

Community Summary Report

Improving Air Quality in Overburdened Communities Initiative

Air Quality Program

Washington State Department of Ecology Olympia, Washington

March 2023, Publication 23-02-017

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Department of Ecology's Regional Offices

Map of Counties Served



Southwest Region 360-407-6300

Northwest Region 206-594-0000

Central Region 509-575-2490 Eastern Region 509-329-3400

Region	Counties served	Mailing Address	Phone
Southwest	Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, Wahkiakum	P.O. Box 47775 Olympia, WA 98504	360-407-6300
Northwest	Island, King, Kitsap, San Juan, Skagit, Snohomish, Whatcom	P.O. Box 330316 Shoreline, WA 98133	206-594-0000
Central	Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima	1250 West Alder Street Union Gap, WA 98903	509-575-2490
Eastern	Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman	4601 North Monroe Spokane, WA 99205	509-329-3400
Headquarters	Statewide	P.O. Box 46700 Olympia, WA 98504	360-407-6000

Washington Local Clean Air Agencies

Ecology works in partnership with EPA, local clean air agencies, and Tribes in Washington to make sure we all have clean, healthy air to breathe.² Local clean air agencies manage most of the air quality regulation in Washington, within their respective jurisdictions. Tribal governments protect air quality within their Tribal reservations, with technical assistance from EPA. Ecology is the primary air regulator in all other areas.

Ecology: Ferry Okanogan Regional Office Northwest Ecology: Clean Air Agend Regional Office Olympic Region Clean Air Agency uget Sound Agency Ecology: Agency egional Offic Grays Harbor Yakima Regional Clean Air Agency Southwest Clean Air Agency Bentor Ecology: Grey areas = Tribal lands EPA provides technical assistance to tribes. Clark

Map of Counties Served

- Benton Clean Air Agency Benton County
- Ecology Central Regional Office Chelan, Douglas, Kittitas, Klickitat, Okanogan counties
- Ecology Eastern Regional Office Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Stevens, Walla Walla, Whitman counties
- **Ecology Industrial Section** Pulp mills, aluminum smelters
- **Ecology Northwest Regional Office** San Juan County
- **EPA Region 10** Tribal lands
- Northwest Clean Air Agency Island, Skagit, Whatcom counties
- Olympic Region Clean Air Agency Clallam, Grays Harbor, Jefferson, Mason, Pacific, Thurston counties
- Puget Sound Clean Air Agency King, Kitsap, Pierce, Snohomish counties
- Southwest Clean Air Agency Clark, Cowlitz, Lewis, Skamania, Wahkiakum counties
- Spokane Regional Clean Air Agency Spokane County
- Yakima Regional Clean Air Agency Yakima County

² https://ecology.wa.gov/About-us/Accountability-transparency/Partnerships-committees/Clean-air-agencies

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Purpose of This Document

This document contains in-depth information about the overburdened communities that the Department of Ecology (Ecology) has identified as highly impacted by air pollution for the Improving Air Quality in Overburdened Communities Initiative. There is one major exception, which is that communities on Tribal land, managed under jurisdiction of a federally-recognized Tribal government, will only be finalized following Tribal consultation. Ecology provides this information about our process, rationale, and sources of data in the interest of full transparency. More information is available on our website.³

Glossary

Environmental Justice Tools:

- Washington State Environmental Health Disparities Map (EHD Map; Washington State Department of Health) the EHD map is an interactive mapping tool that compares communities across Washington for environmental health disparities.
- **EJScreen** (United States Environmental Protection Agency) EJScreen is an EPA environmental justice mapping and screening tool with a nationally consistent dataset and approach for combining environmental and demographic socioeconomic indicators.
 - Demographic Index the average of two socioeconomic indicators: low income and people of color.
 - Supplemental Demographic Index the average of five socioeconomic indicators: low income, people of color, less than high school education, limited English speaking, and low life expectancy.
- **Environmental Justice Index** (EJI; Center for Disease Control/Agency for Toxic Substances Disease Registry) the first national, place-based tool designed to measure the cumulative impacts of environmental burden through the lens of human health and health equity.
- Climate and Economic Justice Screening Tool (CEJST; White House Council on Environmental Quality) developed for the Justice40 Initiative⁴ to identify disadvantaged communities across the country that should receive 40% of the overall benefits of certain Federal investments to disadvantaged communities.

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³ https://ecology.wa.gov/Air-Climate/Climate-Commitment-Act/Overburdened-communities

⁴ https://www.whitehouse.gov/environmentaljustice/justice40/

Socioeconomic Terms:

For the purposes of this document, we use the following definitions consistently with EJScreen, developed by EPA:

- **Low Income** the ratio of household income to poverty level in the past 12 months was less than 2.
- **People of Color** individuals who list their racial status as a race other than white alone and/or list their ethnicity as Hispanic or Latino. That is, all people other than non-Hispanic white-alone individuals.
- Linguistic Isolation (used interchangeably with limited English speaking) households in which no one age 14 and over speaks English "very well" or speaks English only.
- **Unemployment** all those who did not have a job at all during the reporting period, made at least one specific active effort to find a job during the prior 4 weeks, and were available for work (unless temporarily ill).

We use the following terms consistently with the Washington Environmental Health Disparities Map:

- **Poverty** percentage of population whose income was less than or equal to 185% of the federal poverty level within the last twelve months.
- Unaffordable Housing housing cost is greater than 30% of household income

Air quality terms:

- Airshed a geographical area where, because of factors like topography, meteorology, and/or climate, is affected by the same air mass and experiences similar concentrations of air pollution.
- Exceptional Events unusual or naturally occurring events that can affect air quality but are not reasonably controllable using techniques that tribal, state, or local air agencies may implement to attain and maintain the National Ambient Air Quality Standards. (EPA)
- **Sensitive Receptors** areas where the occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants. Extra care must be taken when dealing with contaminants and pollutants near areas recognized as sensitive receptors. (EPA)

Introduction

What is the Improving Air Quality in Overburdened Communities Initiative?

The "Improving Air Quality in Overburdened Communities Initiative" is a new effort to reduce air pollution in Washington communities highly impacted by air pollution. While the Climate Commitment Act⁵ (CCA) focuses on greenhouse gas emissions, Section 3 of the CCA also requires Ecology to reduce another category of air pollution, called criteria air pollutants,⁶ in overburdened communities highly impacted by air pollution. This law requires us to:

- Identify which Washington communities are overburdened by air pollution and significant sources of this pollution.
- Expand and improve Washington's air quality monitoring network to gather more data about the criteria air pollutants that affect these communities.
- Develop strategies to reduce criteria air pollutants in these overburdened communities.
- Conduct periodic analysis to make sure reduction goals for criteria air pollution are being met.

Environmental justice is at the center of this initiative. We are intentionally designing this work to be continuous to incorporate lessons learned, and changes in demographic and air quality data. We will continue to work with Tribes, communities, environmental justice and community-based organizations, the state's Environmental Justice Council, and others to refine our process every six years.

What are criteria air pollutants?

Criteria air pollutants are six common air pollutants that EPA has designated as causing harm to people's health and the environment. The federal Clean Air Act requires EPA to set National Ambient Air Quality Standards (NAAQS; Appendix A) for criteria air pollutants. Ecology, local clean air agencies, and Tribes monitor these pollutants across Washington, and take action to control and reduce pollution. These six criteria air pollutants are:

- Carbon monoxide (CO)
- Lead (Pb)
- Ozone (O₃)
- Nitrogen dioxide (NO₂)
- Particulate matter:
 - Fine particulate matter (PM_{2.5})
 - Coarse particulate matter (PM₁₀)

⁵ Engrossed second substitute senate bill 5126, chapter 316, laws of 2021

⁶ https://ecology.wa.gov/Air-Climate/Air-quality/Air-quality-targets/Air-quality-standards#criteria

⁷ https://www.epa.gov/criteria-air-pollutants

• Sulfur dioxide (SO₂)

What are overburdened communities highly impacted by air pollution?

All communities experience air pollution. However, Ecology recognizes that some communities are affected more than others. This disparity could be due to the level of air pollution exposure, the vulnerability of the population to health impacts related to that exposure, the ability of the community to mitigate its effects, or any combination of these factors. Section 3 of the CCA addresses these inequities, requiring Ecology to identify "overburdened communities highly impacted by air pollution" and to take steps to reduce the disparities in criteria air pollution impacts that these communities face.

The CCA defines "Overburdened Communities" as:9

"a geographic area where vulnerable populations face combined, multiple environmental harms and health impacts or risks due to exposure to environmental pollutants or contaminants through multiple pathways, which may result in significant disparate adverse health outcomes or effects."

The intent section of the law also states: 10

"Under the program, the legislature intends to identify overburdened communities where the highest concentrations of criteria pollutants occur, determine the sources of those emissions and pollutants, and pursue significant reductions of emissions and pollutants in those communities."

This means that for the purposes of this work, "overburdened communities highly impacted by air pollution" that Ecology is tasked with identifying, evaluating, and protecting under RCW 70A.65.020 are considered a subset of all overburdened communities – specifically those that experience the highest **concentrations** of air pollution. The rest of Section 3¹¹ directs Ecology to conduct environmental justice reviews of air quality and health impacts in these communities and to develop strategies to reduce criteria pollution.

How did Ecology develop a process to identify overburdened communities highly impacted by air pollution?

To identify these overburdened communities, we started with public engagement in early 2022 to hear about people's experiences with air pollution across the state and researched how

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⁸ RCW 70A.65.020(1)

⁹ RCW 70A.65.010(54); See appendix B for full definition of "overburdened communities" as well as all CCA language pertaining to this initiative

¹⁰ RCW 70A.65.005(7)

¹¹ RCW 70A.65.020

criteria air pollution impacts communities across all of Washington. Next, we looked for data and resources that were available to represent these real-world issues. Then we studied existing approaches and environmental justice tools to identify overburdened or disadvantaged communities, to see where we could apply principles or lessons learned into how we put all the data together to identify communities. See the Technical Support Document, available on our website, for more details on this process.¹²

After identifying where these communities are across the state using statewide data, Ecology looked at additional factors, including regional and local-level data and public comments, to refine the boundaries of the overburdened communities highly impacted by air pollution. To inform our list of overburdened communities for this initiative, we engaged with Tribes, communities, environmental justice advocates and the Environmental Justice Council throughout our process.

