



2024 Ambient Air Monitoring Network Plan

By

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For the

Air Quality Program

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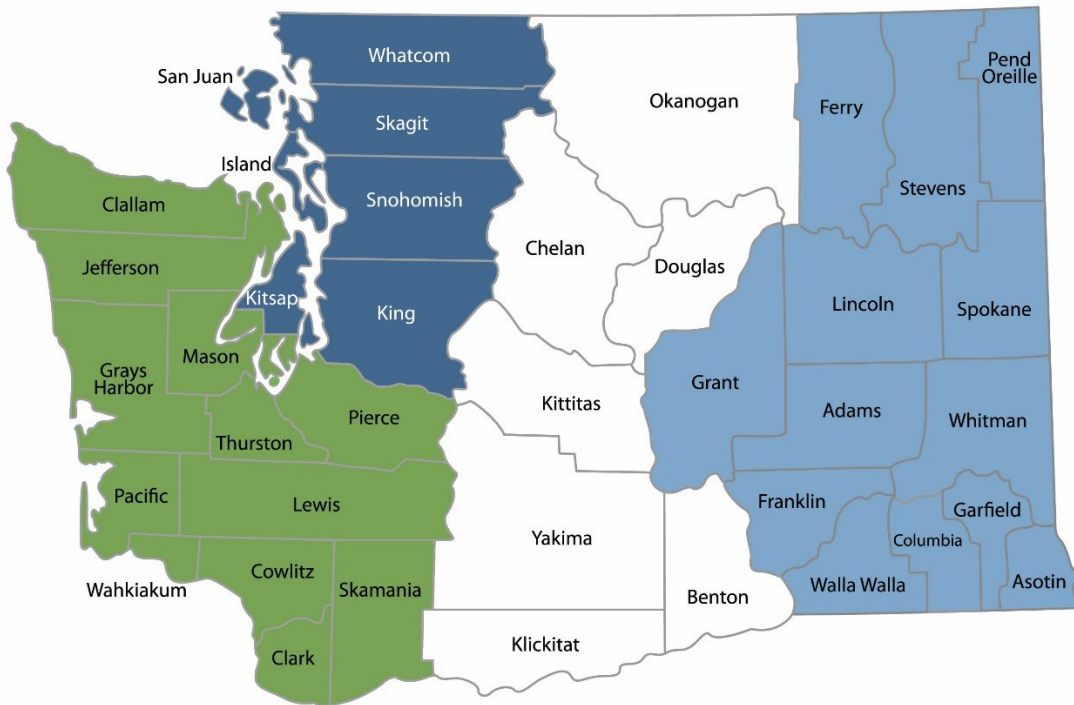
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Department of Ecology's Regional Offices

Map of Counties Served



Southwest Region 360-407-6300	Northwest Region 206-594-0000	Central Region 509-575-2490	Eastern Region 509-329-3400
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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

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DEPARTMENT OF
ECOLOGY
State of Washington

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Acronyms

AQS	EPA's Air Quality System database
BAM	Beta Attenuation Monitor
BCAA	Benton County Clean Air Agency
CBSA	Core-Based Statistical Area
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CSA	Combined Statistical Area
CSN	Chemical Speciation Network
DV	Design Value
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
FEM	Federal Equivalent Method
FRM	Federal Reference Method
IMPROVE	Interagency Monitoring of Protected Visual Environments
MSA	Metropolitan Statistical Area
NAAQS	National Ambient Air Quality Standard
NATTS	National Air Toxics Trends Station
NCore	National Core
NO	Nitrogen Oxide
NO ₂	Nitrogen Dioxide
NO _x	Oxides of Nitrogen
NO _y	Total Reactive Oxides of Nitrogen
NWCAA	Northwest Clean Air Agency
O ₃	Ozone
ORCAA	Olympic Region Clean Air Agency
Pb	Lead
PM _{2.5}	Particulate matter ≤ 2.5 micrometers in diameter
PM ₁₀	Particulate matter ≤ 10 micrometer in diameter
PM _{10-2.5}	Particulate matter ≤10 microns and > 2.5 micrometers in diameter
ppb	parts per billion
ppm	parts per million
PAMS	Photochemical Assessment Monitoring Station
PQAO	Primary Quality Assurance Organization
PSCAA	Puget Sound Clean Air Agency
PSD	Prevention of Significant Deterioration
QA	Quality Assurance
QC	Quality Control
SLAMS	State and Local Air Monitoring Station
SO ₂	Sulfur Dioxide
SPM	Special Purpose Monitor
SRCAA	Spokane Region Clean Air Agency
SWCAA	Southwest Clean Air Agency
STN	Speciation Trends Network
µg/m ³	micrograms per cubic meter
VOC	Volatile Organic Compound
YRCAA	Yakima Region Clean Air Agency

