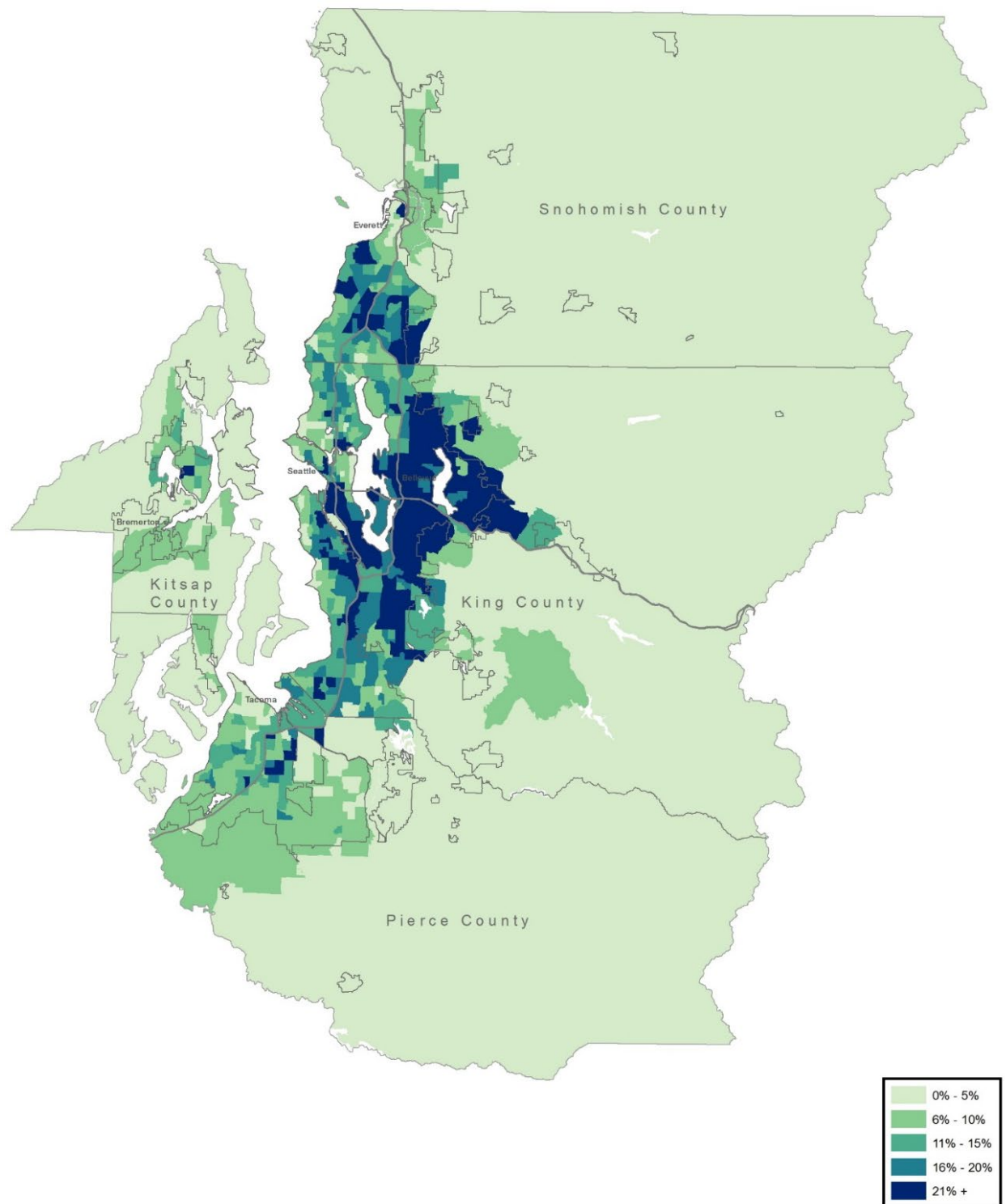
Source: American Community Survey 5-year estimates

Figure 30. Asian/Pacific Islander, Central Puget Sound: 2000



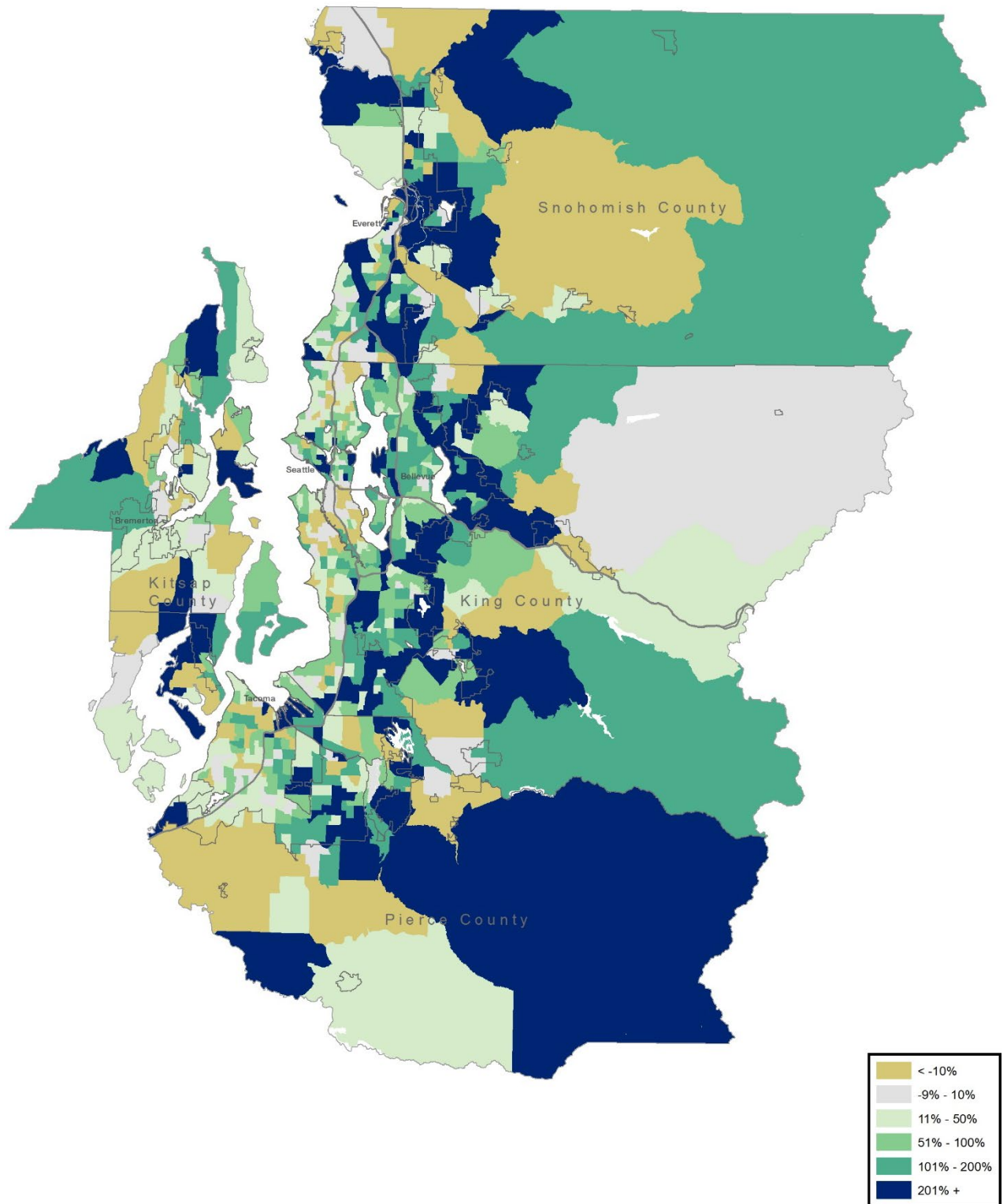
Source: American Community Survey 5-year estimates

Figure 31. Asian/Pacific Islander, Central Puget Sound: 2016



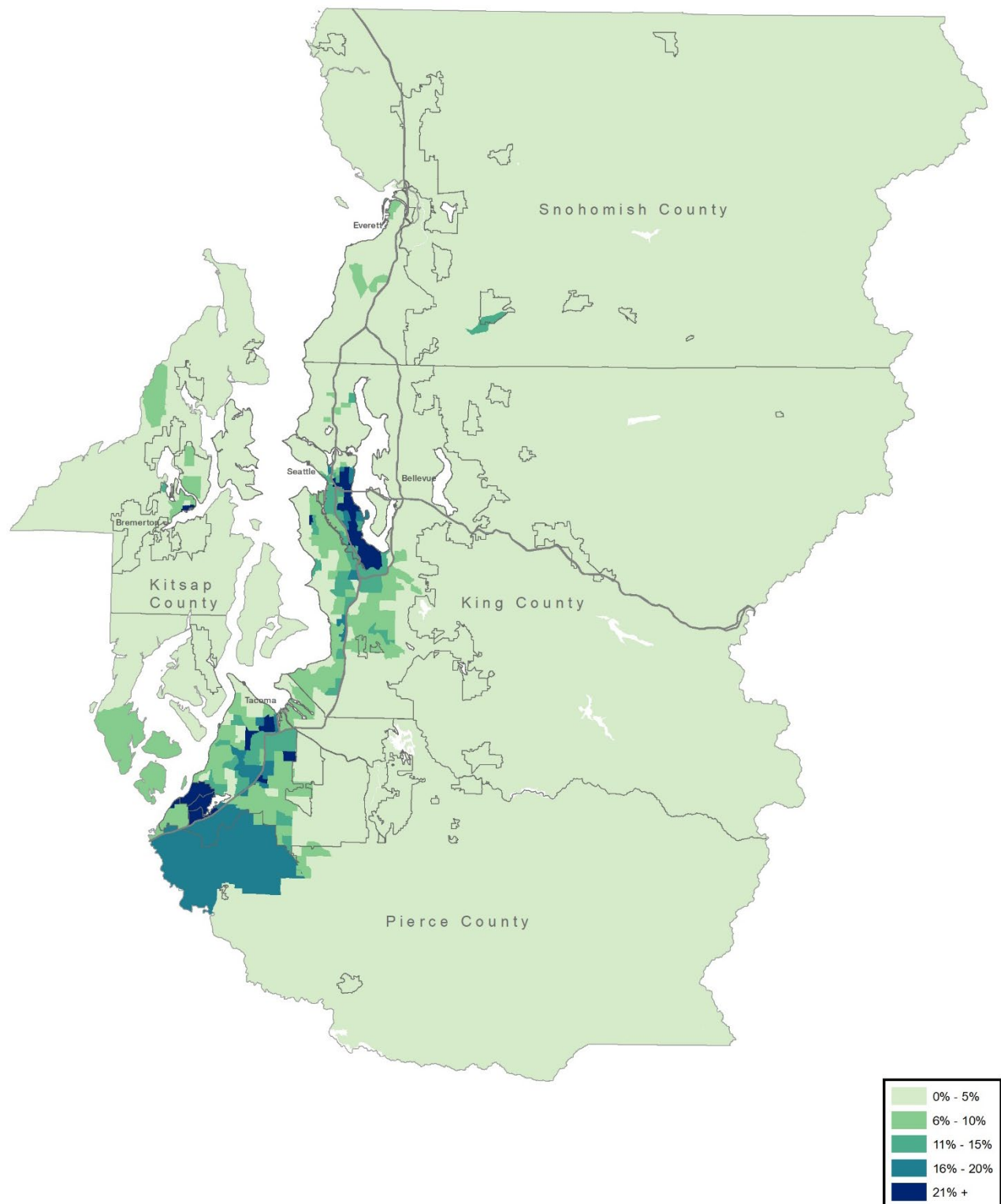
Source: American Community Survey 5-year estimates

Figure 32. Change in Asian/Pacific Islander, Central Puget Sound: 2000-2016



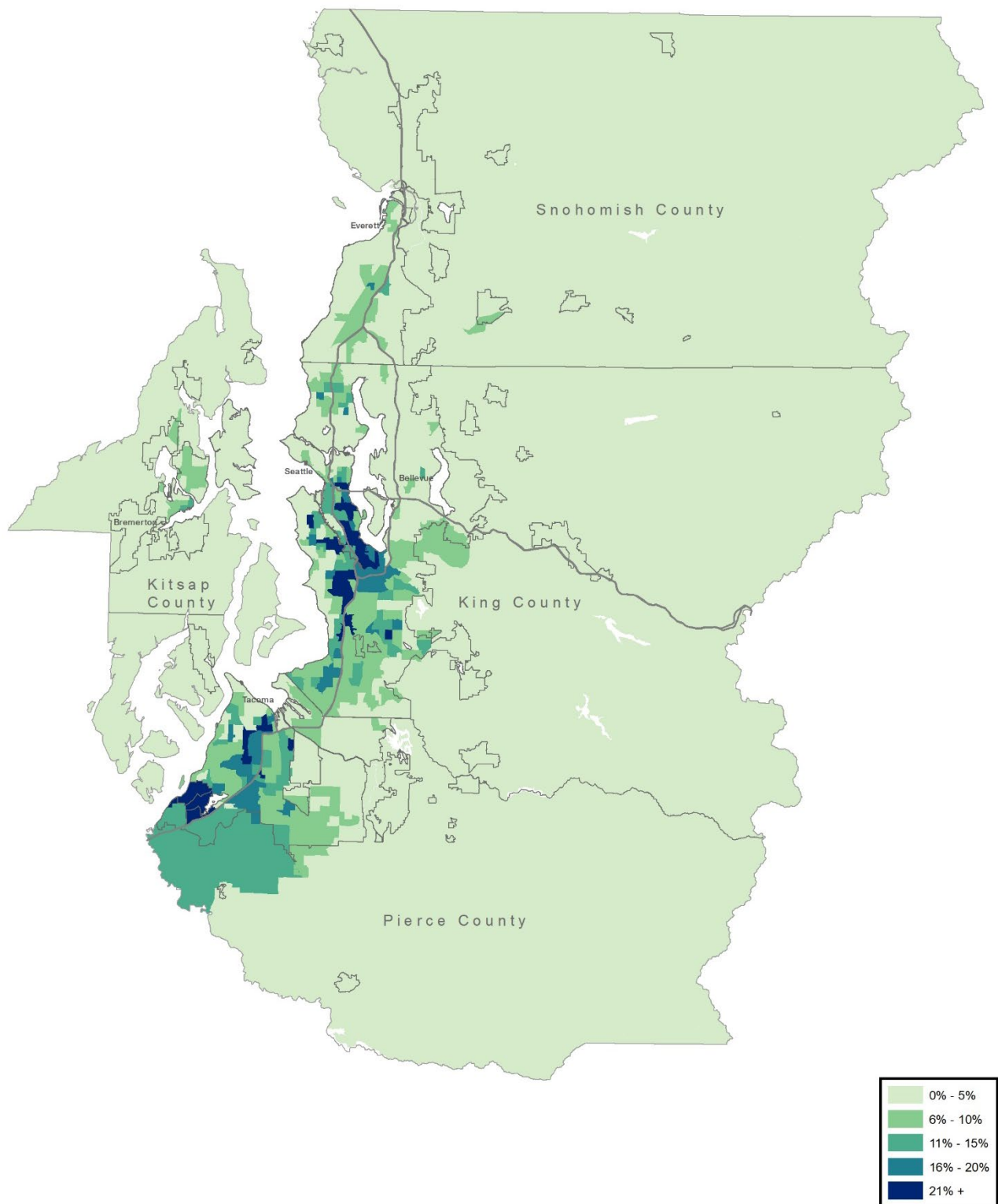
Source: American Community Survey 5-year estimates