Note: Community boundaries are census block group boundaries, unless otherwise stated. More information about how each community was identified is in the summary for each community below.

Tribal Communities

Ecology will not take any actions that impact Tribal reservation land, managed under jurisdiction of a federally-recognized Tribal government, without express interest and permission reached through Tribal decision-making processes. Ecology is reaching out to Tribes we have identified as highly impacted by air pollution for additional staff-to-staff engagement and government-to-government consultation. Ecology is also available for further staff-to-staff engagement and government-to-government consultation for Tribes not identified by Ecology's process.

Reevaluation

This is a continuous process. We expect both the air quality that communities experience and the availability of data related to environmental justice to change with time. As data are updated and new information is gathered through continued engagement with stakeholders, communities, and Tribes, we may identify new overburdened communities highly impacted by air pollution in the future. New data and information may include updates in environmental justice screening tools, new air monitoring data (including monitoring efforts taken separately from this initiative), air pollution model results, and lessons learned from the Healthy Environment for All (HEAL) Act and other efforts to identify overburdened communities. We also may need to adjust the boundaries of identified communities from time to time. We are committed to reevaluating these communities regularly every six years to gauge changes in air quality. Importantly, we do not intend to remove an overburdened classification from identified

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¹² https://ecology.wa.gov/Air-Climate/Climate-Commitment-Act/Overburdened-communities

communities unless air quality targets are met (or there is express direction from a Tribal government to do so regarding Tribal lands).

Overburdened Communities Highly Impacted by Air Pollution

This section describes the communities Ecology has identified as overburdened for the purposes of this initiative, including how and why they were identified. These community descriptions are intended to provide key community characteristics and show potentially vulnerable populations and criteria air pollution concerns. These descriptions are based on the best currently available information. They are not comprehensive and are not intended to reflect community assets, complexity, or diversity for any purpose beyond this initiative. In addition, we recognize that these communities likely include multiple smaller communities, neighborhoods, and towns. We drew these communities with contiguous boundaries for the purpose of expanding air monitoring and pollution reduction efforts in a meaningful and coordinated way. Ecology looks forward to engaging with each community to better understand local needs and concerns related to criteria air pollution and finding collaborative solutions to address them.

The law directs us to "identify overburdened communities where the highest concentrations of criteria pollutants occur..." To identify where criteria air pollutant levels are highest, we used the best data currently available. This is a combination of existing air quality monitoring information and extensive computer modeling of pollution concentrations using emissions data, meteorology, topography, and other factors. In general, we included overburdened communities where at least the modeling indicated there is likely an elevated level of criteria air pollution, even if there is not localized monitoring data to verify it. When we conduct more extensive monitoring in these communities, we may find that pollution concentrations are lower or higher than previously understood.

Data and modeling may not fully capture on-the-ground impacts and experiences, especially at a very local or neighborhood level. Furthermore, air quality changes over time, new data become available, and new policies are enacted. We will reevaluate community boundaries and the list of communities identified as overburdened and highly impacted by air pollution every six years, using the more local community air quality data that has become available.

Summary of Communities

Currently, we have identified 16 overburdened communities highly impacted by air pollution, with more to come following Tribal consultation. (See Table 1 below.) **These communities** represent more than 1.2 million people, or about 15.5% of the population of Washington.

The 16 identified communities are a mix of urban, suburban, and rural areas, and range greatly in size of population and geographical area. Community populations range from about 1,500 to more than 200,000 people. By area, the communities range from less than 3 square miles to 173 square miles. These differences reflect the diversity of both the communities themselves

and the air pollution concerns they face. Likewise, the approach we take to implement this initiative in each of these communities will have to differ to meet the needs and input of each community.

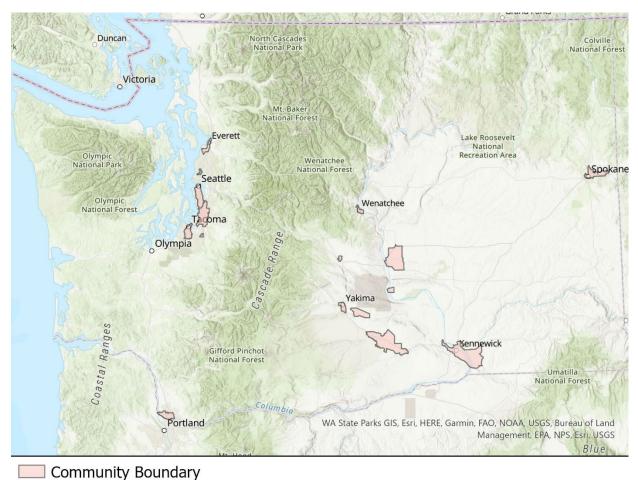


Figure 1. Statewide map of Overburdened Communities Highly Impacted by Air Pollution

Table 1. Overburdened Communities Highly Impacted by Air Pollution

Name ¹³	Clean Air Agency	Statewide Indicators: ¹⁴ Community Indicator(s)	Statewide Indicators: Air Pollution Indicator – Elevated level(s) of:	Existing Ecology Monitoring Site(s)?
Spokane and Spokane Valley	Spokane Regional Clean Air Agency	EHD map rank; EJScreen Demographic Index	PM _{2.5} 24-hour; PM _{2.5} annual; Cumulative criteria air pollution	Yes
Tri-Cities to Wallula	Benton Clean Air Agency/Ecology Eastern Regional Office	EHD map rank; EJScreen Demographic Index	PM _{2.5} 24-hour; PM ₁₀ ; Ozone; Cumulative criteria air pollution	Yes
East Yakima	Yakima Regional Clean Air Agency	EHD map rank; EJScreen Demographic Index	PM _{2.5} 24-hour; PM _{2.5} annual; Cumulative criteria air pollution	Yes
Lower Yakima Valley	Yakima Regional Clean Air Agency/Benton Clean Air Agency	EHD map rank; EJScreen Demographic Index	PM _{2.5} 24-hour; PM _{2.5} annual; Cumulative criteria air pollution	Yes
Moxee Valley	Yakima Regional Clean Air Agency	EJScreen Demographic Index	PM _{2.5} 24-hour; Cumulative criteria air pollution	No
George and West Grant County	Ecology Eastern Regional Office	EJScreen Demographic Index	PM _{2.5} 24-hour	No
Mattawa	Ecology Eastern Regional Office	EJScreen Demographic Index	PM _{2.5} 24-hour	Yes
Ellensburg	Ecology Central Regional Office	EJScreen Demographic Index	PM _{2.5} 24-hour; Cumulative criteria air pollution	Yes

[.]

¹³ Communities are named to reflect the general location of the overburdened community highly impacted by air pollution. The community boundaries, as well as how they were determined, are displayed for each identified community below.

¹⁴ At least part of the community was identified by the following indicators, not necessarily the entirety.

Name ¹³	Clean Air Agency	Statewide Indicators: ¹⁴ Community Indicator(s)	Statewide Indicators: Air Pollution Indicator – Elevated level(s) of:	Existing Ecology Monitoring Site(s)?
Wenatchee and East Wenatchee	Ecology Central Regional Office	EHD map rank; EJScreen Demographic Index	PM _{2.5} 24-hour	Nearby ¹⁵
Everett	Puget Sound Clean Air Agency	EHD map rank; EJScreen Demographic Index	PM _{2.5} 24-hour	Nearby
North Seattle and Shoreline	Puget Sound Clean Air Agency	EHD map rank; EJScreen Demographic Index	PM _{2.5} 24-hour; Cumulative criteria air pollution	Nearby
South Seattle	Puget Sound Clean Air Agency	EHD map rank; EJScreen Demographic Index	PM _{2.5} 24-hour; PM _{2.5} annual; Cumulative criteria air pollution	Yes
South King County	Puget Sound Clean Air Agency	EHD map rank; EJScreen Demographic Index	PM _{2.5} 24-hour; Cumulative criteria air pollution	Yes
Northeast Puyallup	Puget Sound Clean Air Agency	EHD map rank	Cumulative criteria air pollution	No
South and East Tacoma	Puget Sound Clean Air Agency	EHD map rank; EJScreen Demographic Index	PM _{2.5} 24-hour; Cumulative criteria air pollution	Yes
Vancouver	Southwest Clean Air Agency	EHD map rank; EJScreen Demographic Index	PM _{2.5} 24-hour; Cumulative criteria air pollution	Yes

[•]

¹⁵ For the purposes of this document, nearby = within 3 miles. How well a monitor represents the air pollution for a community depends on factors like meteorology and topography, that create uniform air quality in a geographic area called an "airshed."

Spokane and Spokane Valley

Community Description

This community is in the greater Spokane area and encompasses parts of both the city of Spokane and neighboring Spokane Valley. Air quality is managed by Spokane Regional Clean Air Agency. The community is approximately 42 square miles with a population of about 150,108 people. It is mostly adjacent and parallel to the Spokane River and Interstate 90 and includes northeastern Spokane. The western part of the community is primarily Spokane's downtown area and zoned for high-density housing. Northeast Spokane is predominantly single-family housing with some industrial areas to the north and between the Spokane River and Interstate 90. This industrial area follows along railway lines into Spokane Valley. Spokane Valley also has some single-family residential and mixed-use areas. The community has many sensitive receptors, ¹⁶ including schools, childcare facilities, multiple hospitals, and prisons. Several economic factors indicate that the community may be more vulnerable to air pollution impacts, including high rates of poverty, unaffordable housing, and unemployment. The community on average also experiences higher rates of asthma and lower life expectancy, compared to the rest of Washington State.

All of the Spokane area meets the national ambient air quality standards; however, it does have relatively high particulate matter pollution (PM_{2.5}) for Washington State. Some of the sources of pollution include wildfire, residential wood burning, mobile sources like cars, trucks, trains, and dust from construction and agriculture. There are currently two monitoring sites in the Ecology network within the community boundaries and another less than a mile away. There are also a few additional monitoring sites in Ecology's network to the north of Spokane in Colbert and Greenbluff.

