



# Displacement Risk Mapping

## Technical Documentation

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<b>Introduction</b> .....	<b>3</b>
<b>Background</b> .....	<b>4</b>
<b>Analytical Approach and Indicators</b> .....	<b>6</b>
Socio-Demographics .....	7
Transportation Qualities .....	9
Neighborhood Characteristics .....	10
Housing .....	11
Civic Engagement.....	12
<b>Regional Displacement Risk Index</b> .....	<b>12</b>

## Introduction

In the last ten years, the central Puget Sound region has seen dramatic changes in demographics and employment. The regional population is trending older overall and areas are experiencing increased racial and ethnic diversity. The regional economy has seen strong employment growth in construction, tourism, information technology, transportation, services, and aerospace, and regional transit infrastructure and transit ridership around the region is expanding. However, increased growth in urban areas can exert pressures on existing neighborhoods and communities in the form of gentrification and displacement. Although housing production has also seen rapid growth, rent and home prices have been increasing dramatically, causing a crisis of housing affordability. In the central Puget Sound region, communities of color, low-income households, small businesses, and renters are recognized as being at higher risk of displacement. Puget Sound Regional Council placed an emphasis on general equity concerns in the VISION 2040 long-range regional growth strategy at the beginning of the aforementioned time period (2008), but did not directly address concerns around displacement. Recognizing that displacement of communities has occurred and is still occurring, PSRC decided to amend planning strategies during the initial stages of the VISION 2050 plan update and developed tools to help guide and strengthen policies and actions addressing displacement and other instances of racial and social inequity that may occur as the region continues to grow.

With technical guidance from local experts and partners, PSRC developed a tool to identify places in the central Puget Sound region where people and businesses may be at risk of displacement. This tool, called Displacement Risk Mapping, combines data of local community characteristics into an index that classifies areas as having lower, moderate, or higher risk of displacement based on current neighborhood conditions. By identifying specific areas with heightened risk of displacement, PSRC uses this tool to help achieve more equitable outcomes in planning by supporting local communities and focusing mitigation programs and strategies toward these areas. However, displacement of communities is a multi-faceted problem, and this analysis does come with caveats. It uses neighborhood conditions that are currently present and necessarily time-lagged due to the collection method of the underlying data, and neither predicts future change in demographics or neighborhood attributes, nor accounts for displacement that has already occurred. Additionally, this tool can only assess a general risk of displacement and cannot accurately predict if displacement will occur, the speed of displacement that occurs, or to what intensity displacement manifests within a community.

PSRC's Displacement Risk Mapping applies an index across the central Puget Sound Region, using measures designed for use at the multi-county geographic scale. It is, therefore, likely that counties and other jurisdictions in the region would benefit from a set of indicators tailored to displacement risk characteristics unique to those areas. As a clearinghouse for the dissemination of regional data, PSRC can provide technical assistance to other jurisdictions that may want to modify Displacement Risk Mapping for their specific geographies and use cases, especially with any community-identified indicators not present in the PSRC index. By utilizing this tool in conjunction with other analyses and models, PSRC continues to improve its ability to proactively respond to increasing pressures from growth that challenge communities across the region, ensuring that benefits from that growth are more equitably realized in the coming years.

## **Background**

PSRC began the planning process for the VISION 2050 long-range regional growth strategy update in late 2017. Over the next three decades, population and employment are expected to continue to grow significantly across the central Puget Sound region. Job growth in recent years has been strong, but unevenly distributed across the region and by industry. Additionally, the surge in population growth has led to a demand for housing that has outpaced the increase in supply, while the population with incomes below 200% of the Federal Poverty Level has increased. PSRC has heard from its boards and committees, member jurisdictions, and community partners that displacement is an important issue that has occurred and continues to occur. PSRC identified a need to better understand the issue of displacement across the four-county region and developed a Displacement Risk Mapping analysis that would provide a geographically comprehensive assessment of displacement risks for all communities in the central Puget Sound region. Displacement Risk Mapping would work alongside other analyses to provide PSRC with additional insight to help develop plans and policies that will accommodate the expected growth while minimizing displacement of existing communities in the region.

In order to assess regional displacement pressures that may result from future growth patterns, PSRC decided to analyze local area characteristics of current neighborhood conditions. Displacement occurs when changing housing or neighborhood conditions

force residents to move. The forces of displacement can be physical, where building conditions deteriorate or where redevelopment occurs; economic, where housing-related costs rise; or cultural, where communities experience dispersion of culturally related businesses, neighbors, or services. Over the course of 2018, PSRC reviewed the applications of similar tools from other major U.S. cities and sought technical consultation and guidance from King County's Office of Equity and Social Justice, the City of Seattle's Office of Planning and Community Development, the City of Tacoma's Office of Equity and Human Rights, the Tacoma-Pierce County Health Department, experts at the University of Washington, and PSRC Community Partners. In particular, the City of Seattle provided an important reference and resources via a citywide displacement risk analysis as part of its *Seattle 2035: Growth and Equity* plan. Using Seattle's model, PSRC identified indicators relevant to the regional scale of the index and began collecting data that could be aggregated across the four counties.