Figure 33. Black/African American, Central Puget Sound: 2000



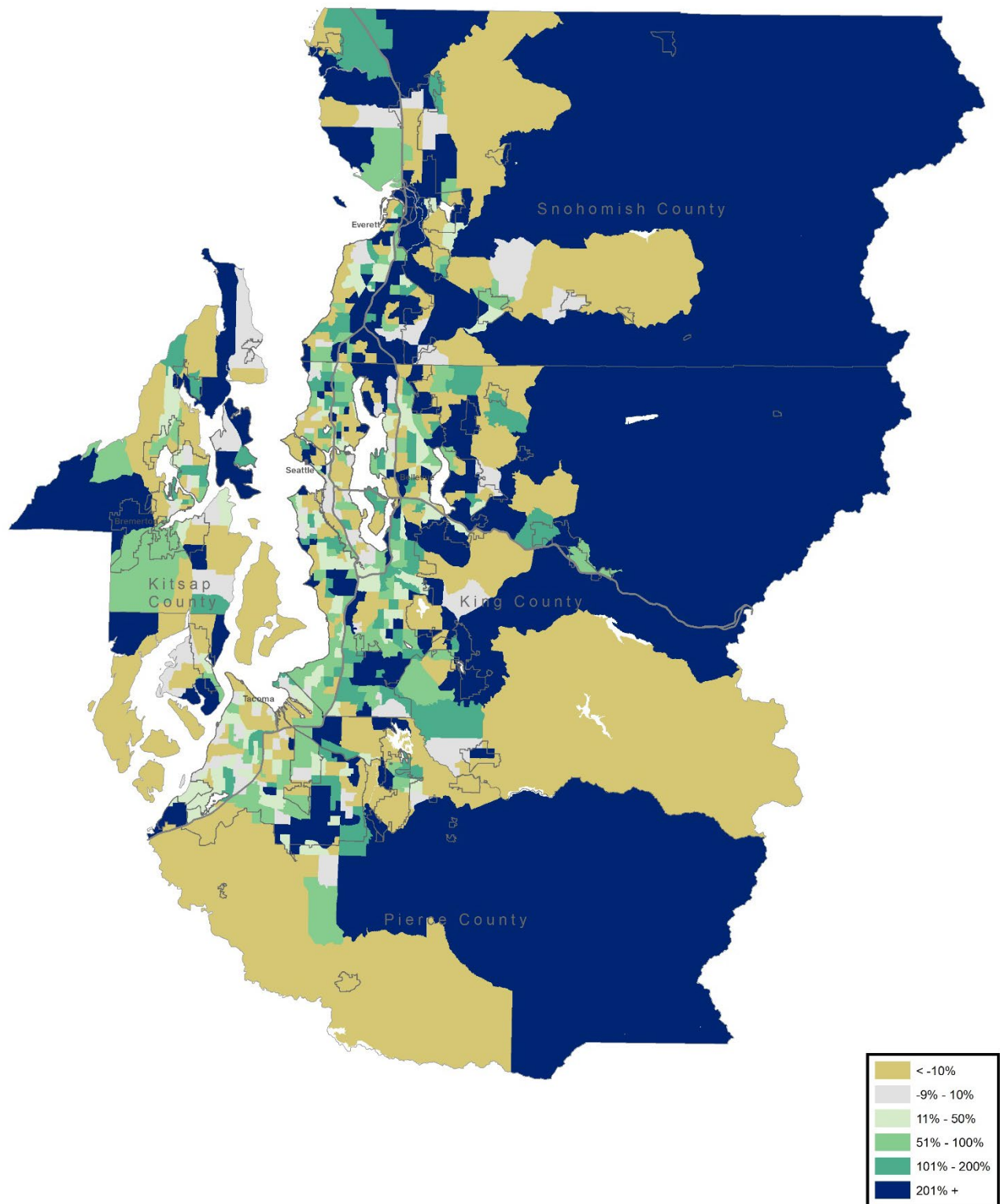
Source: American Community Survey 5-year estimates

Figure 34. Black/African American Population, Central Puget Sound: 2016



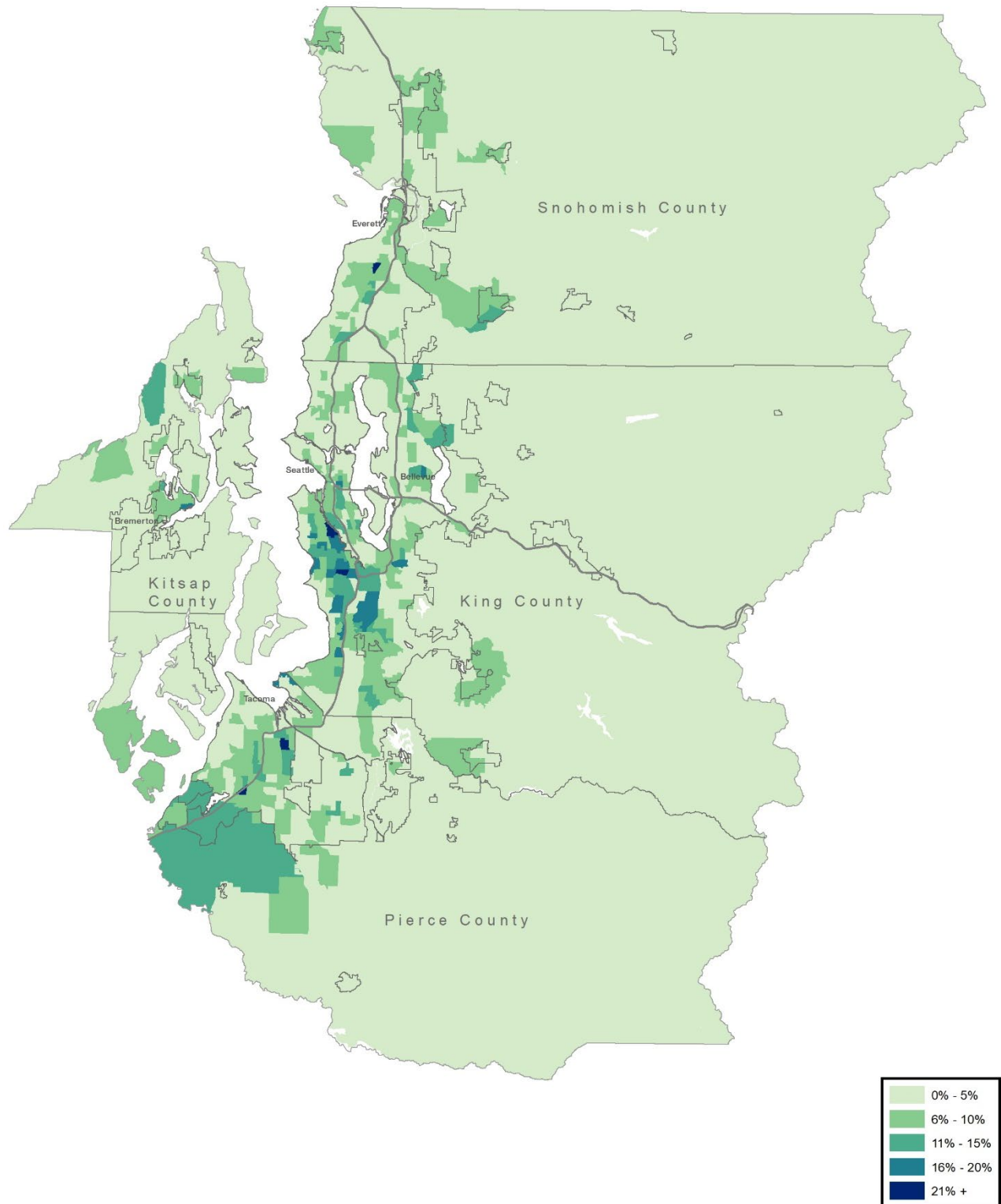
Source: American Community Survey 5-year estimates

Figure 35. Change in Black/African American, Central Puget Sound: 2000-2016



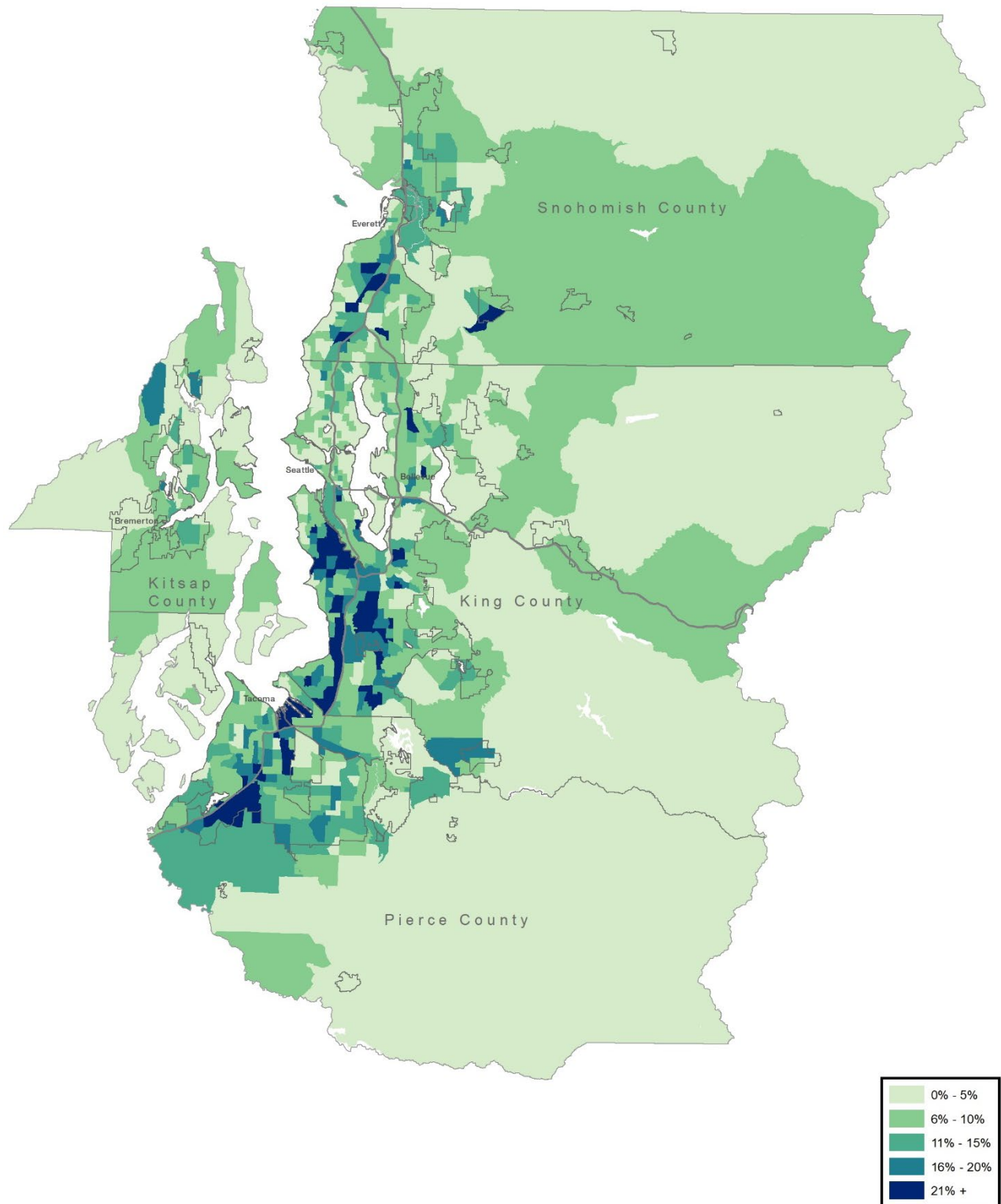
Source: American Community Survey 5-year estimates

Figure 36. Hispanic/Latino, Central Puget Sound: 2000



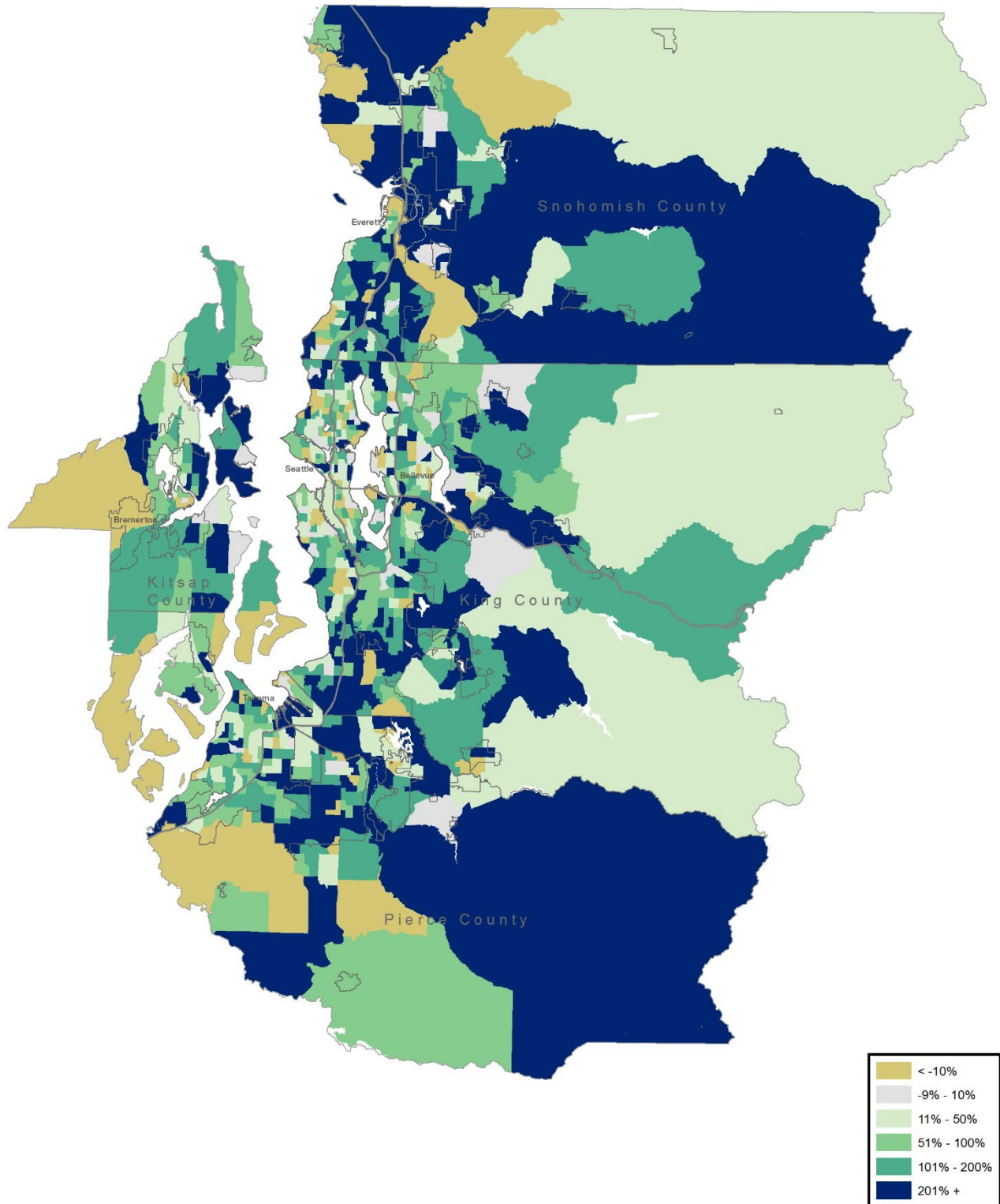
Source: American Community Survey 5-year estimates