Executive Summary

Purpose

In accordance with the requirements described in 40 C.F.R. Part 58.10, the Washington State Department of Ecology (Ecology) reviews its ambient air monitoring network each year to ensure that it collects adequate, representative, and useful air quality data on which to base policy decisions. This report summarizes the results of the 2024 review. The annual review process includes:

- Documenting Ecology’s ambient air quality monitoring needs, goals and priorities;
- Identifying modifications to Ecology’s ambient air monitoring network since the previous annual network plan; and
- Identifying proposed modifications to the network in the upcoming 18 months.

Network modifications

A summary of recent and planned network modifications is provided below. Additional details on network modifications are provided in the relevant parameter-specific sections of this document.

Recent modifications

Regulatory PM_{2.5} (88101)

- As of December 31, 2023, the collocated Federal Reference Monitor (FRM) (POC 2) at the Puget Sound Clean Air Agency’s (PSCAA’s) Seattle-Duwamish monitoring site (530330057) was discontinued and the Federal Equivalent Method (FEM) BAM 1020 (POC 5) was designated the primary monitor. This modification was approved in EPA Region 10’s response to Ecology’s 2023 Ambient Air Monitoring Network Plan.
- As of December 31, 2023, the sampling frequency of the Yakima-4th Ave S (530770009) collocated FRM was reduced from 1:3 to 1:6. This modification was approved in EPA Region 10’s response to Ecology’s 2023 Ambient Air Monitoring Network Plan.
- On June 17, 2024, Ecology established a new site Everett-Beverly Park Rd (530610022) with Special Purpose Monitors (SPMs) for FEM PM_{2.5} and PM₁₀. This site is part of the expanded monitoring in overburdened communities required by the Washington Climate Commitment Act.

Non-regulatory PM_{2.5} (88502)

- On January 24, 2024, Ecology and the Spokane Regional Clean Air Agency (SRCAA) established a new site Spokane-E Sprague Ave (530630054) with a Special Purpose Monitor (SPM) for non-regulatory PM_{2.5}. This site is part of the expanded monitoring in overburdened communities required by the Washington Climate Commitment Act.

- On October 1, 2023, the Olympic Region Clean Air Agency (ORCAA) established a SPM for non-regulatory PM_{2.5} at the Raymond-4th St monitoring site (530490003).
- The Winthrop-Chewuch Rd (530470010) SPM for non-regulatory PM_{2.5} was discontinued on April 30, 2024.
- Due to a Town of Twisp construction project at the Twisp-Ewell St (530470016) site location, Ecology relocated the Twisp SPM for non-regulatory PM_{2.5} from its previous location on Ewell St to a new location at 100 S Lincoln St on June 3, 2024. Since the new location is only a block away from the previous Twisp-S Glover St site (530470009) that was used until 2020, Ecology will use the 530470009 AQS ID with the new name Twisp-S Lincoln St. Ecology discontinued the Twisp-Ewell St site (530470016) on June 3, 2024.

PM₁₀ (81102)

- On January 1, 2024, Ecology updated the method used to monitor PM₁₀ at the Seattle-Beacon Hill SLAMS (530330080) from a filter-based Federal Reference Method (FRM) monitor (81102 POC 2) to a continuous BAM 1020 (81102 POC 5) and discontinued reporting of filter-based PM₁₀ data to 81102.
- On June 17, 2024, Ecology established a new site Everett-Beverly Park Rd (530610022) with Special Purpose Monitors (SPMs) for FEM PM_{2.5} and PM₁₀. This site is part of the expanded monitoring in overburdened communities required by the Washington Climate Commitment Act.

Meteorological (61101/61102/61103/61104/62101)

- Meteorological monitoring resumed at the renovated Vancouver-Blairmont Dr site (530110011) on August 8, 2023. Meteorological monitoring had been suspended since 2020 due to construction at the high school where the site is located.
- Meteorological monitoring at the North Bend-North Bend Way site (530330017) resumed on April 18, 2024. Meteorological monitoring had been suspended since 2018 pending relocation of the meteorological tower, after a development of multi-story townhomes was built in the immediate vicinity of the previous tower location.