After developing a complete index, PSRC applied Displacement Risk Mapping as a performance measure during the development of Regional Growth Strategy alternatives for the Draft Supplemental Environmental Impact Statement (DSEIS) accompanying the VISION 2050 plan update. These alternatives present different strategies for guiding expected growth in population and employment to the region's largest cities, urban centers, and other geographic areas over the next three decades. Displacement Risk Mapping allowed PSRC to identify areas in the region that currently have a higher risk of displacement and consider additional pressures that could come with more households and jobs. This would help determine where to focus policies, actions, and investments in the VISION 2050 plan that support expected regional growth while mitigating displacement.

## Analytical Approach and Indicators

PSRC developed indicators of displacement risk based on data primarily from economic and local demographic pressures in current neighborhood conditions. Indicators were mapped regionally by using U.S. Census tracts, which allowed for a consistent application of the index across the region. The index is built from 15 total indicators across the five categories of socio-demographics, transportation qualities, neighborhood characteristics, housing, and civic engagement. Of the 15 indicators, eight derive their data from the U.S. Census Bureau's American Community Survey (ACS) 5-year estimates; the other seven use data from internal PSRC analyses and models or from external data sources. The 15 indicator scores are standardized and equally weighted to create the overall composite index, which is mapped using the following three categories:

- Higher risk: Census tracts with scores in the top 10% of the score range
- Moderate risk: Census tracts with scores in the next 40% of the score range
- Lower risk: Census tracts with scores in the bottom 50% of the score range

It must be emphasized that displacement risk shown in the index is relative to the central Puget Sound region as a whole, and that the index does not identify the potential risk of displacement at a geographic scale finer than U.S. Census tract. Further explanations of the indicators are given below.

## Socio-Demographics

Indicator	2018 Regional Application		
	Description	Source	Dates
<b>1. People of Color</b>	Percent of population that is a race other than non-Hispanic White	<i>5-yr Estimates American Community Survey (ACS)</i> , US Census Bureau	2012-2016
<b>2. Linguistic Isolation</b>	Percent of population ≥5 who do not speak English very well	<i>5-yr Estimates American Community Survey (ACS)</i> , US Census Bureau	2012-2016
<b>3. Educational Attainment</b>	Percent of population ≥25 who lack a Bachelor’s degree	<i>5-yr Estimates American Community Survey (ACS)</i> , US Census Bureau	2012-2016
<b>4. Housing Tenancy</b>	Percent of households that are renters	<i>5-yr Estimates American Community Survey (ACS)</i> , US Census Bureau	2012-2016
<b>5. Housing Cost-Burdened Households</b> <b>Severely Housing Cost-Burdened Households</b>	Percent of households with income <80% of area median income (AMI) paying >30% of income on housing Percent of households with income <80% of area median income (AMI) paying >50% of income on housing	<i>Consolidated Housing Affordability Strategy (CHAS)</i> , U.S. Department of Housing & Urban Dev. (HUD)	2011-2015
<b>6. Household Income</b>	Percent of population whose income is below 200% of poverty level	<i>5-yr Estimates American Community Survey (ACS)</i> , US Census Bureau	2012-2016

Indicator 1 is an estimate of the percent of non-Hispanic White residents in relation to the total population within each Census tract. Indicator 2 is an estimate of the percent of the population per tract age five years and older that speak a language other than English and speak English “less than very well” (per ACS). Indicator 3 is an estimate of the percent of the population per tract age 25 and older that do not hold a bachelor’s degree or higher. Indicator 4 is an estimate of the percent of total households in a tract that are renters. Indicator 5 is an estimate of the percent of the population in a tract with an income less than 80% of the area median income (AMI) and either pay greater than 30% of their monthly income on housing costs, considered to be “cost-burdened,” or pay greater than 50% of their monthly income on housing costs, considered to be “severely cost-burdened.” Indicator 6 is an estimate of the percent of the population in a tract that have a yearly income below 200% of the federal poverty level.

Data used for indicators 1, 2, 3, 4, and 6 came from the U.S. Census Bureau’s American Community Survey’s 2012-2016 5-year Estimates. These data represent



samples of the total national population, and therefore show estimated numbers with individual margins of error. The 2012-2016 vintage was the most recently available ACS 5-year dataset available. Data used for indicator 5 came from the U.S. Department of Housing and Urban Development's Consolidated Housing Affordability Strategy, which itself is based on ACS 5-year estimates covering 2011-2015. These data were released in June 2018 and were the most recently available data at the time the displacement risk index was created.