Figure 37. Hispanic/Latino, Central Puget Sound: 2016



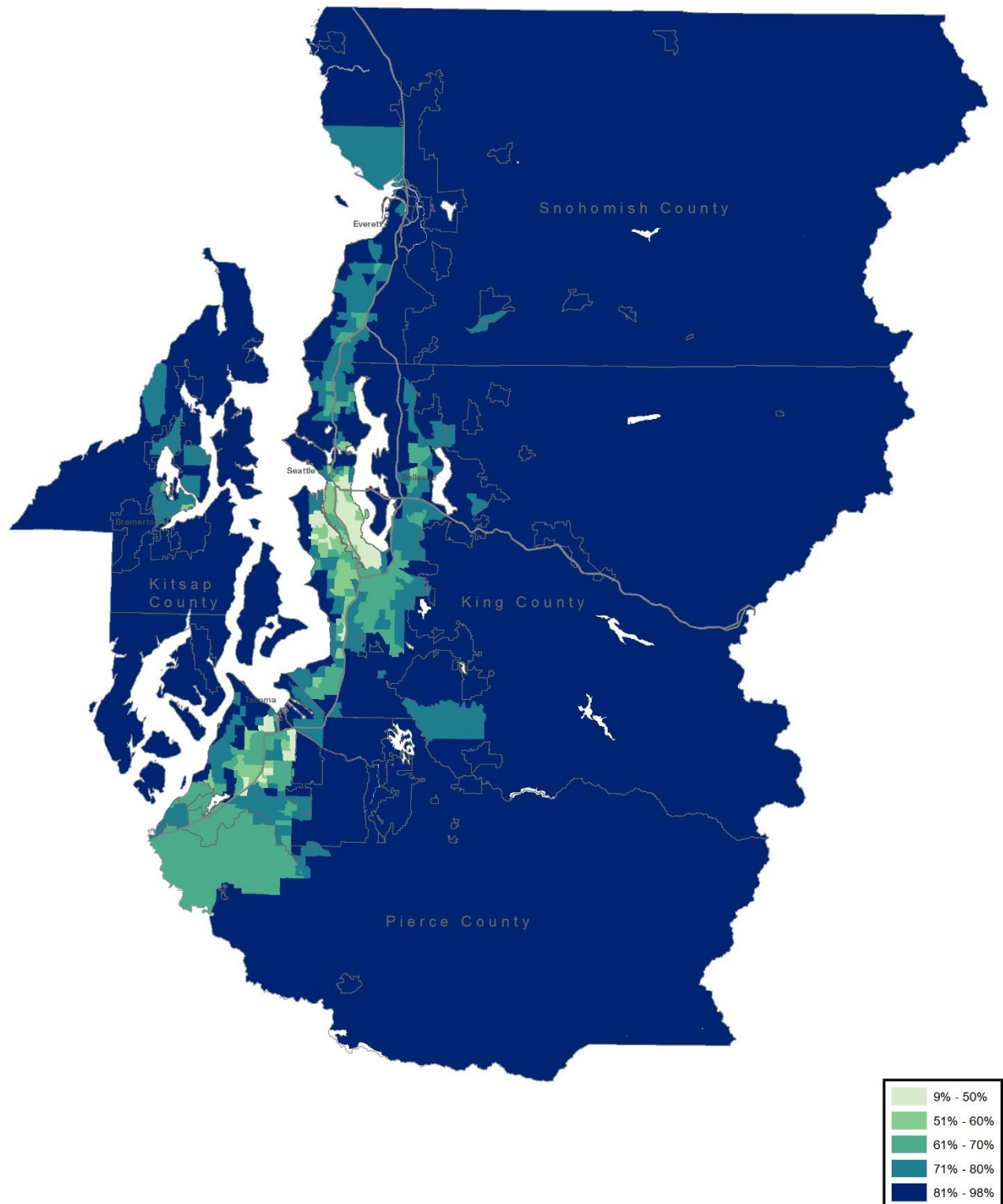
Source: American Community Survey 5-year estimates

Figure 38. Change in Hispanic/Latino, Central Puget Sound: 2000-2016



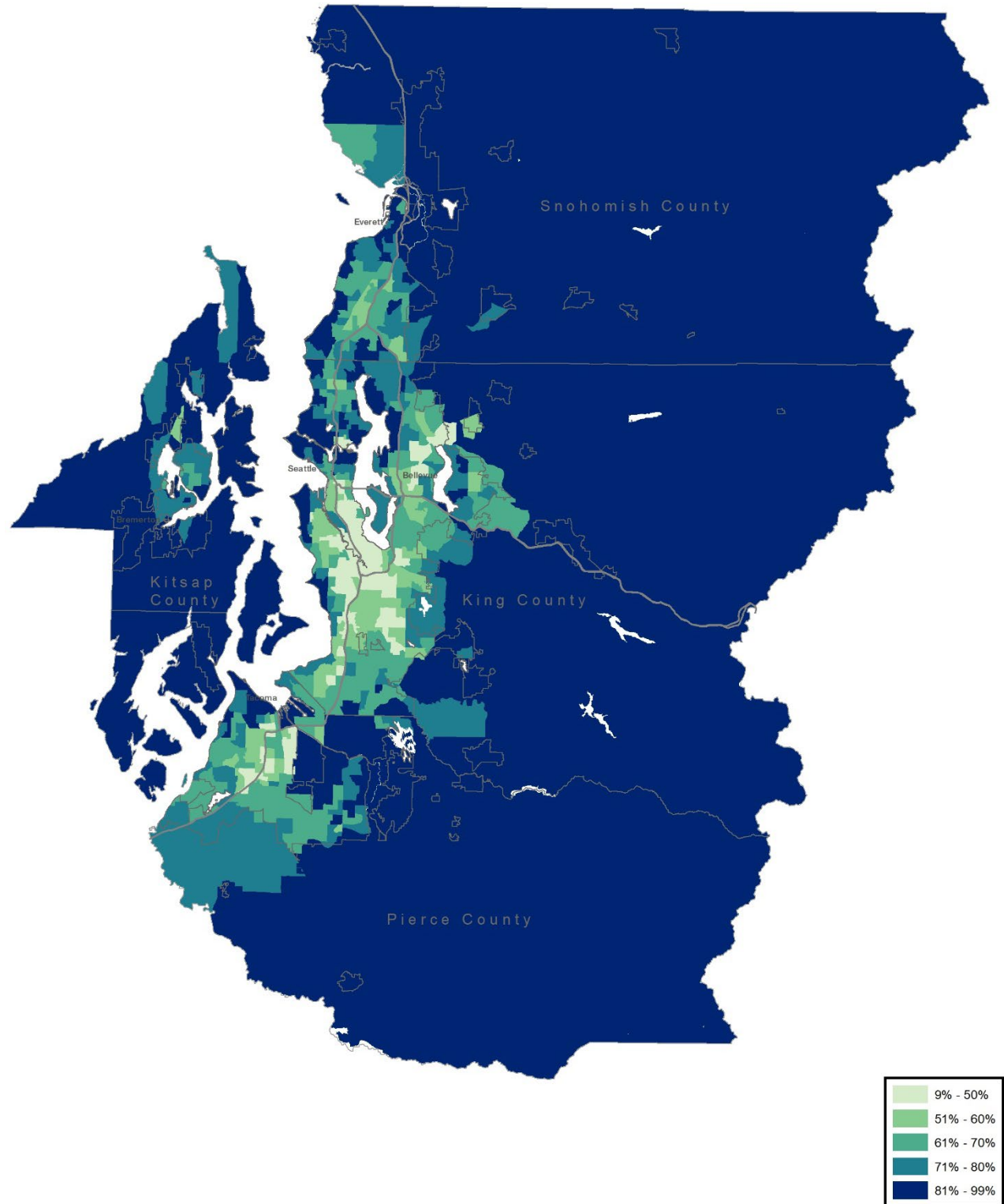
Source: American Community Survey 5-year estimates

Figure 39. White/Caucasian, Central Puget Sound: 2000



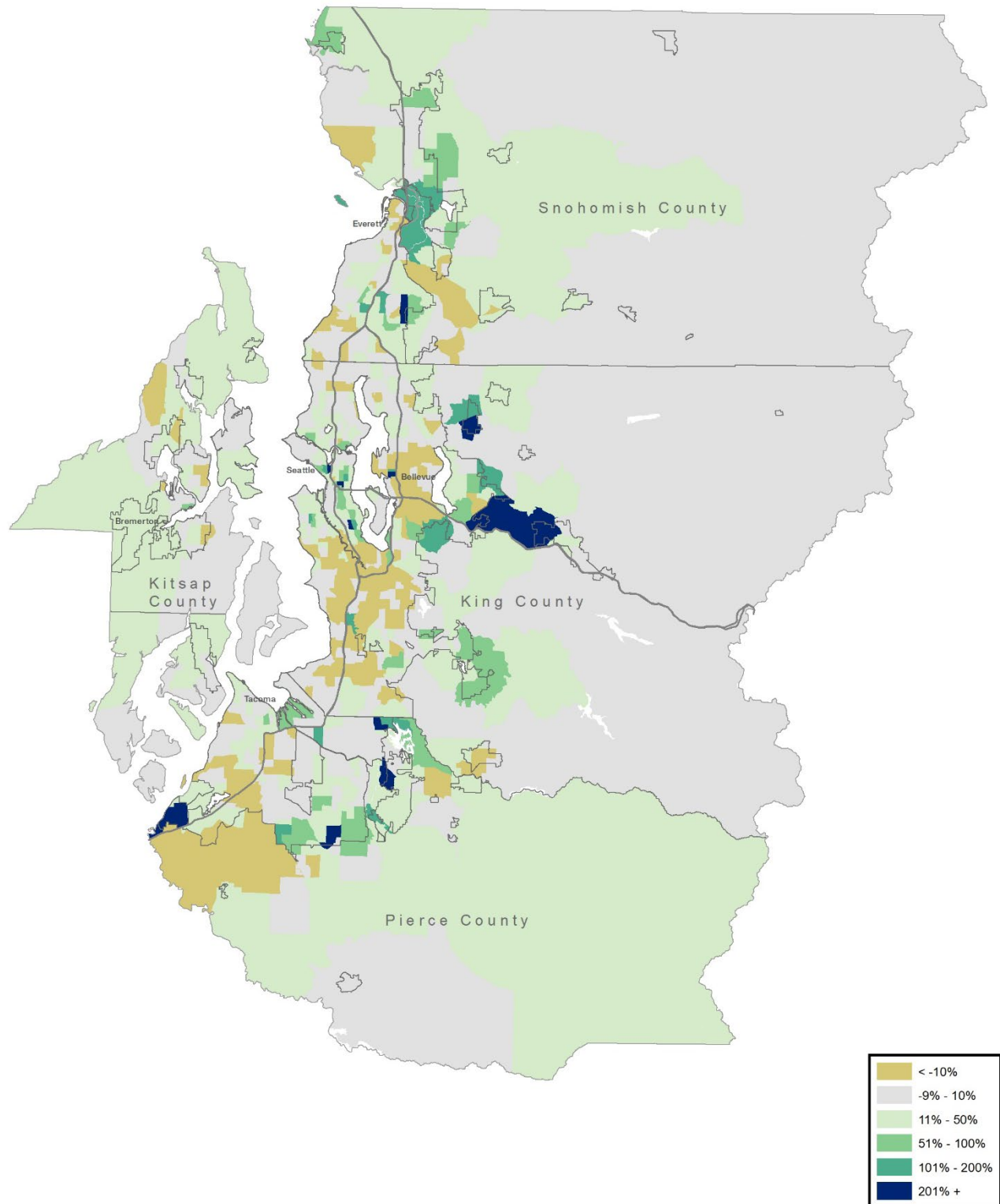
Source: American Community Survey 5-year estimates

Figure 40. White/Caucasian, Central Puget Sound: 2016



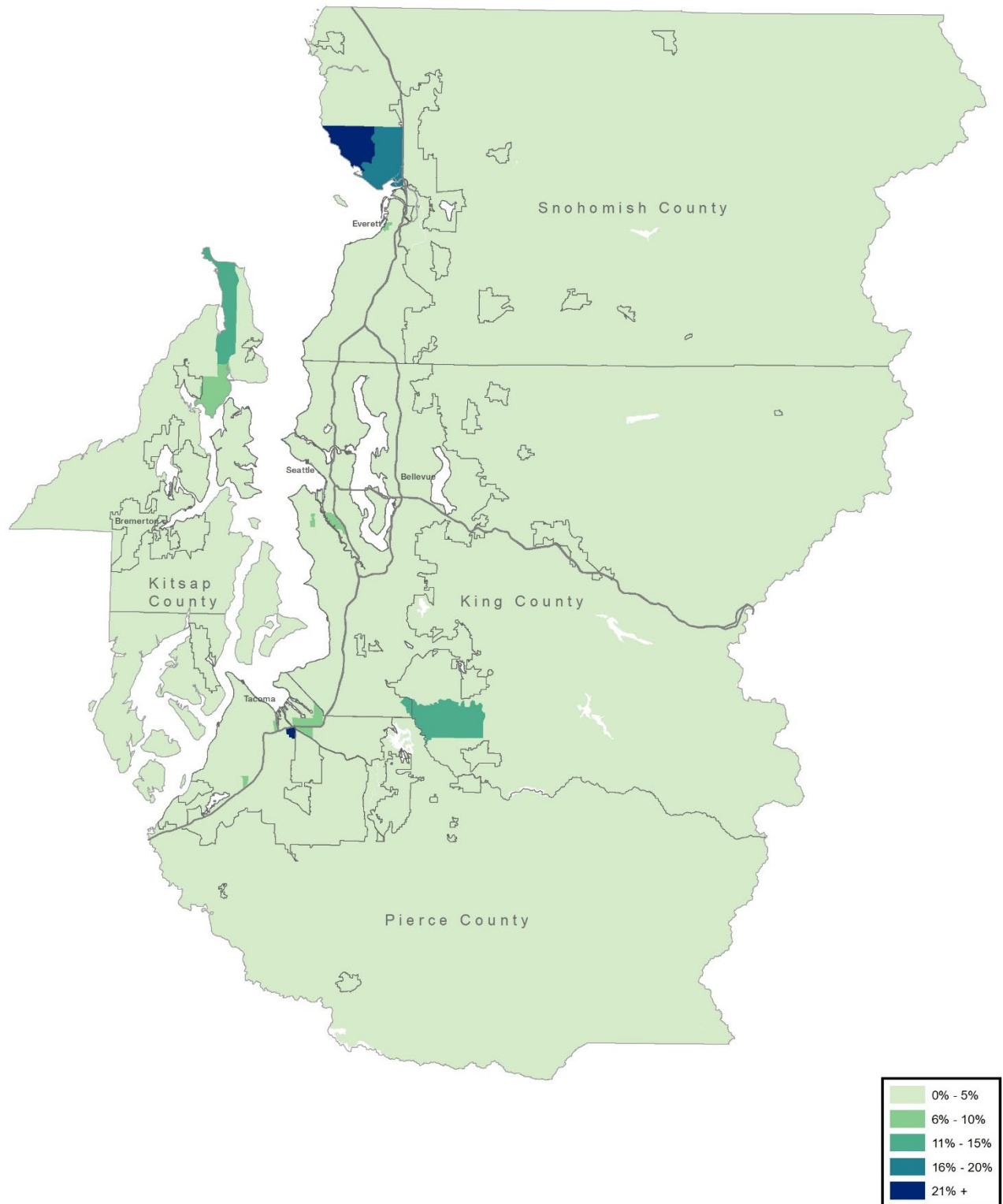
Source: American Community Survey 5-year estimates