Chemical Speciation Network (CSN)

- Speciation sampling was added to the Toppenish-Yakama Tribe monitoring site (530770015) as of November 2, 2023.

Planned modifications

Nitrogen dioxide (NO₂, 42602)

- Ecology and PSCAA plan to add a SPM for NO₂ to the Seattle-Duwamish monitoring site (530330057) on October 1, 2024. This monitor will be part of the expanded monitoring in overburdened communities required by the Washington Climate Commitment Act.

Sulfur dioxide (SO₂, 42401)

- Ecology proposes to discontinue SO₂ monitoring at the Ferndale-Mountain View Rd (530730017) and Ferndale-Kickerville Rd (530730013) sites on December 31, 2024, or

upon EPA approval of the Redesignation to Attainment and 1st 10-year Maintenance Plan for the Intalco-Ferndale Sulfur Dioxide Nonattainment Area (wherein continued monitoring is not required), whichever is later.

Regulatory PM_{2.5} (88101)

- In the 2023 Ambient Air Monitoring Network Plan (Network Plan), Ecology proposed on behalf of the Puget Sound Clean Air Agency (PSCAA) to establish a new SLAMS for regulatory PM_{2.5} monitoring in SeaTac, funded by PSCAA's American Rescue Plan direct award for air monitoring. The installation of this site has been delayed in the permitting process, but PSCAA plans to install the site by the end of 2024. In response to the 2023 Network Plan, EPA requested additional information on the proposed site location, which is included in the PM_{2.5} section of this document.
- Ecology and ORCAA propose to upgrade the SLAMS for PM_{2.5} at ORCAA's Lacey-College St (530670013) monitoring site from non-regulatory (88502 POC 8) to regulatory (88101 POC 8) as of January 1, 2025.
- In the 2023 Network Plan, Ecology proposed to establish a Tribal regulatory PM_{2.5} and meteorological monitoring site in Wapato, owned and operated by the Yakama Nation. The equipment and installation costs for this new monitoring site were funded by EPA through the American Rescue Plan direct awards for enhanced air monitoring for criteria pollutants. The installation of the Wapato site is expected to be completed in summer 2024. As Tribal monitoring sites are not considered SLAMS, a full new site proposal is subject to agreement between EPA Region 10 and the Yakama Nation and is outside the scope of this document.
- PSCAA plans to identify a new Kent SLAMS site for PM_{2.5} monitoring to replace the former Kent-Central & James site (530332004) that was discontinued when they were unable to renew their lease in 2023. PSCAA plans to identify and install the replacement site in 2025. Installation is delayed until 2025 because PSCAA plans to use funding from the forthcoming Inflation Reduction Act air monitoring grant for installation expenses.

Non-regulatory PM_{2.5} (88502)

- Ecology and ORCAA propose to discontinue the SLAMS for non-regulatory PM_{2.5} (88502) at the Lacey-College St monitor in conjunction with the addition of a SLAMS for FEM PM_{2.5} (88101) on January 1, 2025.

PM₁₀ (81102)

- Ecology proposes to discontinue the PM₁₀ SLAMS monitor at SRCAA's Cheney-Turnbull site (530630001).
- Ecology requests a renewal of its current waiver for PM₁₀ minimum monitoring requirements in the Spokane-Spokane Valley MSA and expansion of this waiver to cover two of the four required monitors.

- Ecology and PSCAA propose to add a SLAMS for PM₁₀ to PSCAA’s Seattle-Duwamish monitoring site (530330057). This monitor will be part of the expanded monitoring in overburdened communities required by the Washington Climate Commitment Act.

Meteorological (61101/61102/61103/61104/62101)

- Ecology proposes to discontinue meteorological monitoring at the Ferndale-Mountain View Rd site at the time the SO₂ monitor is discontinued.
- Ecology and the Yakama Nation plan to add meteorological monitoring to the Yakama Nation’s new Wapato site to be established in summer 2024.