## Transportation Qualities

Indicator	2018 Regional Application		
	Description	Source	Dates
7. Access to Jobs	Access to Jobs by Auto: Number of jobs within 30min travel time by auto	PSRC	2017*
	Access to Jobs by Transit: Number of jobs within 45min travel time by transit		
8. Proximity to Transit	Percent of population or housing units within ¼-mile to frequent or high capacity transit	PSRC	2017*
9. Proximity to Current or Future Link Light Rail & Streetcar	Percent of area within ½-mile of current or future high-capacity transit stops/stations (using 2025 transit network)	PSRC	2017*

\*Note: These are composite measures produced with multiple data elements assembled in 2017 as part of the PSRC Regional Transportation Plan update process.

Indicator 7 is an estimate of the accessibility to job opportunities from a Census tract via two measures: the number of jobs within a 30-minute weekday peak travel time by automobile; and the number of jobs within a 45-minute weekday peak travel time by transit, including time spent on transfers and access from/to the origin/destination point. Indicator 8 is an estimate of the percent of the total population or housing units in a tract within one-quarter mile to frequent or high-capacity transit stops (e.g., Link Light Rail, Sounder Commuter Rail, Washington State ferries, bus rapid transit). Indicator 9 is an estimate of the percent of the total area inside a Census tract within one-half mile of current or near-future high-capacity transit stops.

These three indicators use modeling results generated in 2018 by SoundCast, PSRC’s activity-based regional travel model. The population, households, and jobs data for indicators 7 and 8 are from PSRC’s Land Use Vision dataset. The locations of transit stops used in indicator 8 came from the 2014 regional high-capacity transit network. The data for indicator 9 were developed using PSRC’s 2025 transit network model.

## Neighborhood Characteristics

Indicator	2018 Regional Application		
	Description	Source	Dates
<b>10. Proximity to Core Business</b>	Weighted average distance (by households) to nearest supermarket/grocery, pharmacy, & restaurant/café/ diner	Google, PSRC	2018
<b>11. Proximity to Civic Infrastructure</b>	Weighted average distance (by households) to nearest public or private school, park	Google, PSRC	2018
<b>12. Proximity to high-income neighborhood</b>	Census tracts that (a) have a median household income <80% of AMI & (b) abut a tract where median household income is >120% of AMI	<i>5-yr Estimates American Community Survey (ACS)</i> , US Census Bureau	2012-2016

Indicator 10 is a three-part set of distances to the nearest supermarket/grocery store, pharmacy, and restaurant/cafe/diner from the centroid of a traffic analysis zone (TAZ). The weighted average of these distances was then calculated for multiple tracts to aggregate up to the Census tract level. Similarly, indicator 11 is a two-part set of distances to the nearest public or private school, and park from the centroid of a TAZ, then aggregated with other TAZs by weighted average to a Census tract. Indicator 12 identifies whether a Census tract has a median household income less than 80% of the county median income and is adjacent to a tract with a median household income greater than 120% of the county median income.

Metrics for indicator 10 were calculated in 2018 using Google's Maps API service. Metrics for indicator 11 were calculated in 2018 using park and school data collected by PSRC for other purposes. The weights for both of these indicators were calculated based on PSRC household and population estimates derived from Washington State Office of Financial Management data. Indicator 12 uses household income data from 2012-2016 ACS 5-year estimates.

## Housing

Indicator	2018 Regional Application		
	Description	Source	Dates
<b>13. Development Capacity</b>	Residential development potential based on difference between existing & zoned capacity	PSRC	2017*
<b>14. Median Rent</b>	Ratio of median gross rent by bedrooms to each county's median	<i>5-yr Estimates American Community Survey (ACS),</i> US Census Bureau	2012-2016

\*Note: This is a composite measure produced with multiple data elements assembled in 2017 as part of the PSRC Regional Transportation Plan update process.

Indicator 13 is an estimate of the percent difference between existing and potential residential housing units in a Census tract, based on current zoned capacity. Indicator 14 is a six-part set of ratios of Census tract median gross residential rent to county median gross residential rent, by number of bedrooms per housing unit.

Data for indicator 13 were derived from PSRC's 2014 Land Use Vision dataset. Data for indicator 14 were derived from the U.S. Census Bureau's 2012-2016 ACS 5-year estimates. In each of the four counties, the median rent ratio for each Census tract was calculated using the county median rent. These rent ratios were also stratified by number of bedrooms per unit, using ACS categories of no bedrooms to five or more bedrooms.