Figure 41. Change in White/Caucasian, Central Puget Sound: 2000-2016



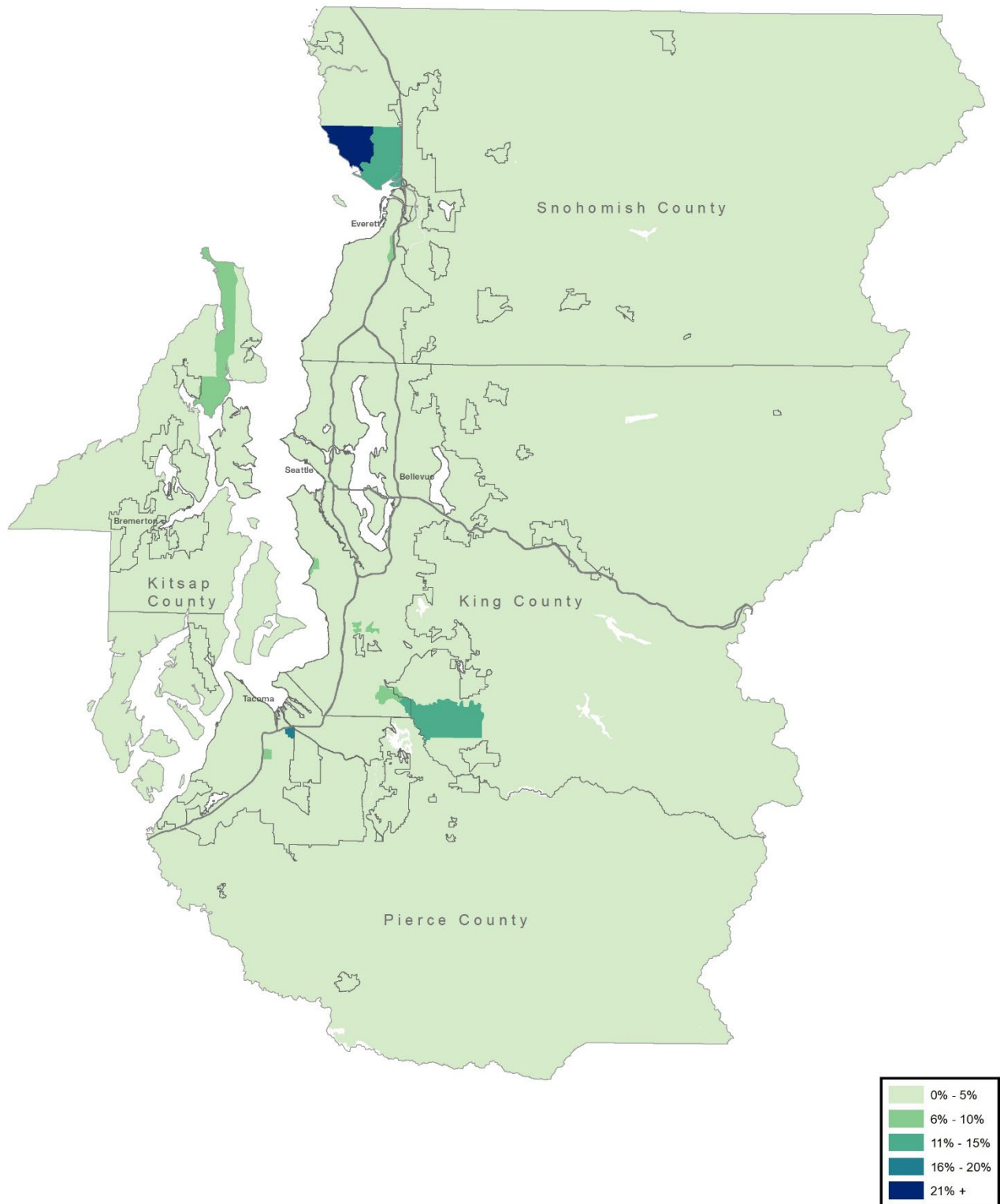
Source: American Community Survey 5-year estimates

Figure 42. American Indian/Alaskan Native, Central Puget Sound: 2000



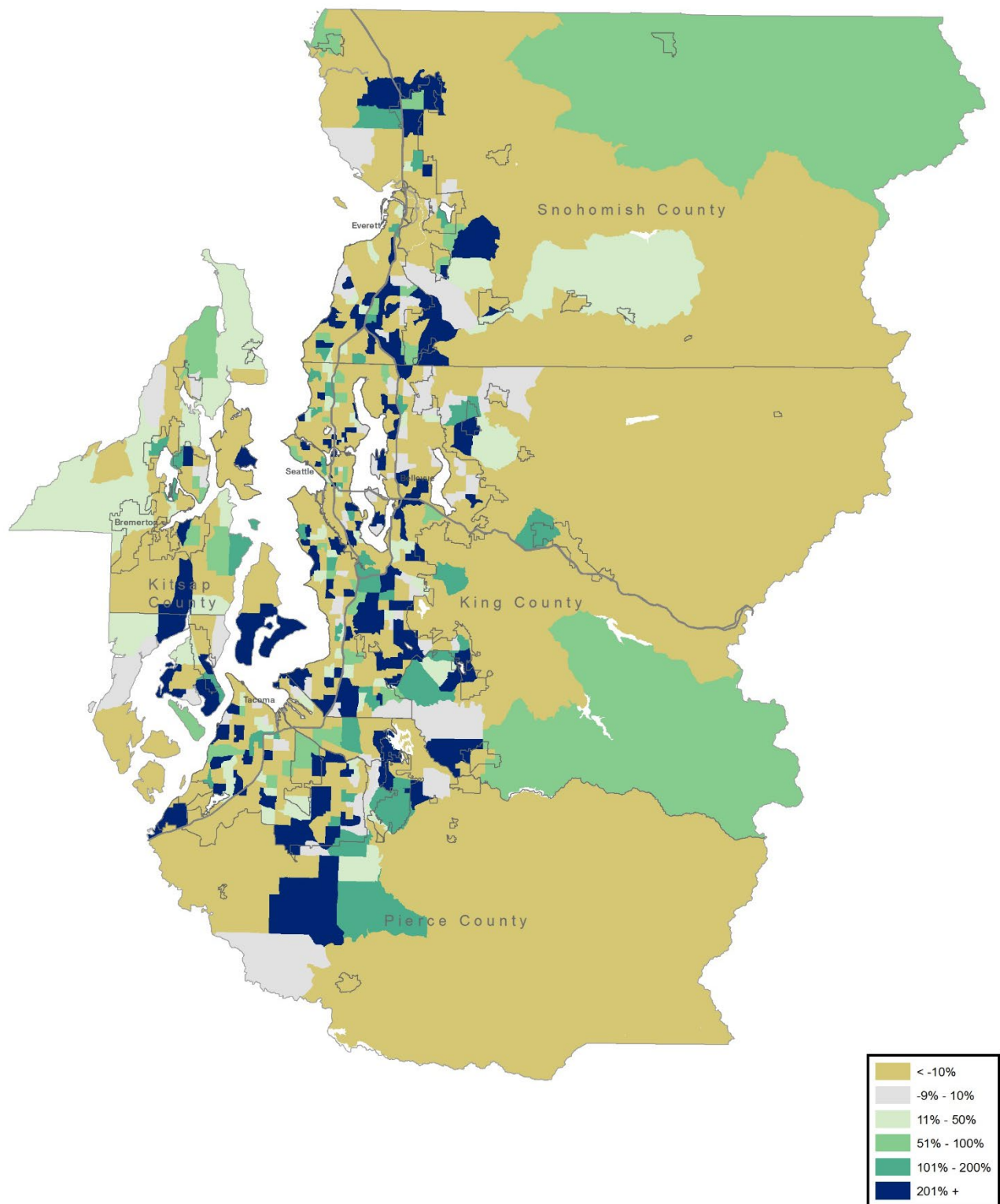
Source: American Community Survey 5-year estimates

Figure 43. American Indian/Alaskan Native, Central Puget Sound: 2016



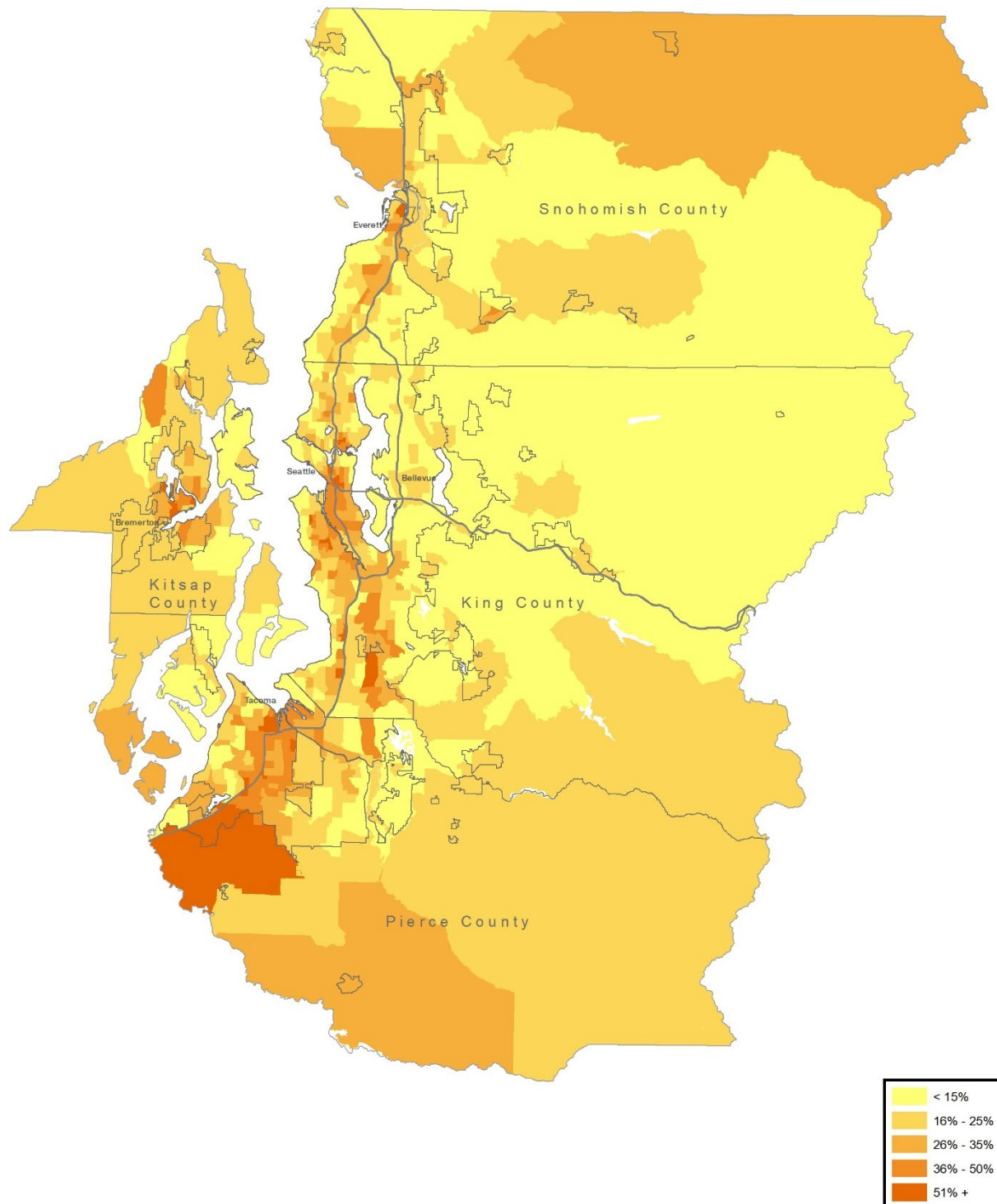
Source: American Community Survey 5-year estimates

Figure 44. Change in American Indian/Alaskan Native, Central Puget Sound: 2000-2016



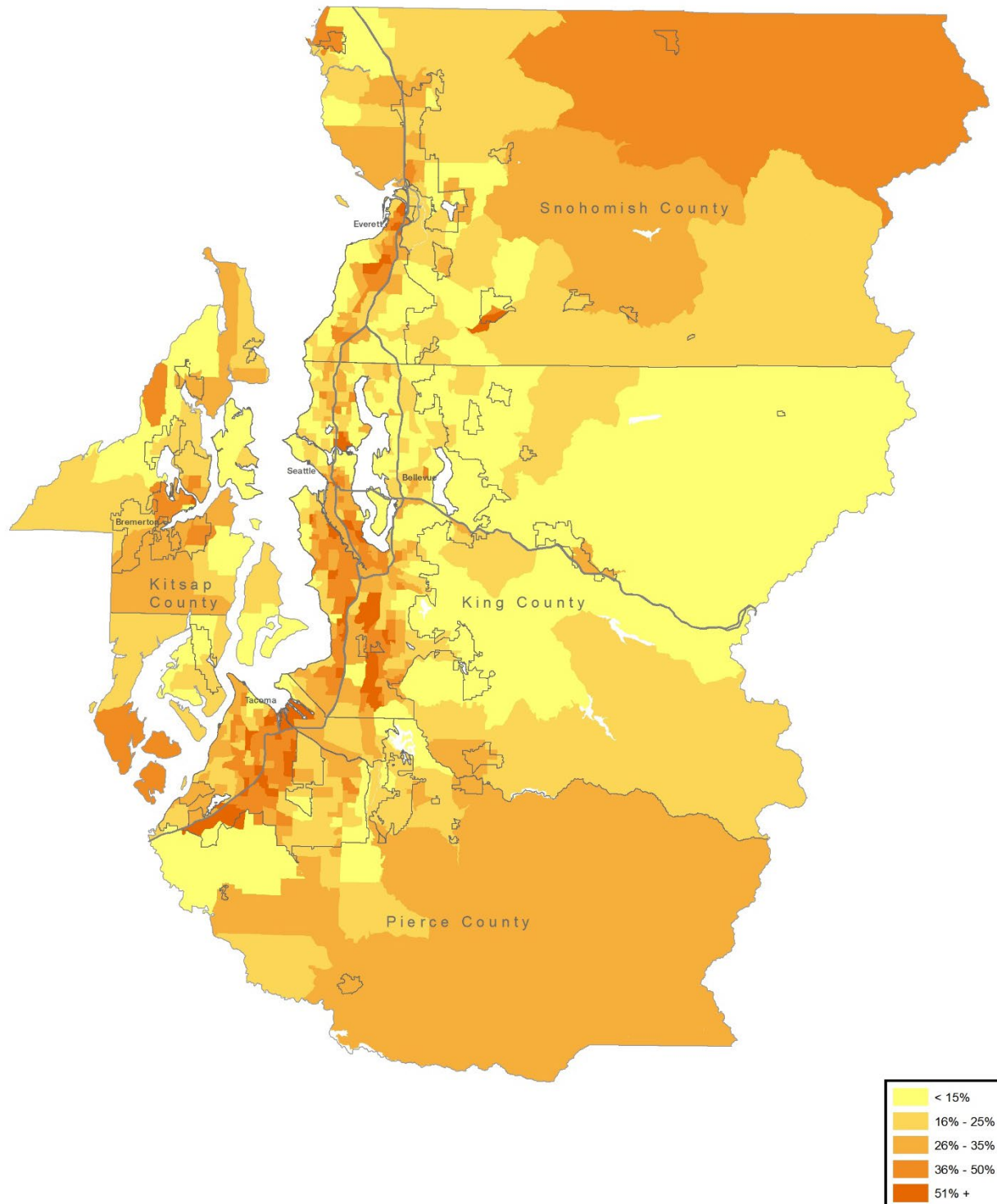
Source: American Community Survey 5-year estimates