Modification requests for EPA approval

Some recent and planned site changes are included in this document for EPA awareness, public notification, and Ecology recordkeeping. Others are included specifically to request EPA Regional Administrator approval for modifications to the SLAMS network. To clarify this distinction, the specific SLAMS modification requests for which Ecology requests EPA Regional Administrator approval are listed here:

- Selection of PSCAA’s SeaTac monitoring site location in Sunset Park and addition of a new SLAMS for regulatory PM_{2.5}.
- Discontinuation of the Lacey-College St SLAMS for non-regulatory PM_{2.5} and addition of a SLAMS for FEM PM_{2.5} monitoring as of January 1, 2025.
- Discontinuation of the Ferndale-Mountain View Rd (530730017) and Ferndale-Kickerville Rd (530730013) SO₂ monitors as of December 31, 2024, or upon approval of the Redesignation to Attainment and 1st 10-year Maintenance Plan for the Intalco-Ferndale Sulfur Dioxide Nonattainment Area (wherein continued monitoring is not required), whichever is later.
- Discontinuation of SRCAA’s Cheney-Turnbull PM₁₀ SLAMS monitor (530630001) as soon as possible.
- Waiver of two of the four required PM₁₀ monitors in the Spokane-Spokane Valley MSA to meet EPA minimum monitoring requirements.
- Addition of a new SLAMS for PM₁₀ at PSCAA’s Seattle-Duwamish site (530330057).

Inflation Reduction Act (IRA) new sites

Ecology expects to receive an air monitoring grant through the Inflation Reduction Act provisions 60105(a) and 60105(b) in fall 2024. This grant will include funding for five new air monitoring site installations: a new ozone monitoring site in the Kennewick-Richland, WA MSA, and new PM_{2.5} monitoring sites in Kent (PSCAA), Liberty Lake (SRCAA), Friday Harbor and Oak Harbor (both Northwest Clean Air Agency). Ecology expects that most of these installations will take place throughout 2025. Ecology will provide formal site establishment requests once

specific site location details are available for these new sites, either in the 2025 Ambient Air Monitoring Network Plan or in memos outside the Network Plan process.

Site name updates

In consultation with local clean air agency site owners, Ecology updated the local site names for two monitoring sites to better match local geography. The Kennewick-S Clodfelter ozone monitoring site (530050003) was renamed Kennewick-S Steptoe St, and the Spokane-E Broadway Ave PM_{2.5} and PM₁₀ monitoring site (530630017) was renamed Spokane Valley-E Broadway Ave.

Introduction

This document summarizes Ecology's annual review of the Washington Ambient Air Monitoring Network (Washington Network) in accordance with 40 C.F.R. Part 58.10.

EPA's ambient air quality surveillance regulations in 40 C.F.R. Part 58 require states to establish air quality surveillance systems in their State Implementation Plans (SIPs). An air quality surveillance system consists of a network of State and Local Air Monitoring Stations (SLAMS). These stations measure ambient concentrations of those air pollutants for which 40 C.F.R. Part 50 sets standards. SLAMS must meet the requirements of 40 C.F.R. Part 58 contained in:

- Appendix A (Quality Assurance Requirements)
- Appendix C (Ambient Air Quality Monitoring Methodology)
- Appendix D (Network Design Criteria)
- Appendix E (Probe and Path Siting Criteria)

States determine if they conform to Appendices A and C in part through periodic system and performance audits. States conform to Appendices D and E by conducting an annual network review of their air quality surveillance systems. This review is documented in an annual network plan that meets the following requirements:

- The plan describes any network modifications planned in the upcoming 18 months. Network modifications are subject to approval of the EPA Regional Administrator.
- For each existing and proposed monitoring site, the plan includes the following information:
 - The AQS site number
 - The represented MSA or other geographic area
 - The special scale, sampling method, and operating schedule for each monitor
- The plan must be made available for public inspection and comment for at least 30 days prior to submission to the EPA. The final plan includes and addresses comments received through the public notification process.