Table 2. Spokane and Spokane Valley Key Facts

Air Quality Authority	Spokane Regional Clean Air Agency
Population (Census 2022 Estimate)	150,108
Area	42 sq mi
Current Ecology Criteria Pollutant Monitoring	Spokane-E Broadway Ave: PM _{2.5} , PM ₁₀ Spokane-Augusta Ave: PM _{2.5} , PM ₁₀
	Nearby: Spokane-Monroe St: PM _{2.5}

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¹⁶ The EPA defines "sensitive receptors" as "areas where the occupants are more susceptible to the adverse effects of exposure to toxic chemicals, pesticides, and other pollutants. Extra care must be taken when dealing with contaminants and pollutants in close proximity to areas recognized as sensitive receptors."

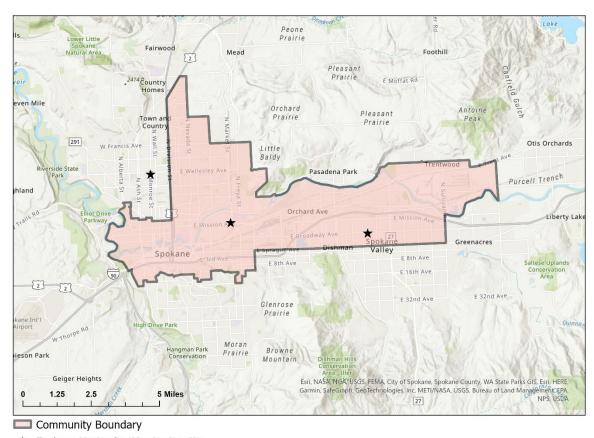


Figure 2. Map of the Spokane and Spokane Valley community's boundaries for CCA Section 3

Community Identification

Part of northeast Spokane and the Spokane Valley to the Idaho border along Interstate 90 met the statewide screening criteria for either EHD map ranking, EJScreen or both, as well as elevated levels of PM_{2.5} (24-hour and, in some parts, annual). Upon closer scrutiny of other environmental justice tools and local data, the screened area was shifted west to include more of the urban center of Spokane along Interstate 90. Environmental justice screening tools, including the Environmental Justice Index, Climate and Economic Justice Screening Tool, and EJScreen supplemental demographic index, showed that central and northeast Spokane, as well as the industrial area in north Spokane Valley, were most likely to be overburdened or disadvantaged. This area includes, or is close to, several sources of pollution like major roadways, railways, and industrial sites. Asthma and chronic obstructive pulmonary disease rates, as well as lower life expectancy, are also well-correlated to the identified area. In Spokane, this is consistent with historic redlining maps. We also heard from commenters in both the initial listening sessions in winter 2022 and during the fall 2022 public comment period, areas of concern for air pollution along the major roadways and railways in Spokane, as

well as along the river and in the Downtown area. Commenters also noted the rapid growth currently happening in Spokane.

Additional Resources

- Social Equity Mapping Tool, Spokane Regional Transportation Council
- Spokane Redlining Map, Mapping Inequality
- Zoning, planning, and land use maps:
 - o Spokane
 - Spokane Valley
- Reports and studies:
 - Odds Against Tomorrow: Health Inequities in Spokane County (2012), Spokane Regional Health District – investigated social determinants of health inequities in Spokane County
 - Health-related Socioeconomic Inequalities in School Neighborhoods in Spokane, Washington, USA (2018), Washington State University – assessed whether elementary schools' socioeconomic status levels correlated to differences in aspects of the built and social environments

Tri-Cities to Wallula

Community Description

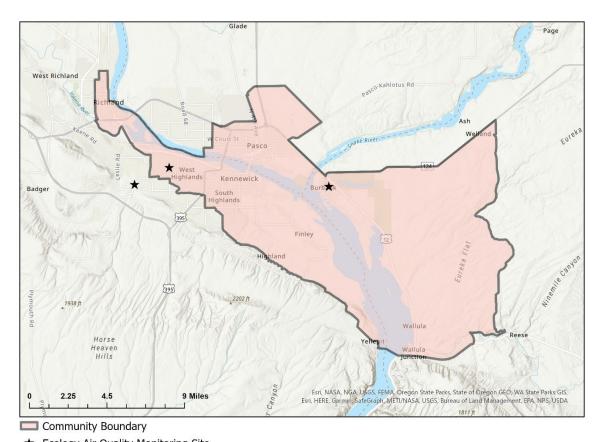
This community is located along the Columbia River and the Snake River and includes parts of Franklin, Walla Walla, and Benton Counties. In Benton County, air quality is managed by the Benton Clean Air Agency, and in Franklin and Walla Walla Counties, it is managed by Ecology's Eastern Regional Office. The community encompasses all or part of the Tri-cities (Richland, Pasco, and Kennewick), Finley, Burbank, and Wallula. The Tri-Cities is the third largest metropolitan area in Washington and is surrounded by rural, primarily agricultural land. The part that is identified as overburdened and highly impacted by air pollution is located along the Columbia River in the Tri-Cities, as well as a sizeable portion of rural land to the East, including Wallula. It has approximately 113,522 residents. Parts of the community have high rates of poverty, linguistic isolation, and high incidence of asthma, which can increase vulnerability to air pollution impacts.

At approximately 173 square miles, this is the largest overburdened community highly impacted by air pollution by area that has been identified so far. However, the pollutants of concern are primarily regional in scale. Ozone forms in the atmosphere on hot summer days when two forms of air pollution – nitrogen oxides (NOx) and volatile organic compounds (VOCs) – react with sunlight. NOx and VOCs come from many sources, but cars and trucks are the largest contributors. Conditions in the Tri-Cities area, including prevailing winds, push ground-level ozone up against the Horse Heaven Hills, where it can become concentrated in the basin

over more populated areas. PM_{10} and $PM_{2.5}$ also collect in the basin, and come from sources like windblown dust from construction, agriculture, or open lands, outdoor and agricultural burning, residential wood burning, wildfires, mobile sources like cars and trucks, and industrial sources.

Table 3. Tri-Cities to Wallula Key Facts

Air Quality Authority	Benton Clean Air Agency, Ecology Eastern Regional Office
Population (Census 2022 Estimate)	113,522
Area	173 sq mi
Current Ecology Criteria Pollutant Monitoring	Burbank-Maple St: PM _{2.5} , PM ₁₀ Kennewick-Metaline Ave: PM _{2.5} , PM ₁₀ Nearby: Kennewick-S Clodfelter Rd: PM _{2.5} , O ₃
	(summer only)



★ Ecology Air Quality Monitoring Site

Figure 3. Map of the Tri-Cities to Wallula community's boundaries for CCA Section 3

Community Identification

This community met the statewide screening criteria for EHD map ranking and elevated levels of ozone, PM₁₀, PM_{2.5}, or in some parts, cumulative criteria air pollution only. Most of the environmental justice tools show parts of Pasco and Kennewick as overburdened or disadvantaged. Some parts of the community also have higher rates of asthma and relatively lower life expectancy. Both the EHD map and Climate and Economic Justice Screening Tool also include part of Richland, as well as the large census tract to the east of the Tri-Cities, which includes Burbank and Wallula, as highly impacted or disadvantaged. These areas were combined into one community. The large block group containing Burbank and Wallula was cut off south of Wallula Junction as that area appears to be a wind farm and largely uninhabited.

While the community is meeting the national ambient air quality standards for criteria air pollution, it does experience high levels of ozone and PM, when compared to the rest of Washington state. This area also is subject to occasional "exceptional events" for air quality like windblown dust storms, which can lead to temporary exceedances of the national ambient air quality standards for PM and unhealthy air quality.

Additional Resources

- <u>The Tri-Cities Ozone Precursor Study (T-COPS)</u> (2017), Washington State University & Ecology – investigated causes of high ozone in the Tri-Cities
- Ozone Forecast Tool, Washington State University
- Zoning, planning, and land use maps:
 - o **Richland**
 - o Kennewick
 - o Pasco
 - o Walla Walla County

East Yakima

Community Description

East Yakima is a community in Yakima County, located in the upper Yakima Valley. Air quality is managed by the Yakima Regional Clean Air Agency. The East Yakima community is approximately 15.8 square miles, with a population of about 60,640 people. The community also contains Union Gap on the south end. To the north and east it is bounded by both Interstate 82 and the Yakima River and is surrounded by agricultural land outside of the city. The community includes a downtown commercial area and mixed single-family and multi-

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¹⁷ The EPA defines "Exceptional Events" as unusual or naturally occurring events that can affect air quality but are not reasonably controllable using techniques that tribal, state or local air agencies may implement in order to attain and maintain the National Ambient Air Quality Standards.

family housing. There are also many agricultural and food processing facilities connected to rail lines that run North-South through the middle of the community. East Yakima includes several groups that are vulnerable to air pollution, such as people of color and low-income residents. The community experiences relatively high rates of asthma, chronic obstructive pulmonary disease, and cardiovascular disease. It also has many sensitive receptors including schools, childcare facilities, health clinics, long term care facilities, and migrant farmworker housing.

While it is currently meeting the national ambient air quality standards, East Yakima often experiences elevated levels of PM_{2.5} year-round, when compared to the rest of the state. Particulate matter comes predominantly from wildfire smoke in the summer months, and woodburning related to home heating in the wintertime. Yakima is situated in a valley, which can act as a funnel for air pollution. Temperature inversions, which keep pollution trapped close to the ground, are a common reason for elevated levels of PM_{2.5} in the wintertime.