Figure 45. People with Low Income, Central Puget Sound: 2000



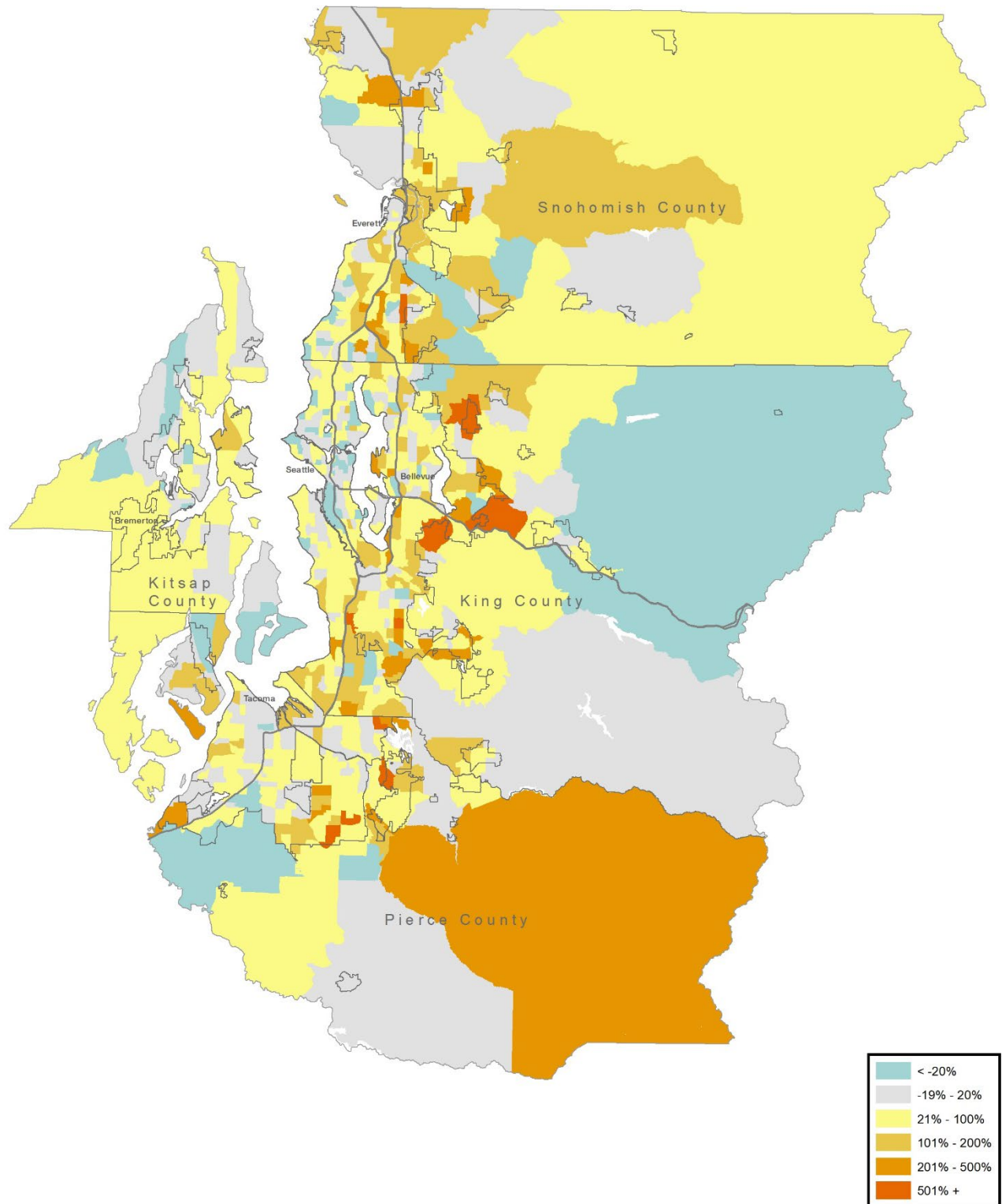
Source: American Community Survey 5-year estimates

Figure 46. People with Low Income, Central Puget Sound: 2016



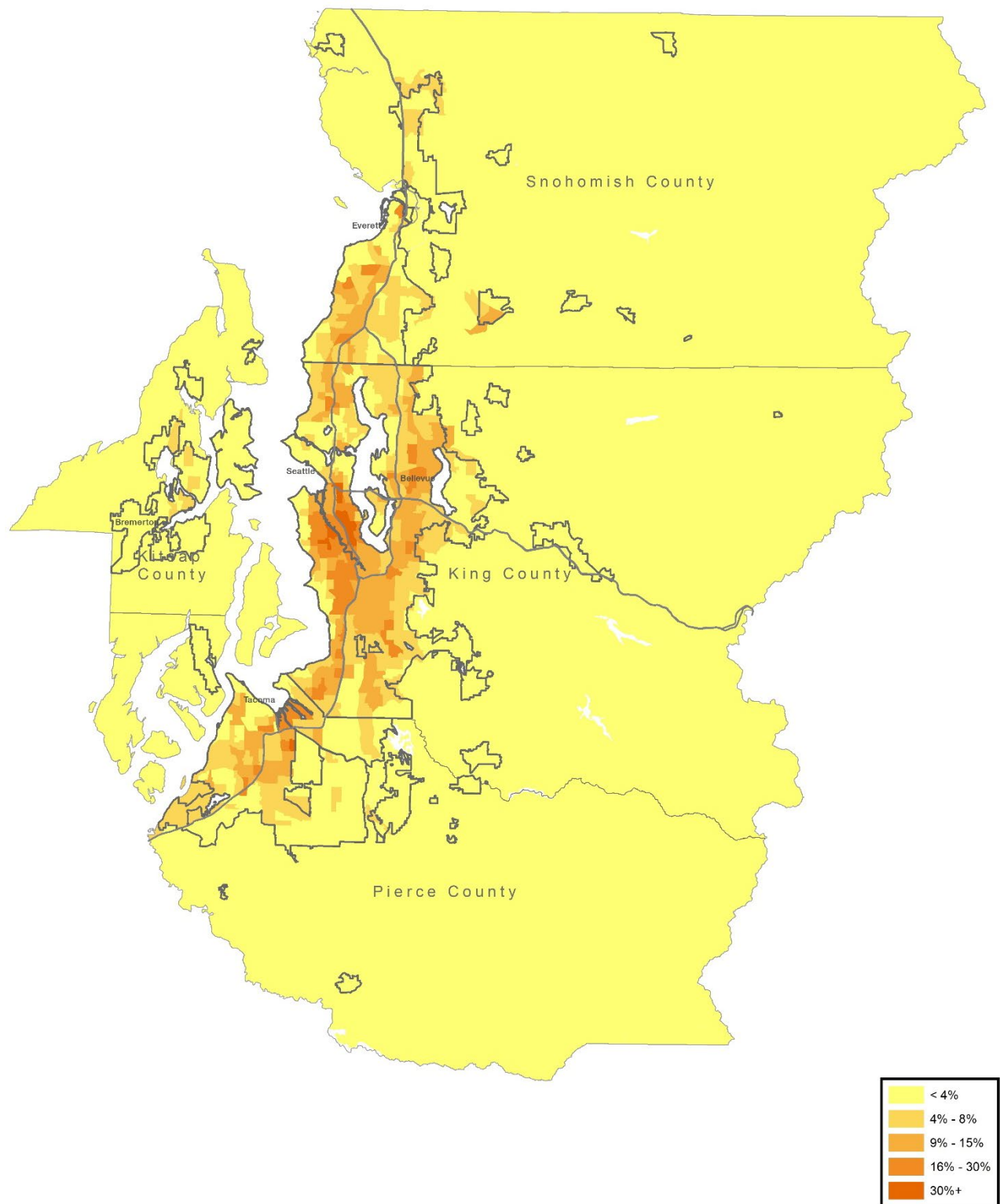
Source: American Community Survey 5-year estimates

Figure 47. Change in People with Low Income, Central Puget Sound: 2000-2016



Source: American Community Survey 5-year estimates

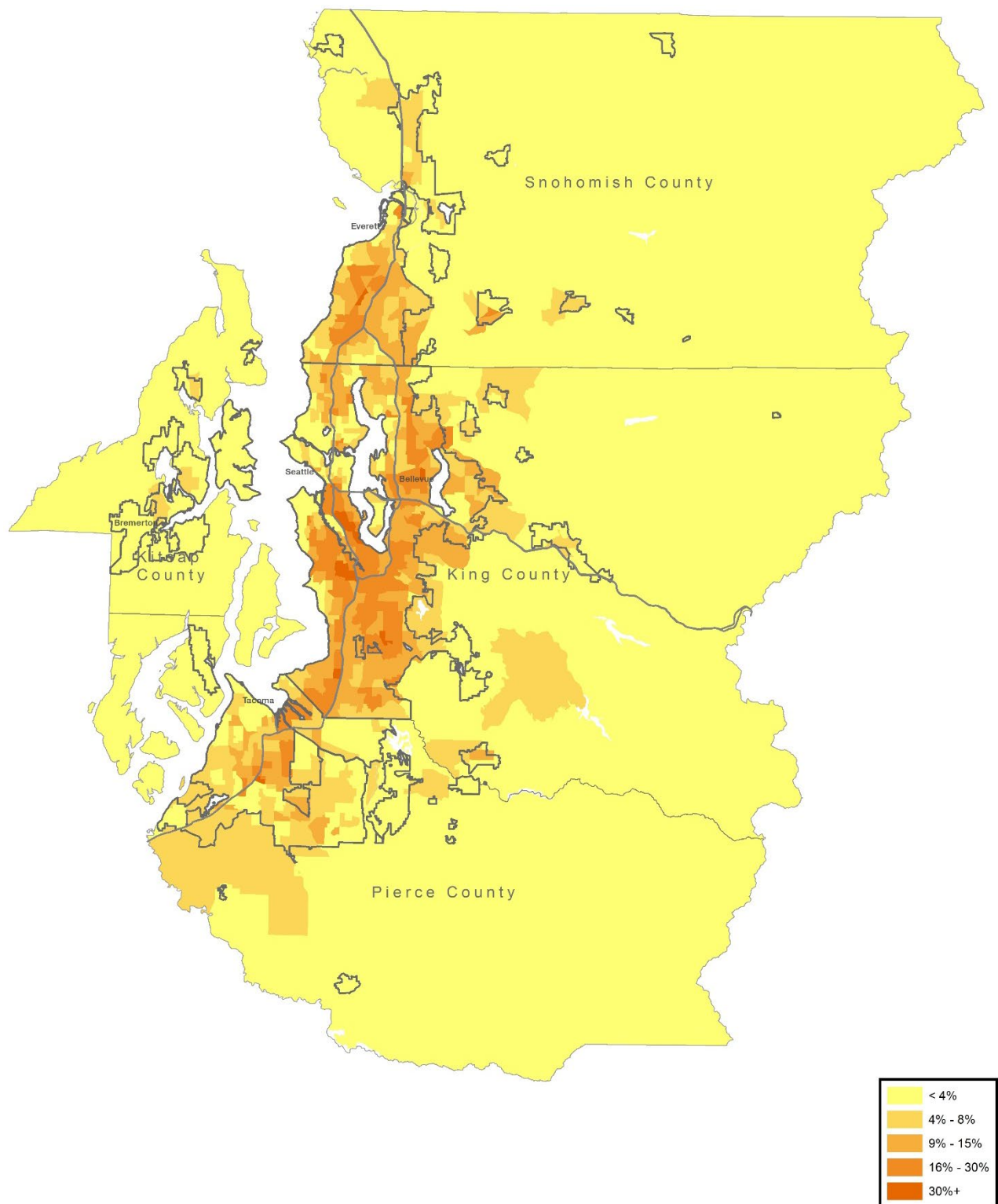
Figure 48. Limited English Proficiency, Central Puget Sound: 2000



Source: American Community Survey 5-year estimates

Note: Due to small population size, estimates for some of the census tracts shown are not as reliable as for other tracts and care should be taken when using this data.

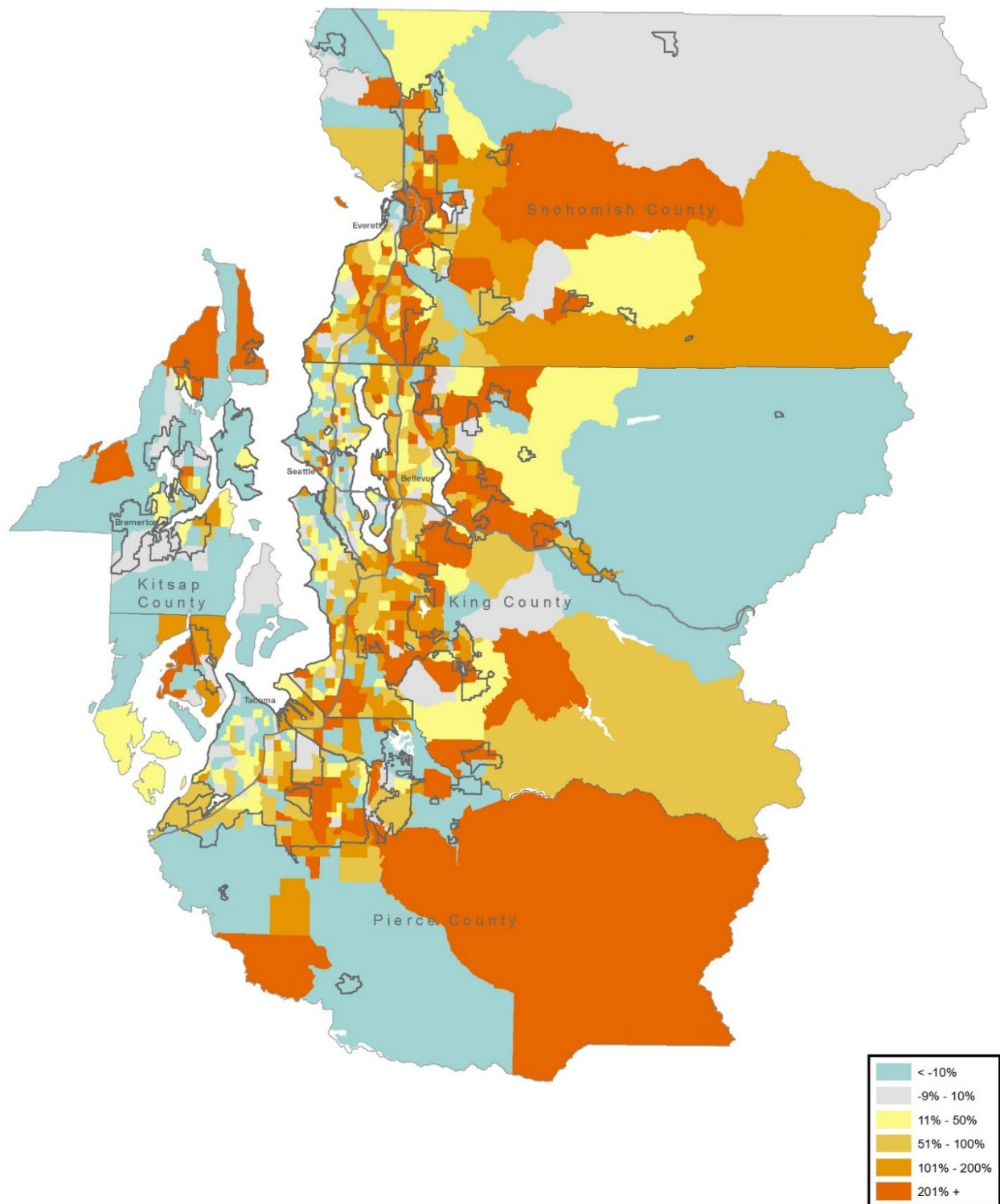
Figure 49. Limited English Proficiency, Central Puget Sound: 2016



Source: American Community Survey 5-year estimates

Note: Due to small population size, estimates for some of the census tracts shown are not as reliable as for other tracts and care should be taken when using this data.