Background Information

Monitoring Objectives

The Washington Network was designed to meet the three monitoring objectives defined in 40 C.F.R. Part 58 Appendix D:

- 1. Provide air pollution data to the public in a timely manner.** Ecology provides timely air quality data to the public in a variety of ways:
 - Near-real-time data are available on Ecology’s monitoring website.
 - Near-real-time data are submitted to EPA’s AirNow system for public display and reporting.
 - Ecology conducts public outreach and issues alerts and bulletins when air quality is compromised.
- 2. Support compliance with National Ambient Air Quality Standards (NAAQS) and development of pollution control strategies.** Ambient air quality data are used to:
 - Determine compliance with the NAAQS
 - Determine the location of maximum pollutant concentrations
 - Track the progress of SIPs
 - Determine the effectiveness of air pollution control programs
 - Develop responsible and cost-effective emission control strategies
 - Assist with permitting work
- 3. Support air pollution research.** Ecology and its partners use ambient air quality data to improve our understanding of air pollution and its consequences. Research applications of air quality include:
 - Improving air quality forecasting
 - Evaluating the effects of air pollution on public health
 - Informing dispersion models
 - Identifying air quality trends and emerging pollution issues
 - Analyzing pollution episodes

In order to meet these three objectives, 40 C.F.R. Part 58 Appendix D calls for the design of SLAMS networks to include several different types of monitors. These general types are sites that:

1. Determine the highest pollutant concentrations expected in the area covered by the network.

2. Determine representative pollutant concentrations in areas of high population density.
3. Determine the impact of significant sources or source categories on pollutant concentrations in the ambient air.
4. Determine general background pollutant concentrations.
5. Determine the regional extent of pollutant transport between populated areas.
6. Determine the impacts on visibility or vegetation (welfare impacts) in more rural and remote areas.

Appendix D of 40 C.F.R. Part 58 also provides guidance on spatial scales of representativeness for stations in a SLAMS network. Ideally, the station is located so that its sample represents the air quality across the scale that the station is intended to represent. Appendix D defines the following spatial scales:

1. **Microscale:** Area dimensions between several and 100 meters.
2. **Middle scale:** Areas between 100 and 500 meters, typically several city blocks.
3. **Neighborhood scale:** Areas between 0.5 and 4 kilometers with relatively uniform land use.
4. **Urban scale:** Areas with city-like dimensions between 4 and 50 kilometers. Urban and neighborhood scales can overlap considerably. Heterogeneous urban areas may not have a single representative site.
5. **Regional scale:** Areas from tens to hundreds of kilometers with relatively homogeneous geography and no large sources.
6. **National and global scales:** Scales representing the nation or globe as a whole.

Table 1 summarizes the appropriate spatial scales for each criteria pollutant and applicable site types.

Table 1. Summary of applicable spatial scales for criteria pollutants and monitoring objectives

Scale	SO ₂	CO	O ₃	NO ₂	Pb	PM ₁₀	PM _{2.5}	Site Types
Micro	✓	✓		✓	✓		✓	Highest concentration; source impact
Middle	✓	✓		✓	✓	✓	✓	Highest concentration; source impact
Neighborhood	✓	✓	✓	✓	✓	✓	✓	Highest concentration; population; source impact; general/background
Urban	✓		✓	✓			✓	Highest concentration; population; general/background; regional transport; welfare-related impacts
Regional	✓		✓				✓	General/background; regional transport; welfare-related impacts

Other ambient monitoring data needs

Nephelometer monitoring

At many non-regulatory PM_{2.5} monitoring sites, Ecology uses nephelometers to estimate PM_{2.5} concentrations and inform the public of air quality conditions. Typically, nephelometer monitoring sites use site-specific PM_{2.5} correlations developed from historical collocated Federal Reference Method (FRM) or Federal Equivalent Method (FEM) monitor data. Lower concentration sites may use generalized regional correlations developed at sites with similar geographic and source characteristics. These sites are operated in accordance with 40 C.F.R. Part 58 Appendix A requirements for quality assurance and quality control and Appendix E requirements for probe and path siting criteria where possible. At nephelometer sites where PM_{2.5} concentrations are consistently measured at or greater than 80 percent of the NAAQS, Ecology transitions to FEM monitoring.

Washington Climate Commitment Act expanded monitoring

The Washington Climate Commitment Act (CCA) of 2021 (RCW 70A.65.020 (1)) requires Ecology to identify “overburdened communities highly impacted by air pollution” and expand monitoring in these communities in order to inform a biennial environmental justice review. New monitors established as part of the CCA expanded monitoring are generally set up as Special Purpose Monitors (SPMs) unless used to fulfill EPA minimum monitoring requirements. New SPMs established for this purpose are noted as recent network modifications in this document.