Table 4. East Yakima Key Facts

Air Quality Authority	Yakima Regional Clean Air Agency
Population (Census 2022 Estimate)	60,640
Area	15.8 sq mi
Current Ecology Criteria Pollutant Monitoring	Yakima-4 th Ave: PM _{2.5} , PM ₁₀

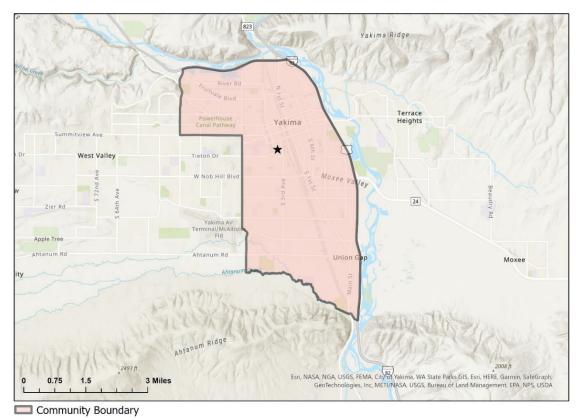


Figure 4. Map of the East Yakima community's boundaries for CCA Section 3

Community Identification

East Yakima met the statewide screening criteria, based on the EHD map ranking, EJScreen demographic index, and elevated level of PM_{2.5} (both 24-hour and annual). The boundaries are consistent with the screened area. The Environmental Justice Index matched the EHD map in showing that this community is highly impacted by cumulative environmental burdens. The Climate and Economic Justice Screening Tool also identified the same part of Yakima as disadvantaged. Most of the census tracts in this community are >90th percentile for both asthma and chronic obstructive pulmonary disease rates, and <10th percentile for life expectancy for Washington. During our public comment period, commenters specifically referred to East Yakima as an area of concern. Based on exposure to PM_{2.5}, cumulative environmental burdens and vulnerability, and likely health impacts, East Yakima has been identified as an overburdened community highly impacted by air pollution.

Additional Resources

- City of Yakima GIS Portal
- Yakima Air Wintertime Nitrate Study (YAWNS) Report (2014), Washington State
 University studied the conditions that led to high nitrate in wintertime PM_{2.5}

Lower Yakima Valley

Community Description

The Lower Yakima Valley intersects both Yakima County and Benton County. Air quality is managed by either the Yakima Regional Clean Air Agency or the Benton Clean Air Agency in the corresponding counties. The community includes the cities of Granger, Outlook, Sunnyside, Mabton, Grandview, Apricot, and Prosser. Most of the cities are situated along Interstate 82. The Lower Yakima Valley is primarily an agricultural community with a high density of dairy farms. Residents are predominantly Hispanic. A high percent of the population is children under age 18, who are particularly sensitive to air pollution impacts. Additional factors such as poverty, linguistic isolation, and limited access to health care can increase the vulnerability of community members to air pollution impacts.

While it is currently meeting the national ambient air quality standards, the Lower Yakima Valley experiences elevated levels of PM_{2.5} year-round. Particulate matter comes from sources like wildfire smoke, silvicultural and prescribed burning, residential and agricultural burning, and agricultural dust. The community is situated in a valley, which can act as a funnel for air pollution. Temperature inversions, which keep pollution trapped close to the ground, are a common reason for elevated levels of PM_{2.5} in the wintertime. There are currently two monitoring sites in Ecology's network in the Lower Yakima Valley. However, since the towns and residents are spread out, the community could benefit from a higher density of monitoring for more localized information.

Table 5. Lower Yakima Valley Key Facts

Air Quality Authority	Yakima Regional Clean Air Agency, Benton Clean Air Agency
Population (Census 2022 estimate)	55,487
Area	157 sq mi
Current Ecology Criteria Pollutant	Sunnyside-S 16 th St: PM _{2.5}
Monitoring	Prosser-Highland Dr: PM _{2.5}

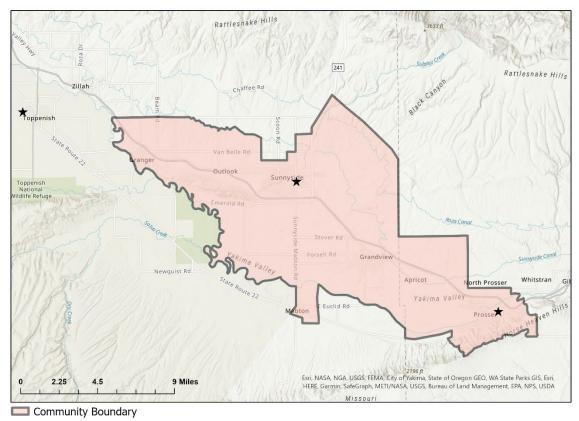


Figure 5. Map of the Lower Yakima Valley community's boundaries for CCA Section 3

Community Identification

Lower Yakima Valley met the statewide screening criteria for EHD map ranking and/or EJScreen Demographic Index, as well as elevated levels of PM_{2.5} (24-hour) and cumulative level of criteria air pollution. The Climate and Economic Justice Screening tool identifies the same census tracts as disadvantaged. These areas were connected into one community, except one large block northeast of Sunnyside, which was cut where the land use changes from cultivated land to grassland. This boundary also corresponds to where elevation rapidly increases, and the ridge appears to be largely unpopulated.

During the public comment period, we received several comments stating concerns about the impact of concentrated animal feeding operations (CAFOs) on air quality and public health in the Lower Yakima Valley. Studies conducted in this area have investigated associations between agricultural emissions of dust particles, ammonia, and other pollutants and asthma health outcomes.¹⁸

¹⁸ Aggravating Factors of Asthma in a Rural Environment (AFARE), University of Washington; Home Air in Agriculture: Pediatric Intervention Trial (HAPI), University of Washington

Additional Resources

- Yakima County GIS Portal
- Reports and studies:
 - Aggravating Factors of Asthma in a Rural Environment (AFARE), University of Washington
 - Yakama Reservation Air Exposure Investigation Summary (2019), Agency for Toxic Substances and Disease Registry

Moxee Valley

Community Description

Moxee Valley is in Yakima County, approximately 5 miles to the east of the city of Yakima but somewhat separated by topography. Air quality is managed by the Yakima Regional Clean Air Agency.

The Moxee Valley community identified for this initiative is approximately 38 square miles, with a population of about 3,000 residents. It is bounded between Yakima Ridge and Rattlesnake Hills. Moxee Valley is primarily an agricultural area. Data shows that the community experiences relatively high rates of poverty and chronic obstructive pulmonary disease, which may increase vulnerability to air pollution impacts.

Like nearby Yakima Valley, Moxee Valley likely experiences wintertime temperature inversions, keeping pollution close to the ground, although emissions are likely less due to the smaller population. Although there are currently no monitors in the Ecology network in this community, the air modeling results indicate that there are possibly elevated levels of PM_{2.5}. With the nearest monitor approximately 6 miles away in Yakima, this area could benefit from additional monitoring for more localized information.

Table 6. Moxee Valley Key Facts

Air Quality Authority	Yakima Regional Clean Air Agency
Estimated Population	3,000
Area	37.7 sq mi
Current Ecology Criteria Pollutant Monitoring	None

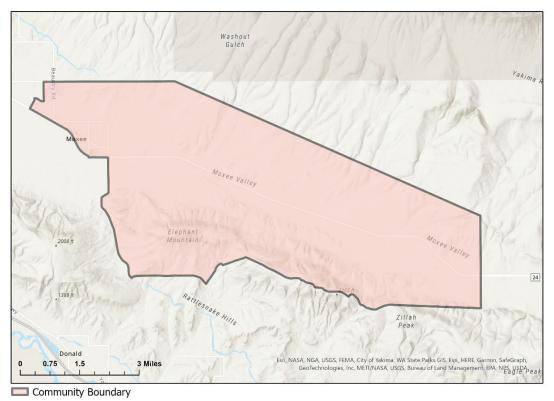


Figure 6. Map of the Moxee Valley community's boundaries for CCA Section 3

Community Identification

Moxee Valley met the statewide screening criteria for EJScreen demographic index and elevated level of PM_{2.5} (24-hour). The area that was screened was from one large census block group, which includes the Yakima Firing Center. The Climate and Economic Justice Screening Tool also labels the census tract that includes the Moxee Valley as disadvantaged because of transportation barriers. We focused on the community in the populated part of the screened area. While the city of Moxee was not included in the screened area, it is the only city or census designated place in the valley. We included part of the city of Moxee that covers most of the areas zoned for single and multi-family housing and community resources like schools, the health clinic, and city hall.

Additional Resources

- Zoning, planning, and land use maps:
 - o Yakima County GIS Portal
 - o City of Moxee Zoning Map

Mattawa

Community Description

Mattawa is in Grant County along the Columbia River. Air quality is managed by Ecology's Eastern Regional Office. It is a rural farming community and is predominantly Hispanic and Spanish-speaking. The town has a population of about 3,600 residents, according to the latest census estimates. The community has high rates of poverty, asthma, and limited access to health care, which may increase vulnerability to air pollution impacts. It also has several sensitive receptors including schools, childcare facilities, healthcare clinics, and migrant farmworker housing.

The Washington state emissions inventory shows that particulate matter pollution in Grant County comes mainly from sources like outdoor burning, agricultural tilling, and dust from roads and livestock. Ecology recently installed a PM_{2.5} monitor in the community due to air pollution concerns expressed by the community and air quality modeling that indicates a possible elevated level of PM_{2.5} in the community. Local air quality monitoring will ensure that people who live and work in and around this community have more representative air pollution information.

Table 7. Mattawa Key Facts

Air Quality Authority	Ecology Eastern Regional Office
Population Estimate	3,600
Area	10.2 sq mi
Current Ecology Criteria Pollutant Monitoring	Mattawa Wahluke High School: PM _{2.5}

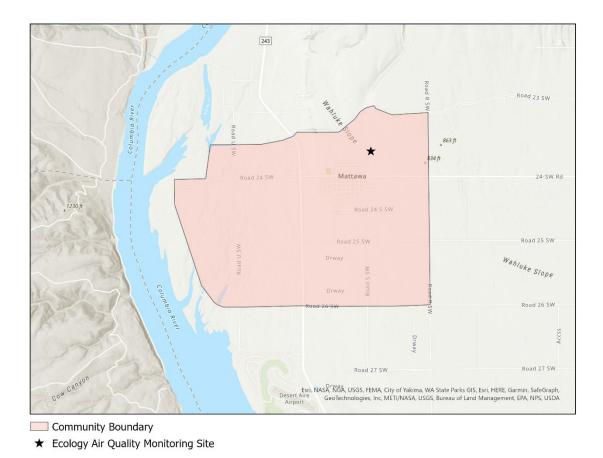


Figure 7. Map of the Mattawa community's boundaries for CCA Section 3

Community Identification

Mattawa met the statewide screening criteria for EJScreen demographic index and elevated level of PM_{2.5} (24-hour). The Climate and Economic Justice Screening Tool also identifies the census tract that includes Mattawa as disadvantaged due to workforce development burden. The boundaries mostly follow the screened area to the east of the Columbia River, using existing census block group lines where feasible, and ensuring that the entire city urban growth area for Mattawa was included. The community also includes the schools, health care clinics, and other community resources for the surrounding area.