## Civic Engagement

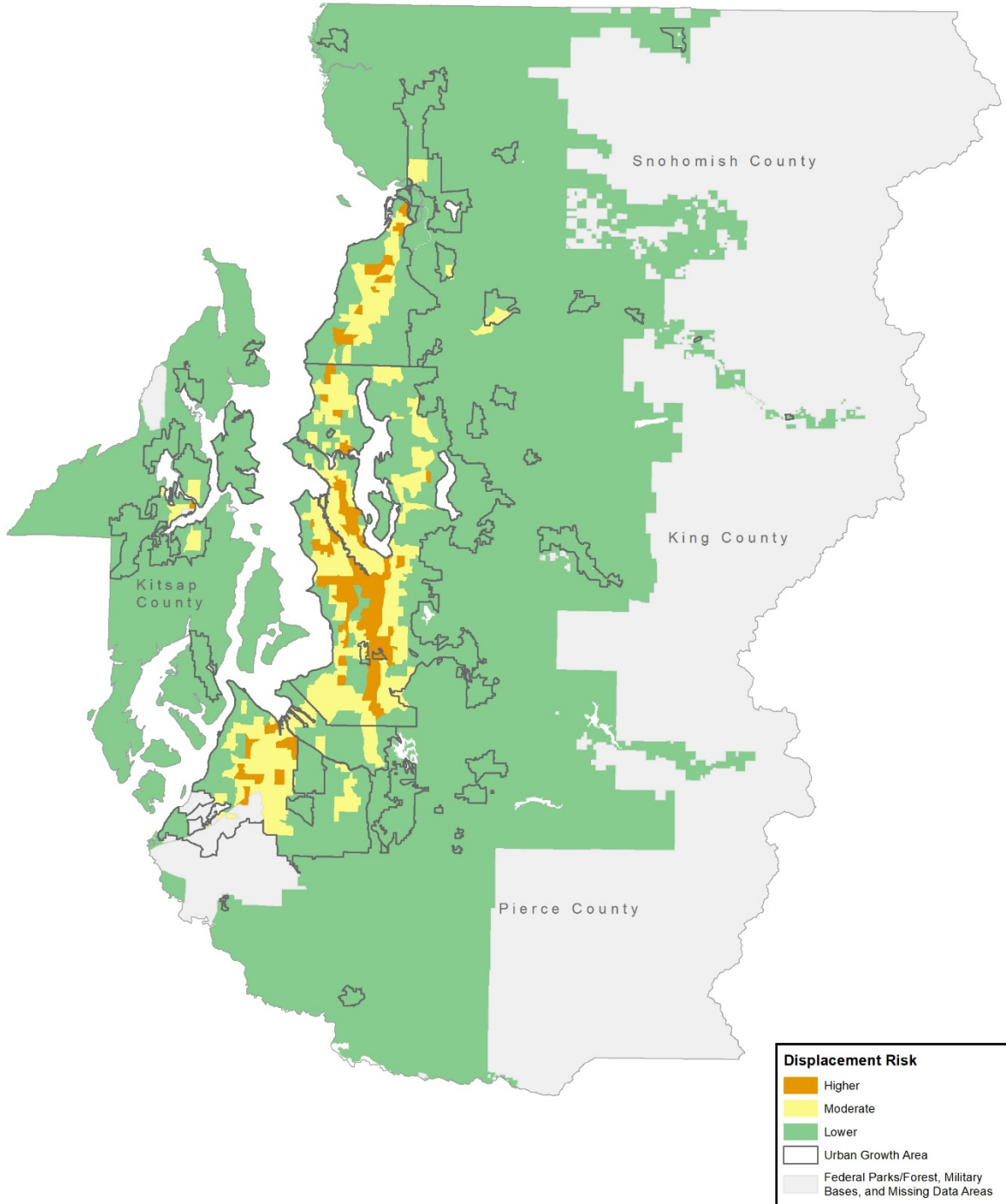
Indicator	2018 Regional Application		
	Description	Source	Dates
<b>15. Voter Turnout</b>	Percent of population age 18+ who voted in 2016 presidential election	<i>5-yr Estimates American Community Survey (ACS)</i> , US Census Bureau; County elections data	2012-2016; 2016

Indicator 15, the sole indicator comprising the Civic Engagement category, is the percent of the population U.S. citizens of voting age (18 or older) in a Census tract who voted in the 2016 national presidential election. The voting age population was derived from the U.S. Census 2012-2016 ACS 5-year Estimates and PSRC gathered voting precinct counts from each county in the central Puget Sound region for the 2016 presidential election.

## Regional Displacement Risk Index

A map of the regional displacement risk index is found on the following page. Areas in red represent the top 10 percent of Census tracts at higher risk of displacement within the region, while areas in yellow represent the middle 40 percent of tracts at a moderate risk of displacement. Concentrations of higher displacement risk can be seen in Southeast Seattle, South King County, South and East Tacoma, and along the Interstate 5 corridor in Snohomish County. Overall, areas at higher risk of displacement represent 10 percent of the regional population in 2017.

# Displacement Risk Index



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