PM_{2.5} sensors

Ecology supplements its network of fixed monitoring sites with a network of custom PM_{2.5} sensors called the SensWA, designed and built by Ecology. SensWA sensors receive pre-deployment laboratory evaluation, preventive maintenance and component replacements, real-time data screening, and bias correction based on local collocation results. SensWA contain two side-by-side PM_{2.5} sensing elements to support data validation and rapid identification of faulty sensors. Many SensWA are operated with solar power to allow for monitoring in previously inaccessible locations. To the extent possible, SensWA are sited to meet 40 C.F.R. Part 58 Appendix E siting criteria for PM_{2.5} monitoring.

Ecology considers the SensWA to be a mid-tier instrument whose performance and data quality are superior to those of typical consumer-grade sensors but not as high as established PM_{2.5} instruments such as beta attenuation monitors. Ecology uses the SensWA to monitor smoke from wildland fires, inform smoke management decisions, evaluate ongoing monitoring needs in previously unmonitored communities, and respond to emergent events. Ecology has also added SensWA to all ozone and PM₁₀ monitoring sites in the Washington network that previously lacked a PM_{2.5} measurement. These sensors serve as an important public information tool during summer wildfire smoke events and have eliminated much confusion around conflicting AQI information from monitoring sites for other pollutants during periods of elevated PM_{2.5}. Ecology also uses the SensWA in the expanded monitoring in overburdened communities required by the Washington Climate Commitment Act, as described above.

The SensWA are used primarily as a public information tool. Their data are submitted to AirNow but not to AQS. A map of SensWA locations as of April 2024 is shown in Figure 1. As new SensWA are deployed frequently and existing sites can be relocated, this map is subject to change.

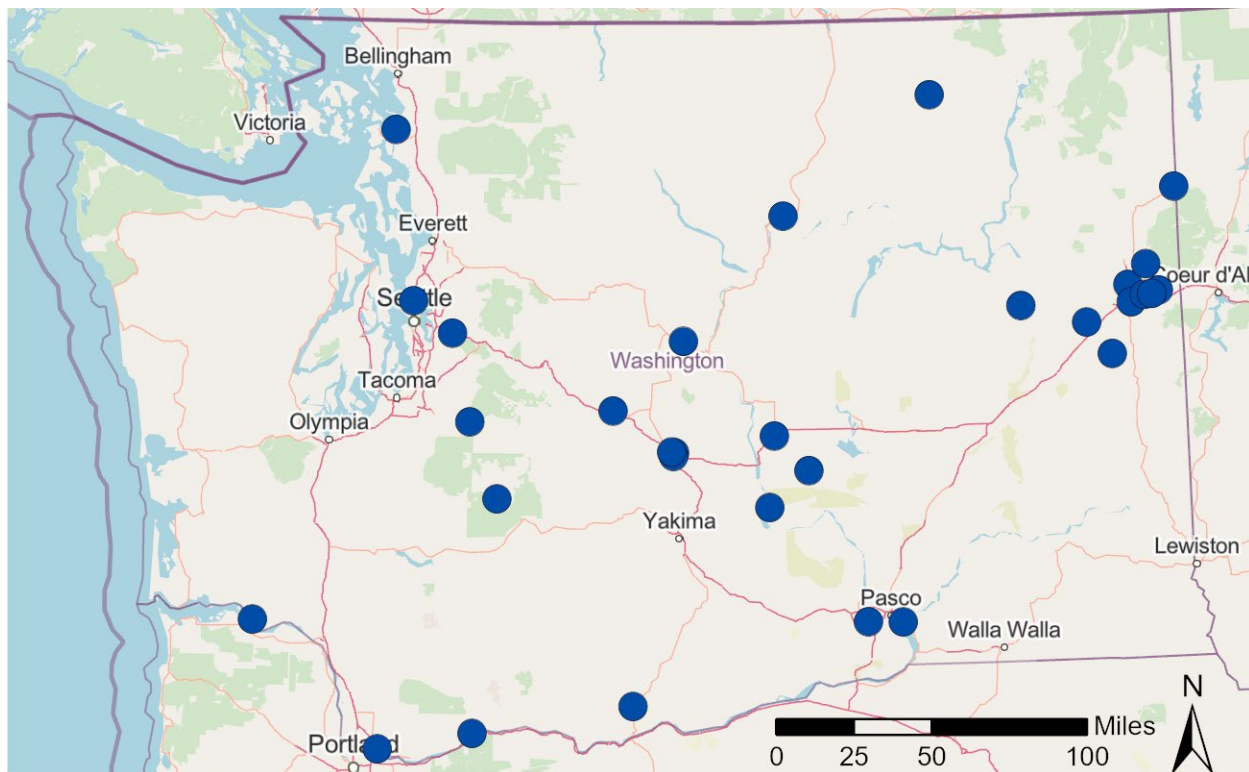


Figure 1. Map of SensWA locations in Washington as of April 2024.