Additional Resources

- Wildfire & Smoke Resources, Grant County Health District
- Grant County GIS Portal

George and West Grant County

Community Description

This community is in Grant County near the Columbia River. Air quality is managed by Ecology's Eastern Regional Office. This is a rural community with a population of about 1,500 residents, predominantly Hispanic and Spanish-speaking. This community's proximity to Interstate 90 and the Gorge Amphitheatre exposes it to additional traffic. It is predominantly an agricultural area with a low population density. The only incorporated city in the community is George, and therefore is likely to be one of the places where people gather and access community resources. Additionally, data shows that the community experiences high rates of poverty and limited access to healthcare, which may increase vulnerability to air pollution impacts.

The Washington state emissions inventory shows that particulate matter pollution in Grant County comes mainly from sources like outdoor burning, agricultural tilling, and dust from roads and livestock. There are currently no air pollution monitors in this community that are part of Ecology's network, however the modeling data indicates that it could have an elevated level of PM_{2.5}. Currently the nearest monitor is about 10 miles away in Quincy. Additional monitoring will ensure that people who live, work, and visit in and around this community have more representative air pollution data.

Table 8. George and West Grant County Key Facts

Air Quality Authority	Ecology Eastern Regional Office
Population Estimate	1,500
Area	118 sq mi
Current Ecology Criteria Pollutant Monitoring	None



Figure 8. Map of the George and West Grant County community's boundaries for CCA Section 3

Community Identification

A large area, including George, met statewide screening criteria, based on EJScreen demographic index, and elevated level of PM_{2.5} (24-hour). While the community is meeting the national ambient air quality standards for criteria air pollution, it likely experiences high levels of PM_{2.5}, when compared to the rest of Washington State. The Climate and Economic Justice Screening Tool also identified these census tracts as disadvantaged due to workforce development and legacy pollution burden. Most environmental justice tools are based on census tracts, which are very large in rural areas. The boundaries are made up of census block group lines and major roadways, such as Highway 36 W, and encompass most of the screened area.

Additional Resources

- Wildfire & Smoke Resources, Grant County Health District
- Grant County GIS Portal

Ellensburg

Community Description

Ellensburg is in Kittitas County. Air quality is managed by Ecology's Central Regional Office. The community is about 5.5 square miles and has a population of approximately 17,500 residents. The city of Ellensburg is home to Central Washington University, which means that it has an additional student population for most of the year, many of which are not counted as residents in the census. Data shows that this community experiences high rates of poverty and asthma prevalence, which may increase vulnerability to air pollution. It also has many sensitive receptors such as schools, childcare facilities, healthcare clinics, and a hospital.

The statewide emissions inventory shows that wildfire is the predominant source of $PM_{2.5}$ in Kittitas County, by a wide margin. Prescribed burning and woodstove smoke related to home heating are also prominent sources. There is an existing $PM_{2.5}$ monitor located centrally within the identified community boundaries.

Table 9. Ellensburg Key Facts

Air Quality Authority	Ecology Central Regional Office
Population (Census 2022 estimate)	17,500
Area	5.5 sq mi
Current Ecology Criteria Pollutant Monitoring	Ellensburg-Ruby St: PM _{2.5}

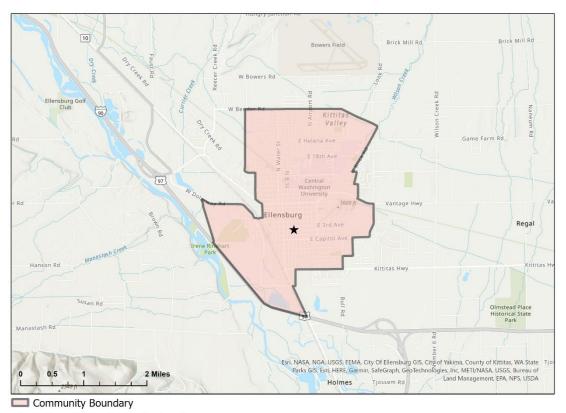


Figure 9. Map of the Ellensburg community's boundaries for CCA Section 3

Community Identification

Northeast Ellensburg met the statewide screening criteria based on EJScreen demographic index and an elevated level of PM_{2.5} (24-hour only). While the community is meeting the national ambient air quality standards for criteria air pollution, it does experience high levels of PM_{2.5}, when compared to the rest of Washington State. The southeast portion of Ellensburg was identified as disadvantaged by the Climate and Economic Justice Screening Tool for workforce development. Although only the northeast portion of the city met the screening criteria, the area was expanded to include the census block groups for most of the city of Ellensburg, bounded by Interstate 90. This includes most of the population of Ellensburg, and the sensitive receptors like schools and healthcare facilities. The city is relatively small in area and past Ecology mobile monitoring has shown pollution levels to be relatively consistent across the community.

Additional Resources

- <u>Public Health Air Quality Resources</u>, Kittitas County
- Ellensburg Zoning Map

Wenatchee and East Wenatchee

Community Description

The Wenatchee and East Wenatchee community is located along the boundary between Chelan County and Douglas County. Air quality is managed by Ecology's Central Regional Office. The community includes portions of both the cities of Wenatchee and East Wenatchee, is about 10 square miles, and has approximately 32,312 residents. The part identified as highly impacted by air pollution includes the higher density housing around the business districts in Wenatchee, as well as business district and surrounding residential area in East Wenatchee.

The Wenatchee and East Wenatchee community has high rates of poverty, asthma, and uninsured populations, which can increase vulnerability of community members to air pollution impacts. This community also has a high proportion of children under age 18 and includes many sensitive receptors such as schools, hospitals and healthcare clinics, long term care facilities, and migrant farmworker housing.

The Wenatchee and East Wenatchee community has increasingly experienced more and more frequent wildfire smoke events. The Washington Tracking Network shows that between 2015-2021, the area experienced an average of 13 smoke days a year. Other sources of particulate matter include silvicultural and prescribed burning, agricultural burning, and wood smoke associated with home heating. Temperature inversions, which keep pollution trapped close to the ground, are a common reason for elevated levels of PM_{2.5} in the wintertime. While there are currently no monitors within the community boundaries, there is an Ecology monitor nearby at Wenatchee Valley College, which provides air quality information for the area. However, additional monitoring, particularly across the river in East Wenatchee, could provide more localized air quality information.

Table 10. Wenatchee and East Wenatchee Key Facts

Air Quality Authority	Ecology's Central Regional Office
Population (Census 2022 estimate)	32,312
Area	9.9 sq mi
Current Ecology Criteria Pollutant Monitoring	Nearby: Wenatchee-Fifth St: PM _{2.5}

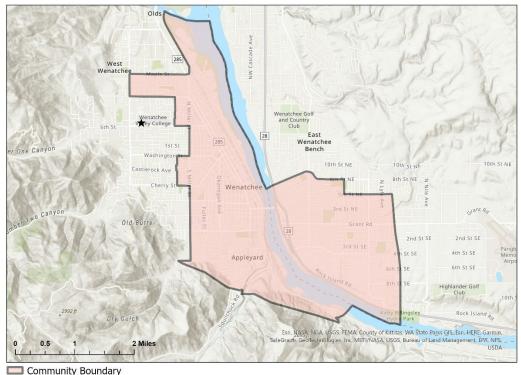


Figure 10. Map of the Wenatchee and East Wenatchee community's boundaries for CCA Section 3

Community Identification

Part of Wenatchee and East Wenatchee met the statewide screening criteria based on EHD map ranking, and/or EJScreen demographic index, and an elevated level of PM_{2.5} (24-hour only). While the community is meeting the national ambient air quality standards for criteria air pollution, it does experience high levels of PM_{2.5}, when compared to the rest of Washington State. This area also overlapped with areas that Environmental Justice Index identified as highly impacted, and the Climate and Economic Justice Screening Tool identified as disadvantaged due to projected wildfire risk. All these block groups were connected to identify the portion of Wenatchee and East Wenatchee that is considered overburdened and highly impacted by air pollution.

During the public comment period, we heard concerns about air quality and subsequent health impacts, particularly from wildfires, in Wenatchee.

Additional Resources

- Air Quality Resources, Chelan-Douglas Health District
- Zoning, planning, and land use maps:
 - Wenatchee zoning map
 - East Wenatchee comprehensive plan map

- Greater East Wenatchee zoning map
- Studies and reports:
 - Surveillance Investigation of the Cardiopulmonary Health Effects of the 2012
 Wildfires in North Central Washington State (2015), WA State Department of Health

Everett

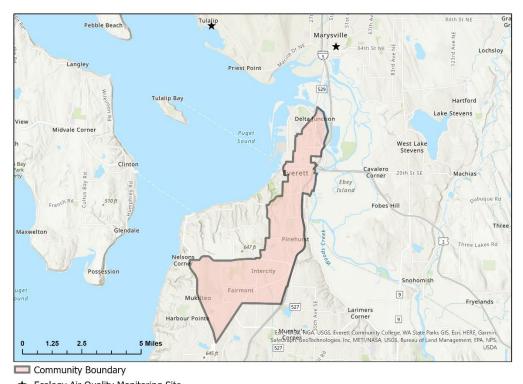
Community Description

Everett is in Snohomish County. Air quality is managed by Puget Sound Clean Air Agency. The part of Everett that is identified as overburdened and highly impacted by air pollution is about 16.5 square miles, with a population of approximately 86,400 people. The community runs parallel to Interstate 5 on the eastside and extends from the Snohomish River in the north to Paine Field Airport in the south. Most of the area identified is single-family or multi-family residential and includes commercial mixed-use areas and part of the metropolitan center. Parts of the community experience economic burdens such as lower income and unaffordable housing. The community also experiences a high rate of asthma and lower life expectancy relative to the rest of Washington state, which may indicate increased vulnerability to air pollution impacts.

The 2017 statewide emissions inventory indicates that the vast majority of PM_{2.5} pollution in Snohomish County is from residential wood smoke associated with home heating. However, this community includes or is near several other sources of air pollution, including Interstate 5 to the east and Paine Field airport and the industrial section of Everett to the southwest. Currently the nearest monitor is less than 3 miles away in Marysville. Additional air quality monitoring in this area will ensure that people who live and work in and around this community have more representative air pollution data.