Figure 50. Change in Limited English Proficiency, Central Puget Sound: 2000-2016

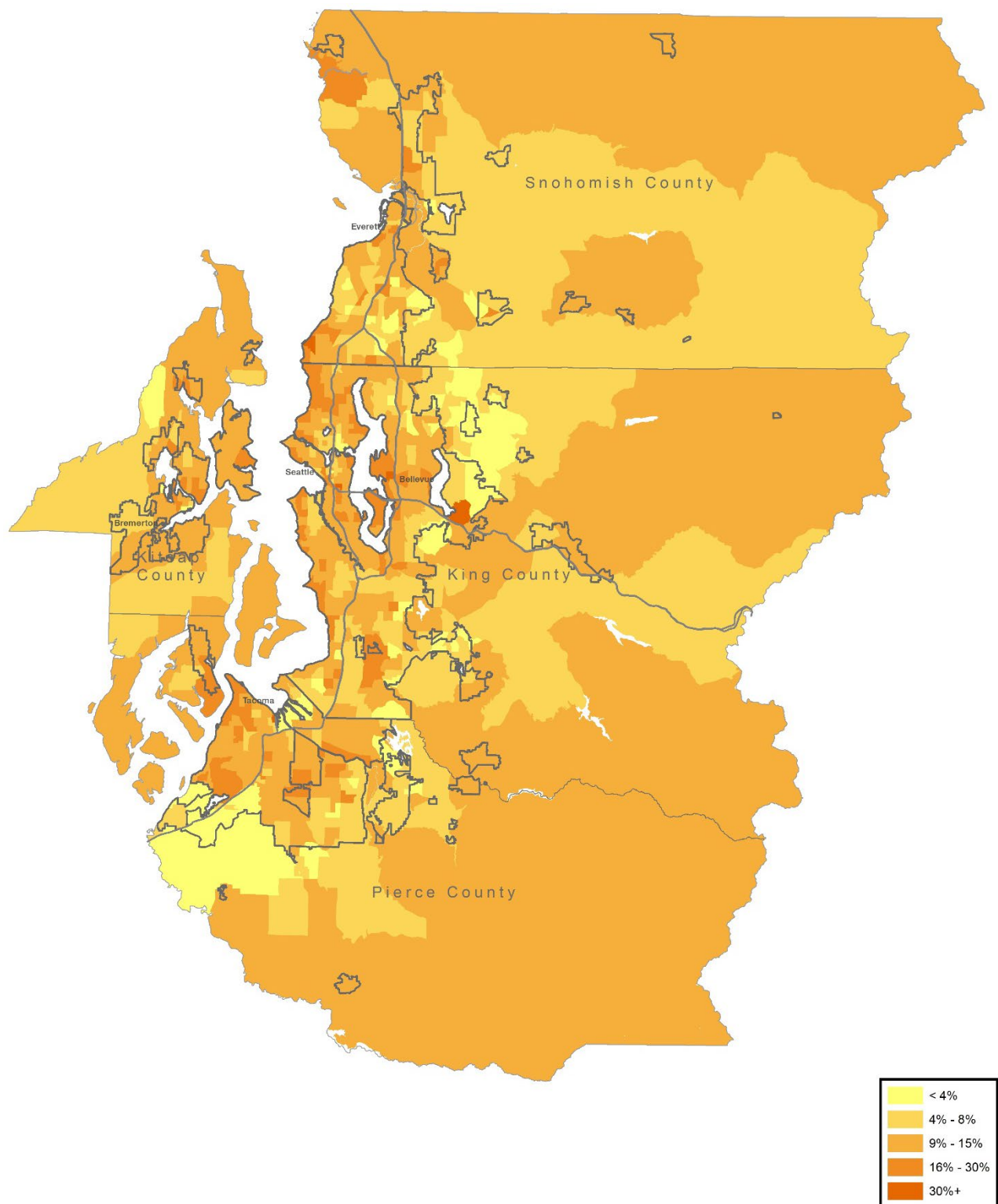


Source: American Community Survey 5-year estimates

Due to small population size, census-tract level estimates for some of the census tracts shown is not reliable.

Note: Due to small population size, estimates for some of the census tracts shown are not as reliable as for other tracts and care should be taken when using this data.

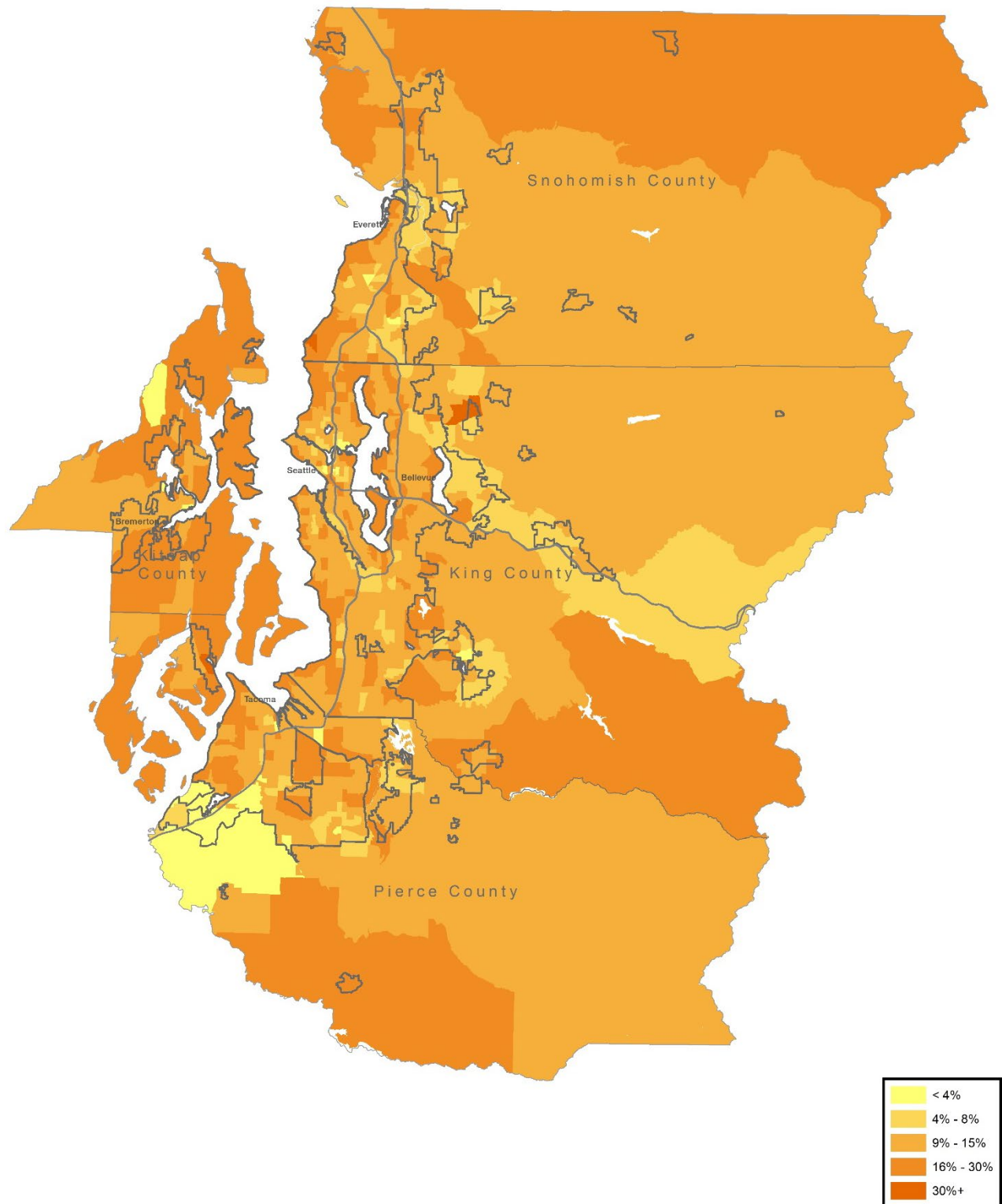
Figure 51. Elderly, Central Puget Sound: 2000



Source: American Community Survey 5-year estimates

Note: Due to small population size, estimates for some of the census tracts shown are not as reliable as for other tracts and care should be taken when using this data.

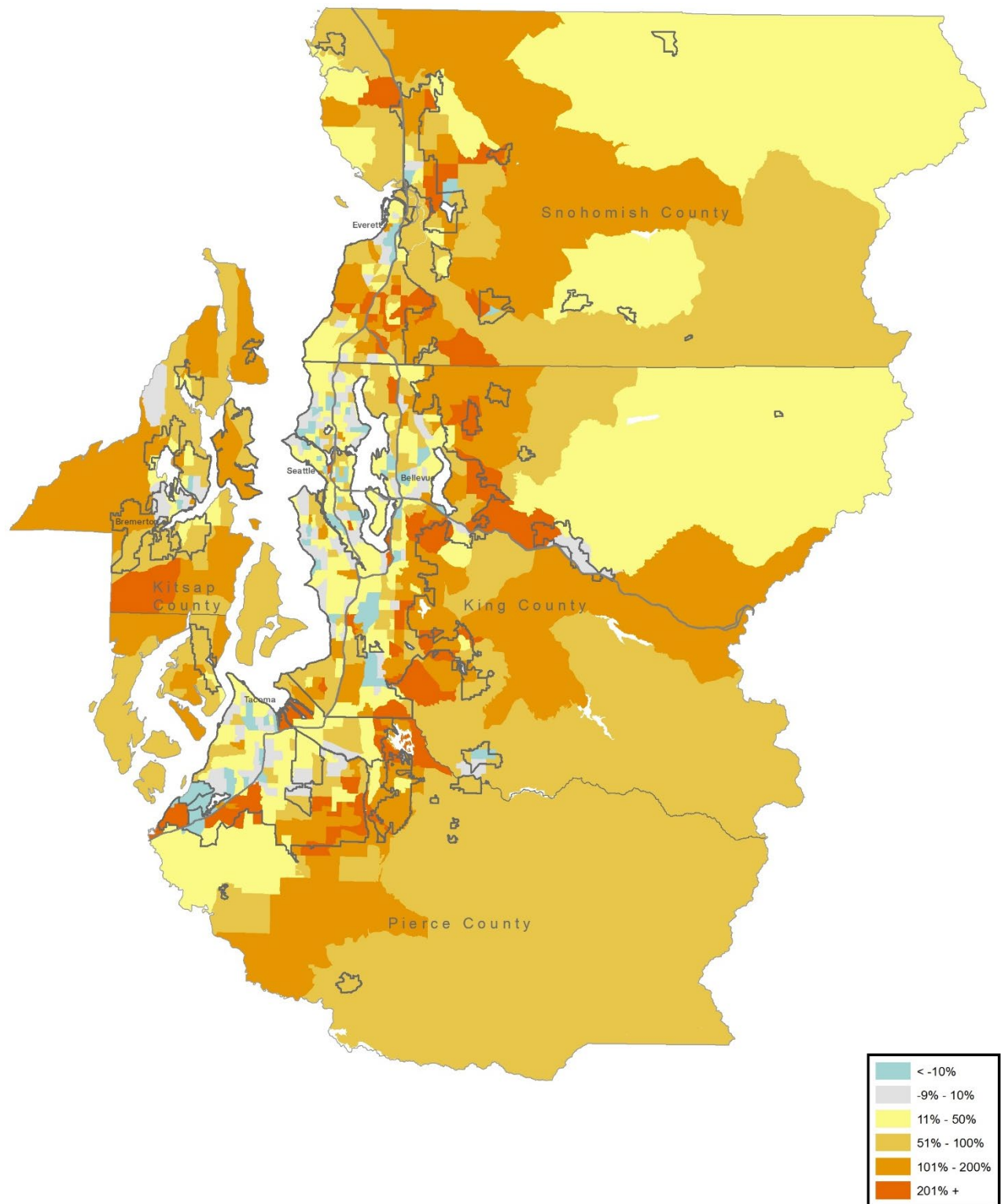
Figure 52. Elderly, Central Puget Sound: 2016



Source: American Community Survey 5-year estimates

Note: Due to small population size, estimates for some of the census tracts shown are not as reliable as for other tracts and care should be taken when using this data.

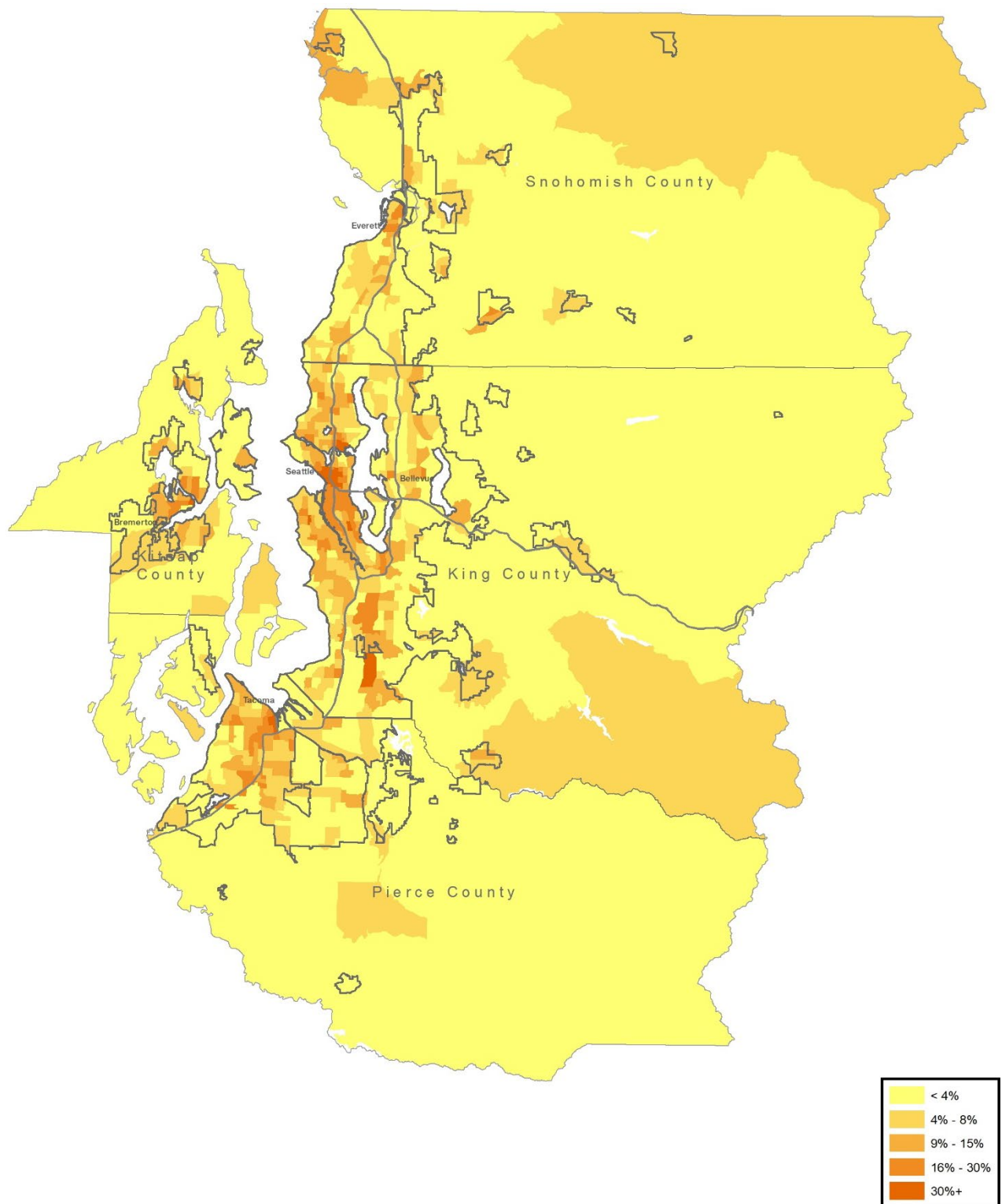
Figure 53. Change in Elderly, Central Puget Sound: 2000-2016



Source: American Community Survey 5-year estimates

Note: Due to small population size, estimates for some of the census tracts shown are not as reliable as for other tracts and care should be taken when using this data.