Network Evaluation

Ecology uses a variety of tools to evaluate how well its monitoring network is meeting these goals and objectives. These tools include:

- EPA minimum monitoring requirements in 40 C.F.R. Part 58 Appendix D
- Results of Ecology’s most recent 5-year Ambient Air Quality Monitoring Network Assessment
- Analyses of historic monitoring data
- Census data on population density and demographics
- Dispersion and air quality forecast models
- Planning requirements, including SIPs and maintenance plans
- Jurisdictional boundaries
- Results of special monitoring studies

The suitability of individual monitoring sites is evaluated according to the probe and monitoring path siting criteria described in 40 C.F.R. Part 58 Appendix E.

Washington Core-Based Statistical Areas

The minimum monitoring requirements listed in 40 C.F.R. Part 58 Appendix D are based on the core-based statistical areas (CBSAs) defined by the U.S. Office of Management and Budget. Washington's CBSAs are shown in the map in Figure 1 (U.S. Census Bureau, 2020). The populations of CBSAs in Washington over 50,000 people are listed in Table 2.

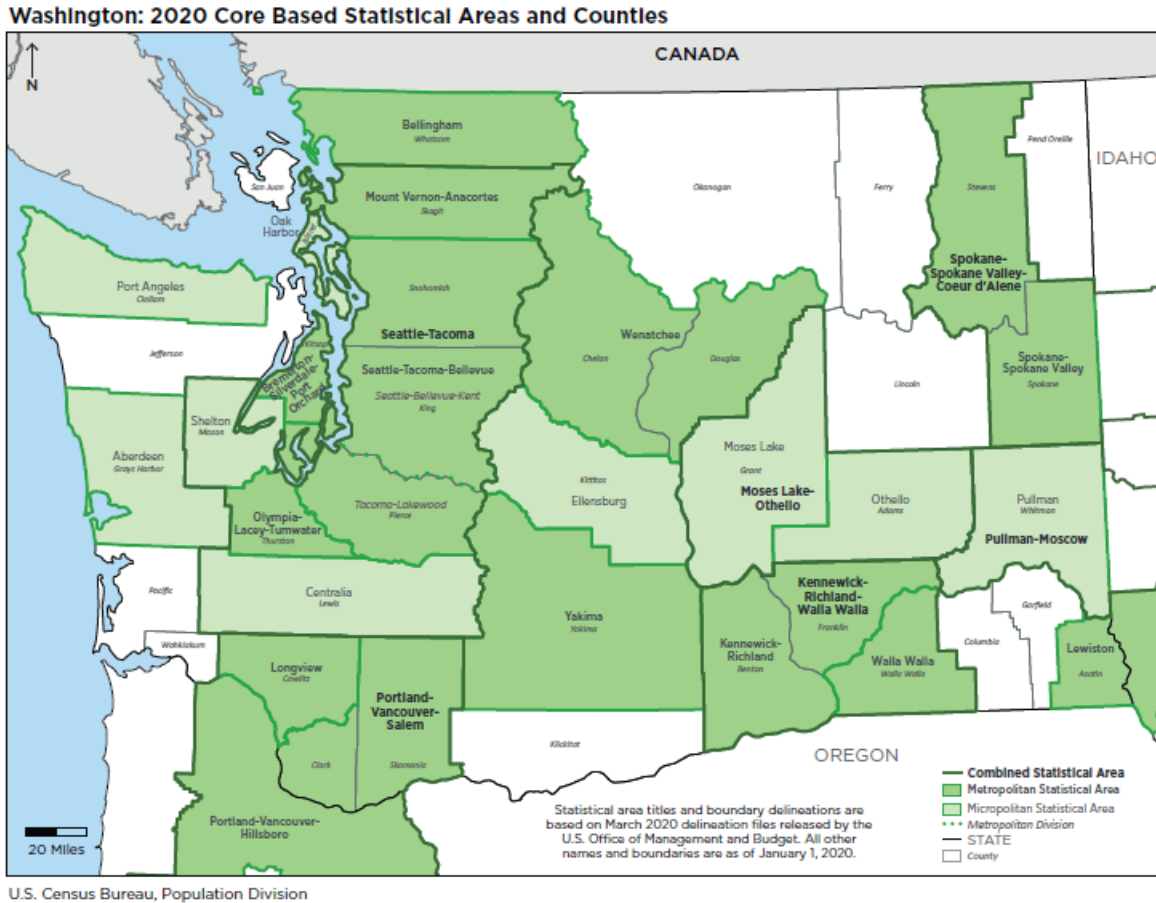


Figure 2. Washington's Core-Based Statistical Areas (CBSAs), U.S. Census Bureau 2020