Table 11. Everett Key Facts

Air Quality Authority	Puget Sound Clean Air Agency
Population (Census 2022 estimate)	86,395
Area	16.5 sq mi
Current Ecology Criteria Pollutant Monitoring	Nearby: Marysville-7 th Ave: PM _{2.5}



★ Ecology Air Quality Monitoring Site

Figure 11. Map of the Everett community's boundaries for CCA Section 3

Community Identification

Parts of this community met the statewide screening criteria based on EHD map ranking, and/or EJScreen demographic index, and an elevated level of PM_{2.5} (24-hour only). There are currently no monitors in this community that are part of the Ecology network, however there is one nearby in Marysville. While the community is meeting the national ambient air quality standards for criteria air pollution, air modeling results indicate a possible elevated level of PM_{2.5}, when compared to the rest of Washington State. The Environmental Justice Index and Climate and Economic Justice Screening Tool also identified parts of Everett as highly impacted or disadvantaged, particularly around the metropolitan area, near the railyards in the north, and west of the airport. This was an area where the screened areas were checkerboarded, so it made sense to connect them into one community, considering air quality is continuous.

Additional Resources

- Everett Online Map Viewer
- PSCAA Air Sensor Map
- PSCAA studies, reports, plans, etc.

North Seattle and Shoreline

Community Description

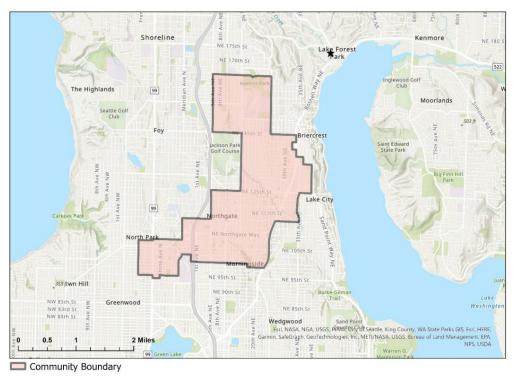
This community is in North King County and includes parts of both Seattle and Shoreline. Air quality is managed by Puget Sound Clean Air Agency. This community covers approximately 4.5 square miles and has a population of approximately 41,081 people. It is primarily residential and includes all or part of the following neighborhoods in Shoreline: Ridgecrest and Briarcrest; and all or part of the following areas of Seattle: Northgate, Lake City, Bitter Lake, and Greenwood.

According to the various environmental justice tools, this area ranks high for proximity to heavy traffic roadways and diesel exhaust particulate matter emissions. It also has relatively high rates of unaffordable housing.

There are currently no monitors in this area that are part of the Ecology network, however there is a nearby PM_{2.5} monitor in Lake Forest Park that provides air quality information for this area.

Table 12. North Seattle and Shoreline Key Facts

Air Quality Authority	Puget Sound Clean Air Agency
Population (Census 2022 estimate)	41,081
Area	4.5 sq mi
Current Ecology Criteria Pollutant Monitoring	Nearby: Lake Forest Park-Town Center: PM _{2.5}



★ Ecology Air Quality Monitoring Site

Figure 12. Map of the North Seattle and Shoreline community's boundaries for CCA Section 3

Community Identification

Parts of this community met the statewide screening criteria based on EHD map ranking, and/or EJScreen demographic index, and an elevated level of PM_{2.5} (24 hour only) or cumulative criteria air pollution. There are currently no monitors within these boundaries that are part of the Ecology network, however nearby monitoring and air quality modeling indicates possible elevated levels of PM_{2.5}. While other environmental justice tools, like the Climate and Economic Justice Screening Tool and the Environmental Justice Index do not identify this area as disadvantaged or highly impacted, both the EHD map and EJScreen identified small pockets of vulnerable populations, including people of color, linguistically isolated, and low-income populations. This was an area where the screened areas were checkerboarded, so it made sense to connect them into one community, considering that air quality is continuous.

Additional Resources

- Exploring the Patterns of People in Seattle and the Region, City of Seattle
- PSCAA Air Sensor Map
- PSCAA studies, reports, plans, etc.
- Online Interactive Maps, City of Shoreline
- City of Seattle GIS

South Seattle

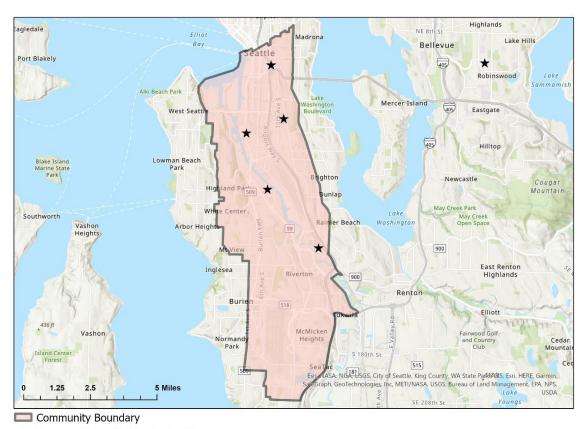
Community Description

South Seattle is in King County. Air quality is managed by Puget Sound Clean Air Agency. The community identified as highly impacted by air pollution is approximately 44 square miles stretching from the seaports of Seattle in the north to the SeaTac airport in the south. It includes a large portion of South Seattle, as well as parts of Tukwila, Burien, and SeaTac. This community is a hub of transportation and industry, intermingled alongside residential areas. With some of the highest population density in the state, the community includes nearly 200,000 residents. This area includes many groups that are vulnerable to air pollution, such as people of color, low-income, and linguistically isolated populations. It also has high rates asthma and low life expectancy for Washington state.

Heavy transportation and industrial activity impact air quality in the community, as well as pollute the water and soil. This community has five monitors in Ecology's network, including the National Core (NCore) air monitoring location at Jefferson Park in Beacon Hill that monitors for every criteria pollutant, volatile organic compounds, polycyclic aromatic hydrocarbons, chemical components of PM_{2.5}, meteorology, and air toxics. Beacon Hill has also been host to several academic air pollution studies by the University of Washington, including the measurement of ultrafine particulate matter as the site lies directly beneath the flightpath from two major airports. PSCAA has conducted several local air monitoring, mobile monitoring, and air toxics studies in this area, particularly in its two focus communities: The Duwamish Valley and the Chinatown-International District. The Duwamish Valley has also been the subject of several academic and community health and pollution studies (links below). This is perhaps the most well-studied and documented part of the state in terms of air pollution.

Table 13. South Seattle Key Facts

Air Quality Authority	Puget Sound Clean Air Agency
Population (Census 2022 estimate)	198,539
Area	43.8 sq mi
Current Ecology Criteria Pollutant Monitoring	Seattle-10 th & Weller: CO, NO ₂ , PM _{2.5}
	Seattle-Beacon Hill: CO, Lead, NO ₂ , O ₃ , PM _{2.5} , PM ₁₀ , SO ₂
	Seattle-Duwamish: PM _{2.5}
	Seattle-South Park: PM _{2.5}
	Tukwila Allentown: PM _{2.5}



★ Ecology Air Quality Monitoring Site

Figure 13. Map of the South Seattle community's boundaries for CCA Section 3

Community Identification

This community met the statewide screening criteria for EHD map ranking and part of it also for EJScreen demographic index, and partially an elevated level of PM_{2.5} (24-hour and/or annual) and/or cumulative criteria air pollution. While the community is meeting the national ambient air quality standards for criteria air pollution, it does experience high levels of criteria air pollution, when compared to the rest of Washington State. This area is consistent with historically redlined neighborhoods in Seattle. The Climate and Economic Justice Screening Tool and Environmental Justice Index both identify most of this screened area, as well as areas further south, as highly impacted or disadvantaged. The screened area of this community was extended south to the SeaTac airport to include parts of Burien and Tukwila.

There currently are no Ecology network monitors between Tukwila and Kent, although PSCAA has done several studies in this area (links below). Furthermore, a recent study out of UW did extensive mobile monitoring and found levels of PM_{2.5} and NO₂ were highest around downtown

Seattle, the port, and the major transportation corridors. ¹⁹ The area identified also aligns with the most impacted areas identified through PSCAA's Community Air Tool, a region-specific tool mapping air pollution disparity. PSCAA has identified Chinatown-International District and Duwamish Valley as focus communities, both of which are also included in this community. While identification criteria and scope of work is different between PSCAA's work and this initiative, we look forward to collaborating on efforts to improve air quality in the community.

During the public comment period, we heard numerous recommendations that this area, or parts of it, be included as an overburdened community highly impacted by air pollution. Some of the areas of interest were the Duwamish Valley, Beacon Hill, and communities around the SeaTac airport. We also heard concerns about several particular sources this area, including the airport and flight paths, industry and port activity, and freeways.

Additional Resources

- Exploring the Patterns of People in Seattle and the Region, City of Seattle
- <u>Seattle Redlining Map</u>, Mapping Inequality
- PSCAA Air Sensor Map
- PSCAA Focus Communities:
 - Chinatown-International District
 - Duwamish Valley
- PSCAA studies, reports, plans, etc.
 - o Air Quality in the Duwamish Valley, 2016 Overview
 - o Tukwila-Allentown Air Quality Study Community Report (2018)
 - o 2014 Summer Ozone Study
- Other reports and studies:
 - Mobile ObserVations of Ultrafine Particles (MOV-UP) study (2019), University of Washington, – analyzed the potential air quality impacts from aircraft traffic on communities near and underneath Seattle-Tacoma International Airport (Sea-Tac) flight paths
 - <u>Diesel Exhaust Exposure in Duwamish Valley (DEEDS) Study</u> (2013), University of Washington – studied diesel exhaust gradient (including NO_x, PM_{2.5}) in South Park & Georgetown neighborhoods of Seattle

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¹⁹ Blanco, Magali N., Amanda Gassett, Timothy Gould, Annie Doubleday, David L. Slager, Elena Austin, Edmund Seto, Timothy V. Larson, Julian D. Marshall, and Lianne Sheppard. "Characterization of Annual Average Traffic-Related Air Pollution Concentrations in the Greater Seattle Area from a Year-Long Mobile Monitoring Campaign." *Environmental Science & Technology* 56, no. 16 (2022): 11460-11472.