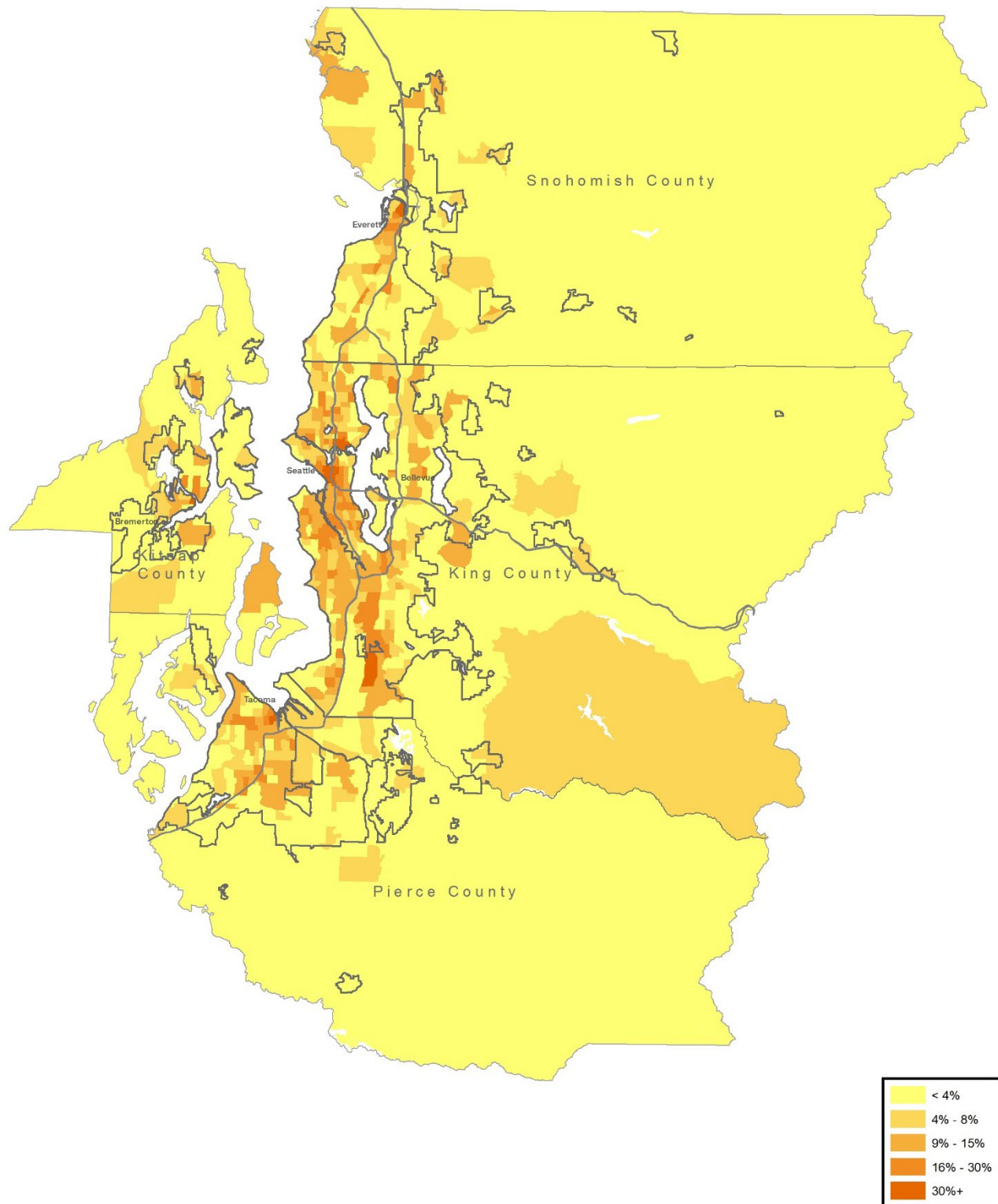
Figure 54. Zero-Vehicle Households, Central Puget Sound: 2000



Source: American Community Survey 5-year estimates

Note: Due to small population size, estimates for some of the census tracts shown are not as reliable as for other tracts and care should be taken when using this data.

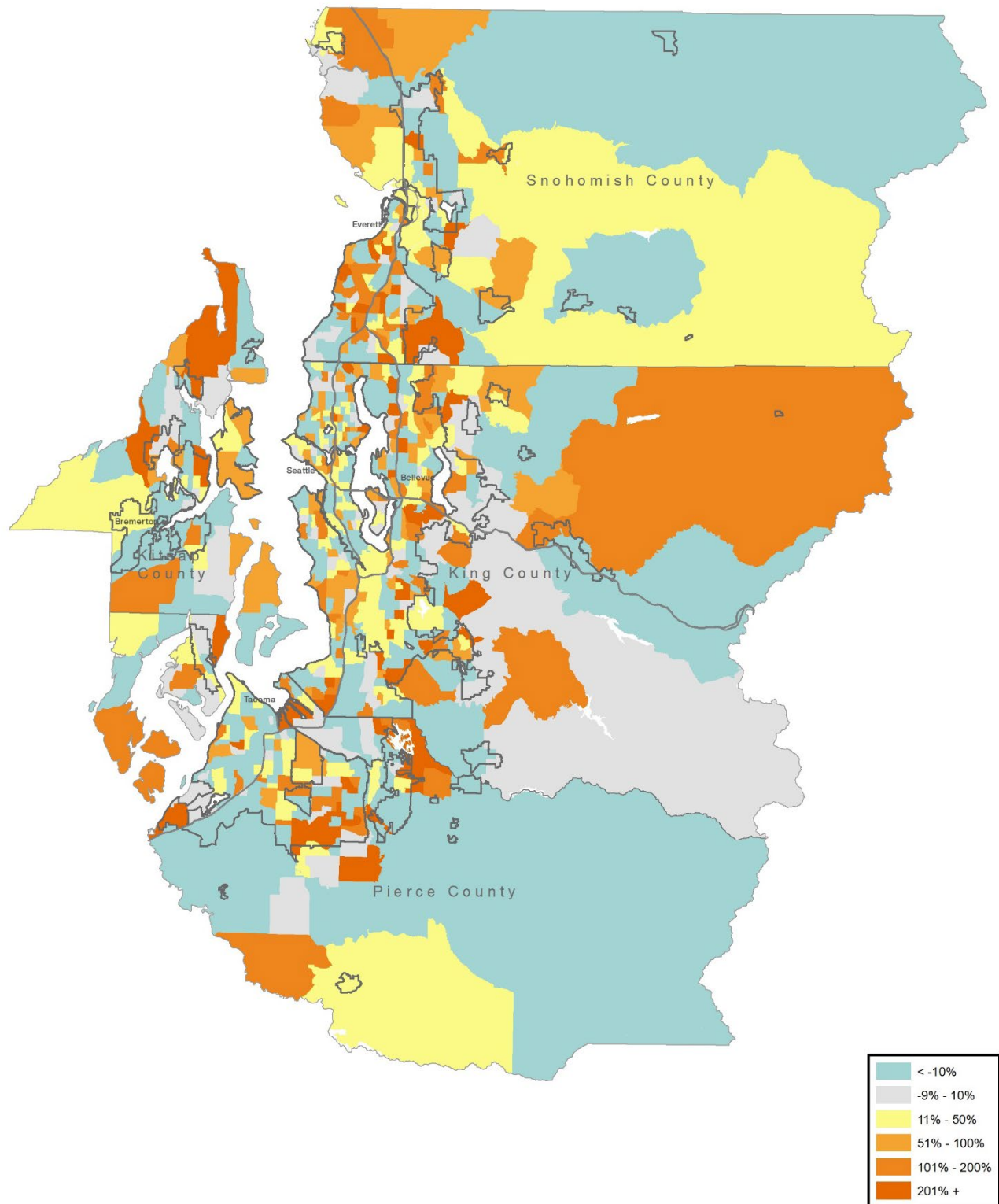
Figure 55. Zero-Vehicle Households, Central Puget Sound: 2016



Source: American Community Survey 5-year estimates

Note: Due to small population size, estimates for some of the census tracts shown are not as reliable as for other tracts and care should be taken when using this data.

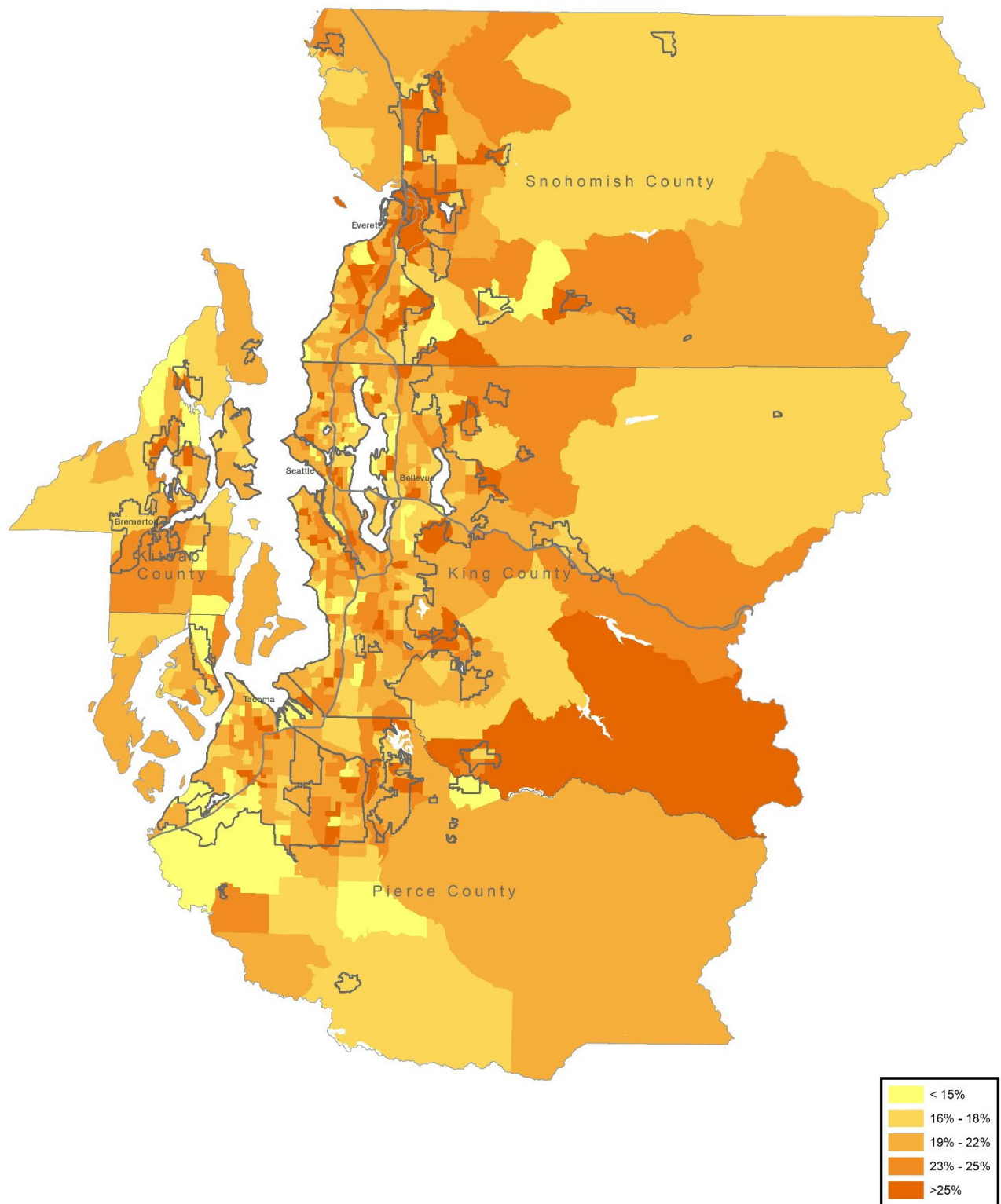
Figure 56. Change in Zero-Vehicle Households, Central Puget Sound: 2000-2016



Source: American Community Survey 5-year estimates

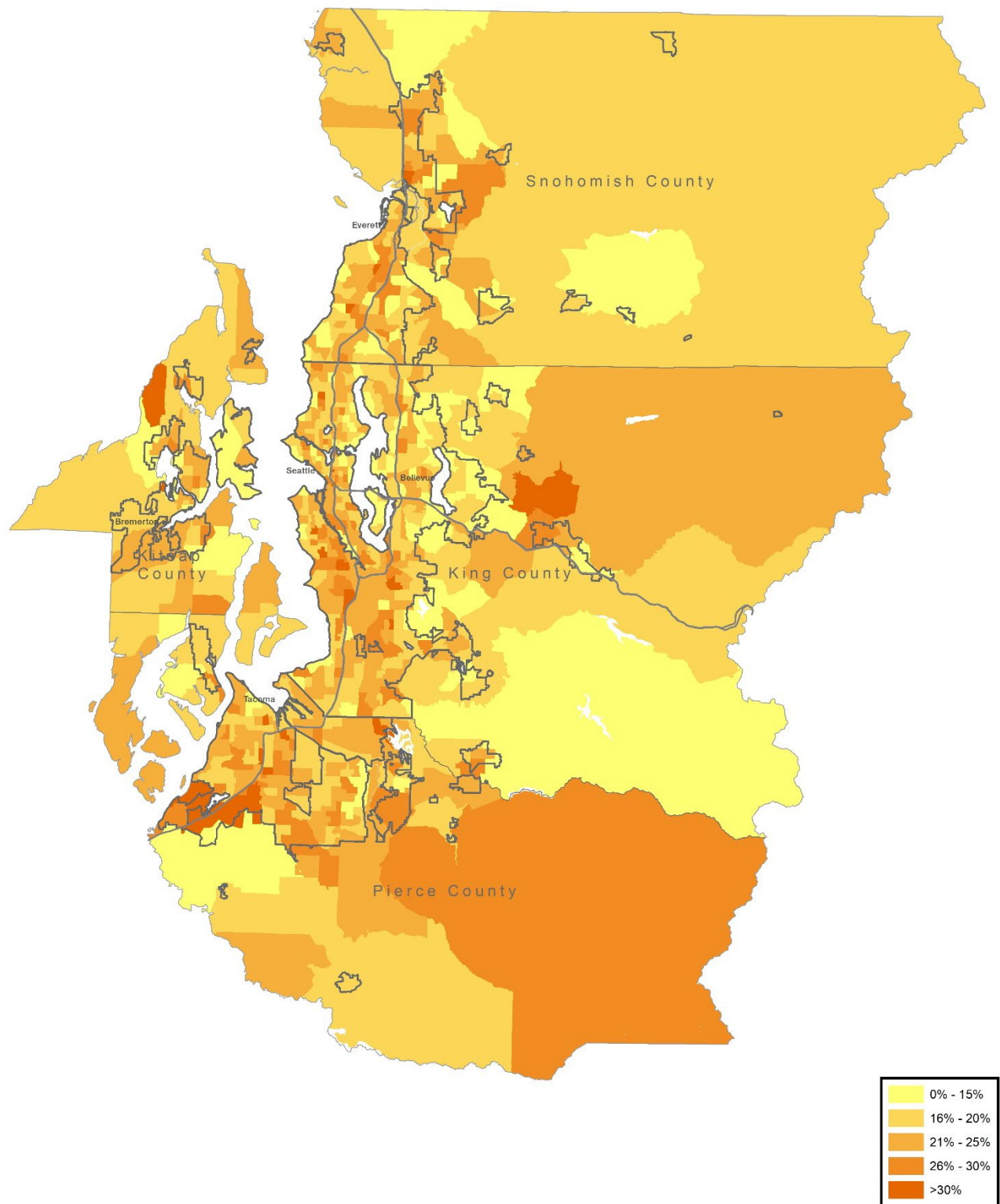
Note: Due to small population size, estimates for some of the census tracts shown are not as reliable as for other tracts and care should be taken when using this data.