- <u>Cumulative Health Impact Assessment (CHIA)</u> (2013), Just Health Action/Duwamish River Community Coalition – compared cumulative health impacts across ten Seattle ZIP codes
- Blanco, Magali N., Amanda Gassett, Timothy Gould, Annie Doubleday, David L. Slager, Elena Austin, Edmund Seto, Timothy V. Larson, Julian D. Marshall, and Lianne Sheppard. "Characterization of Annual Average Traffic-Related Air Pollution Concentrations in the Greater Seattle Area from a Year-Long Mobile Monitoring Campaign." *Environmental Science & Technology* 56, no. 16 (2022): 11460-11472.
- Zoning, planning, and land use maps:
 - o City of Seattle GIS
 - o City of Tukwila City Maps
 - o City of Burien Map Library

South King County

Community Description

Air quality in South King County is managed by Puget Sound Clean Air Agency. This community is about 67.6 square miles and has approximately 207,973 residents. It contains all or part of the following cities: Tukwila, Renton, Des Moines, SeaTac, Kent, Auburn, Algona, Pacific, and Federal Way. A corridor of manufacturing facilities, distribution centers, and other businesses, as well as rail lines, runs north-south down the center of this community. Other parts are mostly residential, although there is also some agricultural land and nature areas along the Green River. This area includes many groups that are vulnerable to air pollution, such as people of color, low-income, and linguistically isolated populations.

The community has two PM_{2.5} monitors in Ecology's network in Kent and Auburn, with additional monitors nearby in Tukwila and Tacoma. PSCAA does more localized monitoring and studies within this area, particularly in their focus community, Auburn-Algona-Pacific. Wood smoke associated with home heating is a significant source of particulate matter pollution in the wintertime. The whole community is also crisscrossed by multiple transportation routes, rail lines, is home to a large number of warehouses, distribution centers, and is close to several airports.

Table 14. South King County Key Facts

Air Quality Authority	Puget Sound Clean Air Agency
Population (Census 2022 estimate)	207,973
Area	67.6 sq mi
Current Ecology Criteria Pollutant Monitoring	Kent-Central & James: PM _{2.5} Auburn-29 th Street: PM _{2.5}

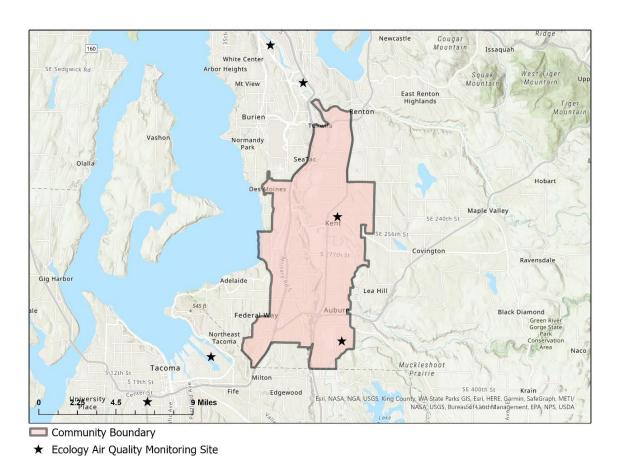


Figure 14. Map of the South King County community's boundaries for CCA Section 3

Community Identification

This community met the statewide screening criteria for EHD map ranking and part of it also for EJScreen demographic index, and partially an elevated level of cumulative criteria air pollution and $PM_{2.5}$ (24-hour) on the south end. That means, for most of the community, we don't expect

any single criteria pollutant to be elevated, but the combination of all pollutants may lead to community health impacts. While the community is meeting the national ambient air quality standards for criteria air pollution, it does experience high levels of criteria air pollution, when compared to the rest of Washington State. Most environmental justice tools, including the Climate and Economic Justice Screening Tool and the Environmental Justice Index, identify the communities along the transportation corridors (west of Interstate 5 and east of state route 167) as most impacted or disadvantaged. A recent mobile monitoring study out of University of Washington also showed that PM_{2.5} and NO₂ pollution concentrations were higher in this area as well.²⁰ While some areas North of Kent and between Kent, Auburn, and Federal Way did not meet our screening criteria, there is indication that this is a single airshed, so the boundary is designed to make a single, contiguous, community.

The area identified also aligns with the most impacted areas identified through PSCAA's Community Air Tool, a region-specific tool mapping air pollution disparity. PSCAA has identified Auburn-Algona-Pacific as a focus community, which is also included in this community. While identification criteria and scope of work is different between PSCAA's work and this initiative, we look forward to collaborating on efforts to improve air quality in the community.

The community is bounded by the Puyallup Tribe Reservation to the southwest, the Muckleshoot Tribe Indian Reservation to the southeast and contains a small piece of off-reservation Tribal land. Boundaries are subject to change following Tribal consultation.

Additional Resources

- PSCAA Air Sensor Map
- PSCAA Focus Communities: Auburn-Algona-Pacific
- PSCAA studies, reports, plans, etc.
 - o 2012-2013 Winter Monitoring Study
 - o 2014 Summer Ozone Study
- Other reports and studies:
 - 2012 Airport Lead Study: Auburn Municipal Airport and Harvey Field, Ecology
 - Mobile ObserVations of Ultrafine Particles (MOV-UP) study (2019), University of Washington, – analyzed the potential air quality impacts from aircraft traffic on communities near and underneath Seattle-Tacoma International Airport (Sea-Tac) flight paths
 - Blanco, Magali N., Amanda Gassett, Timothy Gould, Annie Doubleday, David L.
 Slager, Elena Austin, Edmund Seto, Timothy V. Larson, Julian D. Marshall, and

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²⁰ Blanco, Magali N., Amanda Gassett, Timothy Gould, Annie Doubleday, David L. Slager, Elena Austin, Edmund Seto, Timothy V. Larson, Julian D. Marshall, and Lianne Sheppard. "Characterization of Annual Average Traffic-Related Air Pollution Concentrations in the Greater Seattle Area from a Year-Long Mobile Monitoring Campaign." *Environmental Science & Technology* 56, no. 16 (2022): 11460-11472.

Lianne Sheppard. "Characterization of Annual Average Traffic-Related Air Pollution Concentrations in the Greater Seattle Area from a Year-Long Mobile Monitoring Campaign." *Environmental Science & Technology* 56, no. 16 (2022): 11460-11472.

Northeast Puyallup

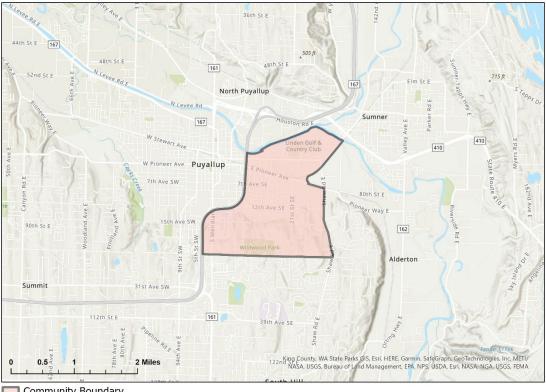
Community Description

Northeast Puyallup is in Pierce County. Air quality is managed by Puget Sound Clean Air Agency. It is approximately 2.8 square miles and has an estimated population of 9,629. The community is bounded by State Route 512 on the west and the Puyallup River to the north. This community is primarily residential with some limited manufacturing along a rail line near the river.

This community was identified based on cumulative impacts for both environmental health disparities in general and criteria air pollution. That means that this community may not experience a particularly high level of any one type of pollution or be especially vulnerable because of any one single factor. However, the cumulative impact of all these factors may mean increased risk of health impacts from air pollution to this community.

Table 15. Northeast Puyallup Key Facts

Air Quality Authority	Puget Sound Clean Air Agency
Population (Census 2022 estimate)	9,629
Area	2.8 sq mi
Current Ecology Criteria Pollutant Monitoring	None



Community Boundary

★ Ecology Air Quality Monitoring Site

Figure 15. Map of the Northeast Puyallup community's boundaries for CCA Section 3

Community Identification

Northeast Puyallup met the statewide screening criteria, based on the EHD map ranking and high cumulative level of criteria air pollution for Washington State. That means we don't expect any single criteria pollutant to be elevated, but the combination of all pollutants may lead to adverse public health impacts. Health indicators in EJScreen and the EHD map do indicate disparities in both life expectancy and cardiovascular disease deaths for these census tracts. Parts of this community also rank "low" or "very low" on the Pierce County Equity Index, which is a local EJ tool to identify disparities in opportunity at the county level.

PSCAA previously had a $PM_{2.5}$ monitoring site several miles away in South Hill. That data was included in Ecology's dataset to identify areas with an elevated level of pollution. PSCAA has also done several studies around the area, one of which included an additional temporary monitoring site in Puyallup (links below). Their results show similar or lower concentrations of $PM_{2.5}$ and O_3 to Ecology's data and did not find any previously unknown hotspots.

Additional Resources

- PSCAA Air Sensor Map
- Tacoma-Pierce County Health Department air quality webpage

- Pierce County Equity Index, City of Tacoma
- Zoning, planning, and land use maps:
 - o Puyallup GIS Portal
 - o Pierce County Data Portal
- Tacoma-Pierce County PM_{2.5} Nonattainment Area Study
- PSCAA studies, reports, plans, etc.
 - o 2012-2013 Winter Monitoring Study
 - o 2013-2014 Special Winter Intensive Monitoring Campaign
 - o 2014 Summer Ozone Study

South and East Tacoma

Community Description

Tacoma is in Pierce County and is the third largest city in the state. Air quality is managed by Puget Sound Clean Air Agency. The community identified for this initiative is about 28.4 square miles and has approximately 133,700 residents. It includes all or part of the following neighborhoods: New Tacoma, Central, Eastside, South End, and South Tacoma. It also includes parts of Lakewood, Parkland, and Midland to the south. The community includes the manufacturing and industrial areas at the Port of Tacoma and in South Tacoma and downtown Tacoma. The rest is primarily single-family residential. This area includes many groups that are vulnerable to air pollution, such as people of color, low-income, and linguistically isolated populations.

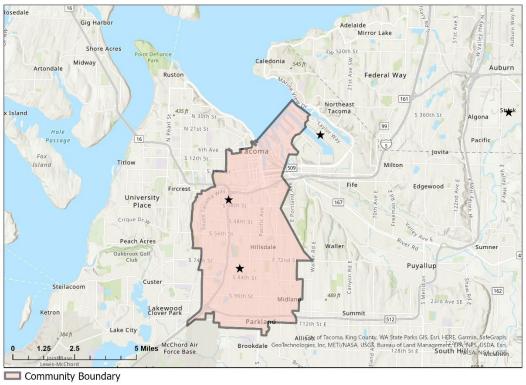
There are currently three monitoring sites in Ecology's network at the Port of Tacoma, near the junction of Interstate 5 and Highway 16, and in the South End neighborhood. While other air pollutants like air toxics, odors, and GHGs are likely to primarily come from industrial sources in Tacoma, criteria air pollution is a different story. An Ecology study of PM_{2.5} pollution resulting from a violation of the PM_{2.5} standard in 2009 found that PM_{2.5}, the criteria pollutant of greatest health concern, primarily came from residential wood smoke. Particulate matter concentrations have since declined in Tacoma, and it now meets the national ambient air quality standards. However, PM_{2.5} levels remain elevated at times and the community still experiences high rates of asthma, death from cardiovascular disease, and lower life expectancy compared to other parts of Washington state.

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²¹ <u>Sources of Fine Particles in the Wapato Hills-Puyallup River Valley PM_{2.5} Nonattainment Area, Department of Ecology</u>

Table 16. South and East Tacoma Key Facts

Air Quality Authority	Puget Sound Clean Air Agency
Estimated Population	133,700
Area	28.4 sq mi
Current Ecology Criteria Pollutant Monitoring	Tacoma-S 36 th St: NO ₂ , PM _{2.5}
	Tacoma-L St: PM _{2.5}
	Nearby: Tacoma-Alexander Ave: PM _{2.5}



★ Ecology Air Quality Monitoring Site

Figure 16. Map of the South and East Tacoma community's boundaries for CCA Section 3

Community Identification

This community met the statewide criteria for EHD map ranking and EJScreen in some parts, as well as elevated level of PM_{2.5} (24-hour) and/or high cumulative level of criteria air pollution for Washington State. While the community is meeting the national ambient air quality standards for criteria air pollution, it does experience high levels of PM_{2.5}, when compared to the rest of the state. The Environmental Justice Index also identifies the port, several of the surrounding tracts, and parts of Lakewood as most impacted. The Climate and Economic Justice Screening

Tool is more checkered, but also identifies much of Tacoma, Lakewood, Parkland, and Midland as disadvantaged. The screened area was extended west to include parts of the South Tacoma neighborhood to align with environmental justice screening tools, as well as historic redlining maps.

The area identified also aligns with the most impacted areas identified through PSCAA's Community Air Tool, a region-specific tool mapping air pollution disparity. Lakewood was also selected as a focus community by PSCAA. While there is some overlap, selection criteria and scope of work is different between PSCAA's work and this initiative.

We received many comments recommending Tacoma be included as an overburdened community highly impacted by air pollution, during both the public comment period, and listening sessions in Winter 2022. Specific places in Tacoma that were mentioned are the port, Hilltop, West End, South Tacoma, and Eastside. Please note that the community does not include Puyallup Tribe reservation land. Boundaries are subject to change following Tribal consultation.

Additional Resources

- PSCAA Air Sensor Map
- PSCAA Focus Communities: Lakewood
- Tacoma-Pierce County Health Department air quality webpage
- Tacoma Equity Index; Pierce County Equity Index, City of Tacoma
- Tacoma Redlining Map, Mapping Inequality
- Zoning, planning, and land use maps:
 - o Tacoma Zoning Map
 - o Tacoma GIS Portal
- <u>Tacoma-Pierce County PM_{2.5} Nonattainment Area Study</u>
- PSCAA studies, reports, plans, etc.
 - o 2012-2013 Winter Monitoring Study
 - o 2013-2014 Special Winter Intensive Monitoring Campaign
 - o 2014 Summer Ozone Study

Vancouver

Community Description

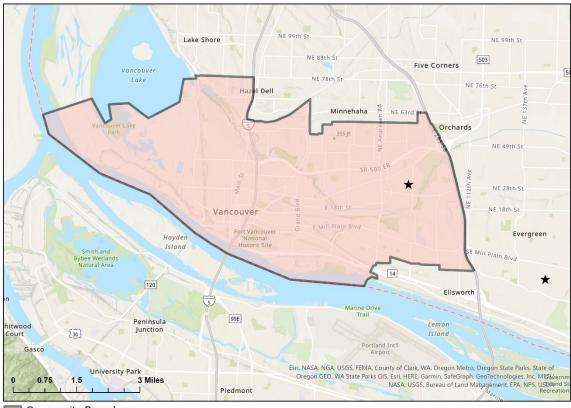
Vancouver is in Clark County and is the fourth largest city in the state. Air quality is managed by Southwest Clean Air Agency. The part identified as overburdened and highly impacted by air pollution is about 29 square miles and has about 109,900 residents. The community includes most of the city of Vancouver and is bounded by Interstate 205 on the east, and the Columbia

River in the south and west. Vancouver is a transportation hub, with heavy roadway, trains, and port activity. It is likely impacted by pollution sources in the more populated city of Portland across the Columbia River. Several social and economic factors contribute to the vulnerability of this community to air pollution impacts, including poverty, linguistic isolation, and unaffordable housing.

Vancouver currently has two air quality monitors in Ecology's network, one near Peter S. Ogden Park in central Vancouver and one at Mountain View High School in east Vancouver. Additional air quality monitoring in this area will ensure that people who live and work in and around this community have more representative air pollution data.

Table 17. Vancouver Key Facts

Air Quality Authority	Southwest Clean Air Agency
Population (Census 2022 estimate)	109,900
Area	29 sq mi
Current Ecology Criteria Pollutant Monitoring	Vancouver NE 84 th Ave: PM _{2.5} Nearby: Vancouver-Blairmont Dr: PM _{2.5} , O ₃ (summer only)



Community Boundary

★ Ecology Air Quality Monitoring Site

Figure 17. Map of the Vancouver community's boundaries for CCA Section 3

Community Identification

Part of this community met the statewide criteria for EHD map ranking and EJScreen in some parts, as well as elevated level of $PM_{2.5}$ (24-hour). While the community is meeting the national ambient air quality standards for criteria air pollution, it does experience high levels of $PM_{2.5}$, when compared to the rest of the state. Both the Climate and Economic Justice Screening Tool and the Environmental Justice Index identify portions of central Vancouver, and the tract containing the port as highly impacted. However, we did not identify a clear continuous part of the city that is generally considered overburdened. The screened area included part of central Vancouver between Interstate 5 and Interstate 205. The community boundary was extended west to include West Vancouver and the port, where they are currently no criteria air pollutant monitors.

During the public comment period, we received requests to include Vancouver as an overburdened community highly impacted by air pollution. The port, railyards, airports, freeways, and fossil fuel facilities were noted as particular areas of concern.

Additional Resources

- SWCAA studies, reports, and other agency resources
- Vancouver zoning map

Next Steps

For communities identified as highly impacted by air pollution

We will provide additional public outreach and begin placing air monitors in the identified communities in early 2023. By the end of 2023, we will publish the first biennial reports on community criteria pollution levels, greenhouse gas emissions, and health impacts.

The Climate Commitment Act also requires Ecology to develop standards and strategies to reduce the criteria air pollution in overburdened communities highly impacted by air pollution. We will use the data in our biennial reports to inform future decision-making and policy development. Ecology's budget package to develop these standards and strategies was included in the Governor's proposed 2023-2025 biennial budget. Pending legislative appropriation, Ecology proposed rulemaking to develop control technology standards using existing authority under the state Clean Air Act. Ecology also proposed a new grant program to target the different types of emissions sources that contribute to criteria air pollution in identified communities. Depending on legislative appropriation, Ecology would begin rulemaking and the development of a community centered grant program later in 2023. We look forward to working directly with identified communities on actions to improve air quality.

For Tribes

We are reaching out to Tribal governments for government-to-government consultation about the communities we have identified as highly impacted by criteria air pollution, based on the overlap between Tribal land and elevated levels of air pollution. Ecology is also available for further staff-to-staff engagement and government-to-government consultation for Tribes not identified by Ecology's process.

We invited government-to-government consultation with all Tribal governments in December 2021 and conducted Tribal meetings in January 2022 and September 2022, prior to each public engagement period. We will continue to consult with Tribal governments and engage organizations affiliated with Washington Tribes throughout every stage of this initiative.

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²² Gov. Inslee's proposed 2023-25 budgets | Office of Financial Management (wa.gov)

²³ 2023-25 Budget - Washington State Department of Ecology

More Information

Please visit <u>our website</u> for more information about the Improving Air Quality in Overburdened Communities Initiative, including information about public input opportunities. We provide translated materials in Spanish, Chinese, Korean, Vietnamese, and Russian.²⁴

Additional resources

All communities experience air pollution. This effort was focused on identifying communities that are overburdened and highly impacted by criteria air pollution. However, Ecology continuously works with local clean air agencies, the EPA, and Tribes to ensure healthy air to breathe for all Washingtonians. Here is some further information about this work and grant opportunities:

- Air quality information:
 - o <u>Washington's air quality monitoring network</u>
 - o Burn bans
 - o Washington smoke information blog
 - o **Burning & industrial air permits**
 - Air emissions inventory
 - Air quality standards (for criteria air pollutants and air toxics)
- Ecology administers several air quality grant programs that are available to clean air agencies, local and Tribal governments, and other local partners, including wood smoke reduction and clean diesel programs.

Federal programs and initiatives for addressing air quality and environmental justice are also ongoing, including funding through the American Rescue Plan and the Inflation Reduction Act.

Contact information

For questions about this document, contact Rylie Ellison at rylie.ellison@ecy.wa.gov or (360) 790-2567.

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²⁴ https://ecology.wa.gov/Air-Climate/Climate-Commitment-Act/Overburdened-communities

²⁵ Find your local clean air agency here: https://ecology.wa.gov/About-us/Accountability-transparency/Partnerships-committees/Clean-air-agencies