Figure 57. Housing Cost Burdened, Central Puget Sound: 2000



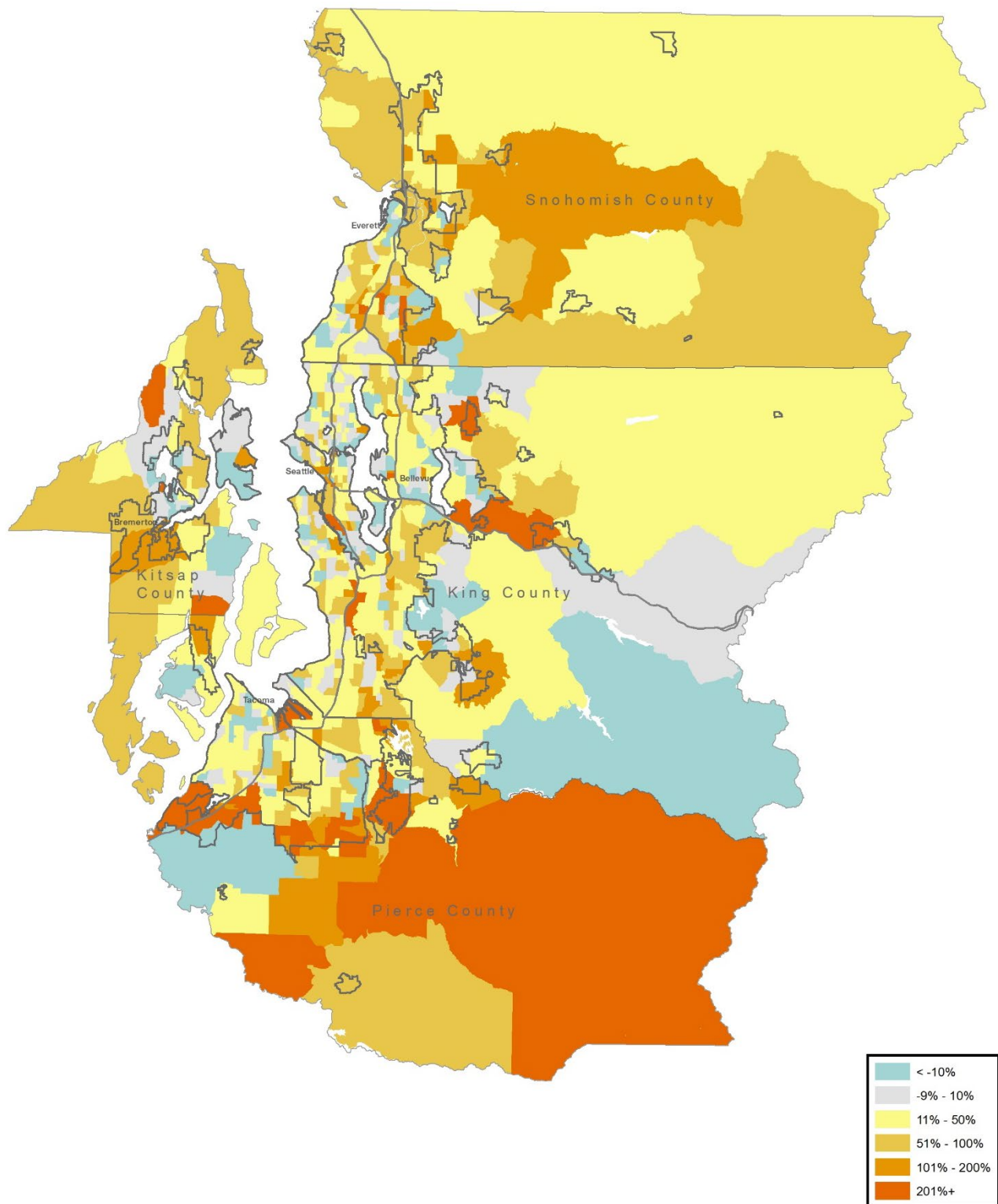
Source: American Community Survey 5-year estimates

Figure 58. Housing Cost Burdened, Central Puget Sound: 2016



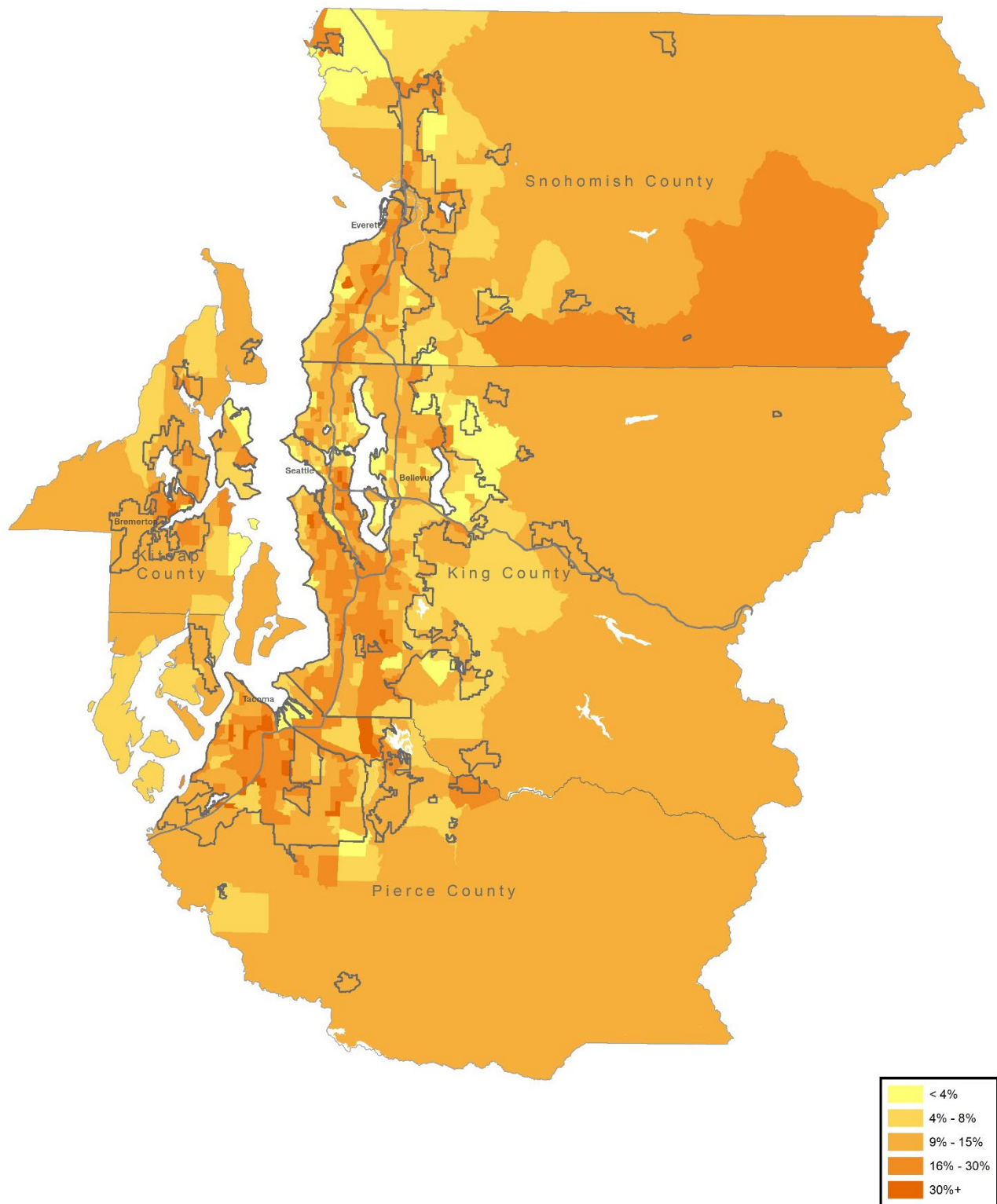
Source: American Community Survey 5-year estimates

Figure 59. Change in Housing Cost Burdened, Central Puget Sound: 2000-2016



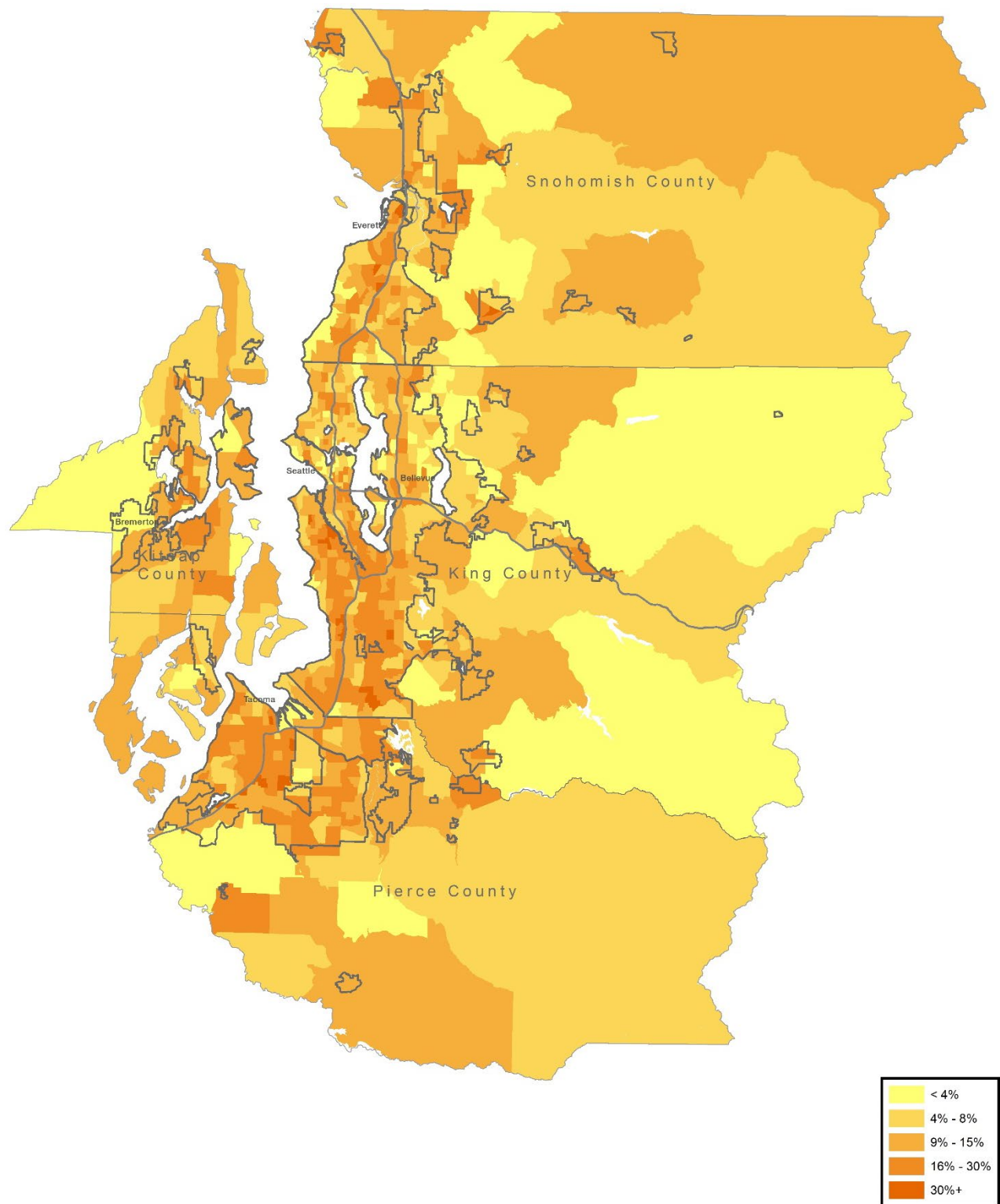
Source: American Community Survey 5-year estimates

Figure 60. Single-Parent Households, Central Puget Sound: 2000



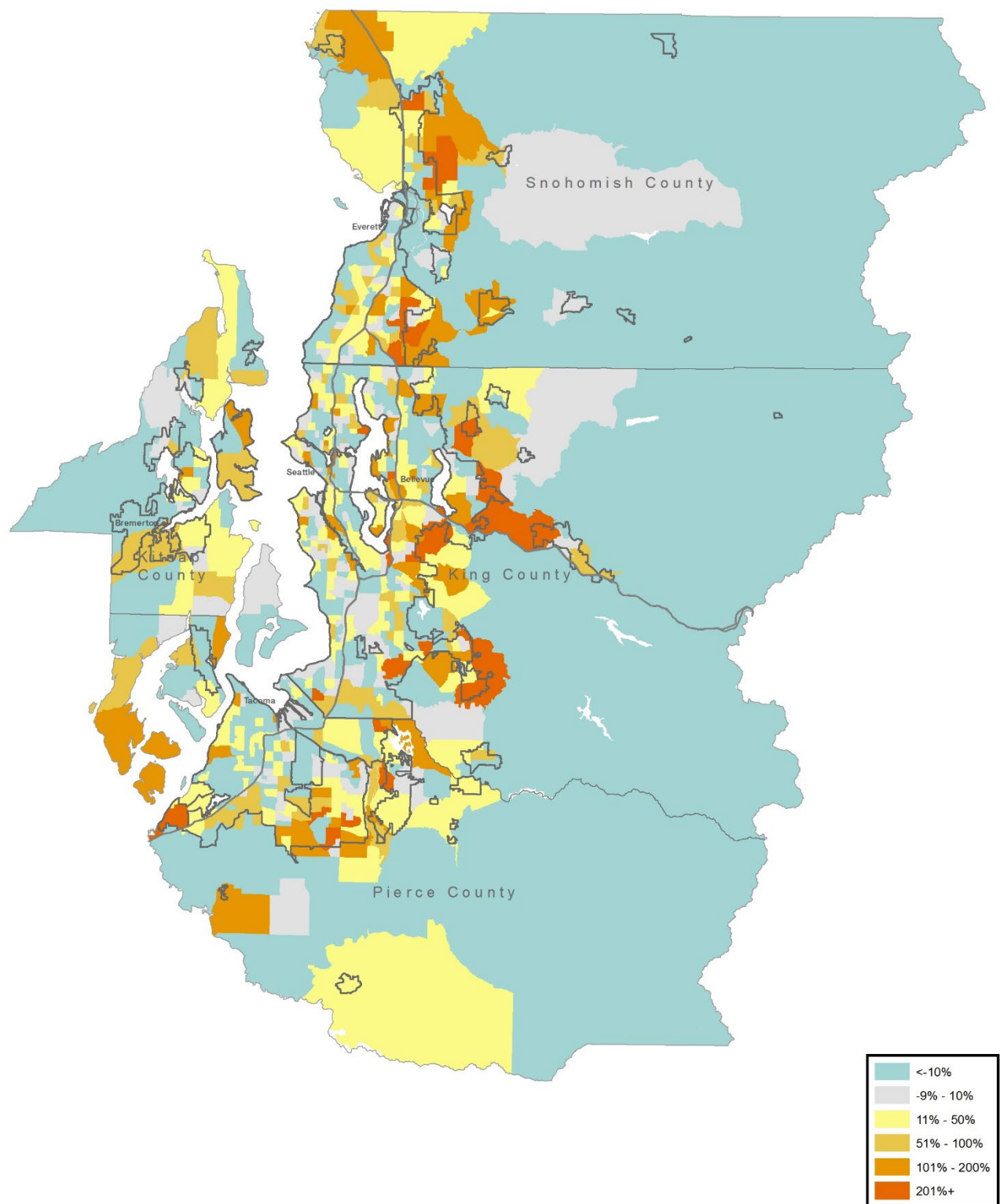
Source: American Community Survey 5-year estimates

Figure 61. Single-Parent Households, Central Puget Sound: 2016



Source: American Community Survey 5-year estimates

Figure 62. Change in Single-Parent Households, Central Puget Sound: 2000-2016



Source: American Community Survey 5-year estimates