Table 2. Washington's CBSA populations over 50,000 (U.S. Census Bureau, 2024)

Core-Based Statistical Area	2023 Population
Seattle-Tacoma-Bellevue, WA	4,044,837
Portland-Vancouver-Hillsboro, OR-WA	2,508,050
Spokane-Spokane Valley, WA	600,292
Kennewick-Richland, WA	314,253
Olympia-Lacey-Tumwater, WA	299,003
Bremerton-Silverdale-Port Orchard, WA	277,658
Yakima, WA	256,643

Core-Based Statistical Area	2023 Population
Bellingham, WA	231,919
Mount Vernon-Anacortes, WA	131,417
Wenatchee, WA	124,795
Longview, WA	112,864
Moses Lake, WA	102,678
Oak Harbor, WA	86,267
Centralia, WA	86,154
Port Angeles, WA	77,616
Aberdeen, WA	77,290
Shelton, WA	68,389
Lewiston, ID-WA	65,536
Walla Walla, WA	61,568

Washington shares the Portland-Vancouver-Hillsboro, OR-WA CBSA with the state of Oregon. The minimum monitoring requirements for PM₁₀, PM_{2.5} and ozone in this CBSA are met through a combination of monitors operated by Ecology and the Oregon Department of Environmental Quality (DEQ). Ecology and Oregon DEQ renewed a Memorandum of Understanding on April 5, 2024, to formalize this arrangement (Appendix E).

Maintenance Areas

As of July 1, 2024, Washington has five maintenance areas for criteria pollutants. Maintenance areas demonstrate continued attainment of the NAAQS either through monitoring or through EPA-approved alternate methods. These methods are summarized in Table 3.

Table 3. Washington maintenance areas and methods of demonstrating NAAQS attainment

Maintenance Area (Pollutant)	End of Maintenance Period	Method of Demonstrating NAAQS Attainment
Wallula (PM ₁₀)**	9/26/2025	Burbank-Maple St PM ₁₀ monitor (530710006)
Spokane (PM ₁₀)	8/30/2025	Spokane-Augusta PM ₁₀ monitor (530630021) until March 2021; Spokane Valley-E Broadway Ave PM ₁₀ monitor (530630017) as of April 2021
Yakima (PM ₁₀)	3/10/2025	Yakima-4th Ave S PM ₁₀ monitor (530770009)
Tacoma (PM _{2.5})	3/12/2035	Tacoma-L St PM _{2.5} monitor (530530029)
Spokane (CO)	8/30/2025	Modeled onroad, nonroad and residential wood combustion CO emissions

** The Wallula Maintenance Plan is a full maintenance plan, not a Limited Maintenance Plan. The compliance status of the Wallula Maintenance Area is determined by design value at the Burbank-Maple St monitoring site as listed in Table 29. Outside of exceedances due to extreme wildfire smoke events, the Burbank-Maple St site is in compliance with the PM₁₀ standard.

Washington has maintenance areas that fall within the jurisdiction of local air agencies. In accordance with the maintenance plans, the Spokane Regional Clean Air Agency submitted

design values to Ecology for the maintenance areas in their jurisdiction. These design values and their underlying calculations can be found in the document “Verification of Continued Attainment in Limited Maintenance Areas (2024)” submitted concurrently with this plan.

Monitoring Network Design

As of July 1, 2024, Ecology and its partners operate 72 monitoring sites as part of the Washington Network. These sites are shown on the map in Figure 2, and the parameters monitored are summarized in Table 4. Detailed location information is provided in Appendix D. All monitoring sites described in this plan are operated under the Ecology Primary Quality Assurance Organization (PQAO). Other monitoring sites, such as IMPROVE sites, are operated in Washington as part of separate PQAOs, but those networks are outside the scope of this document.

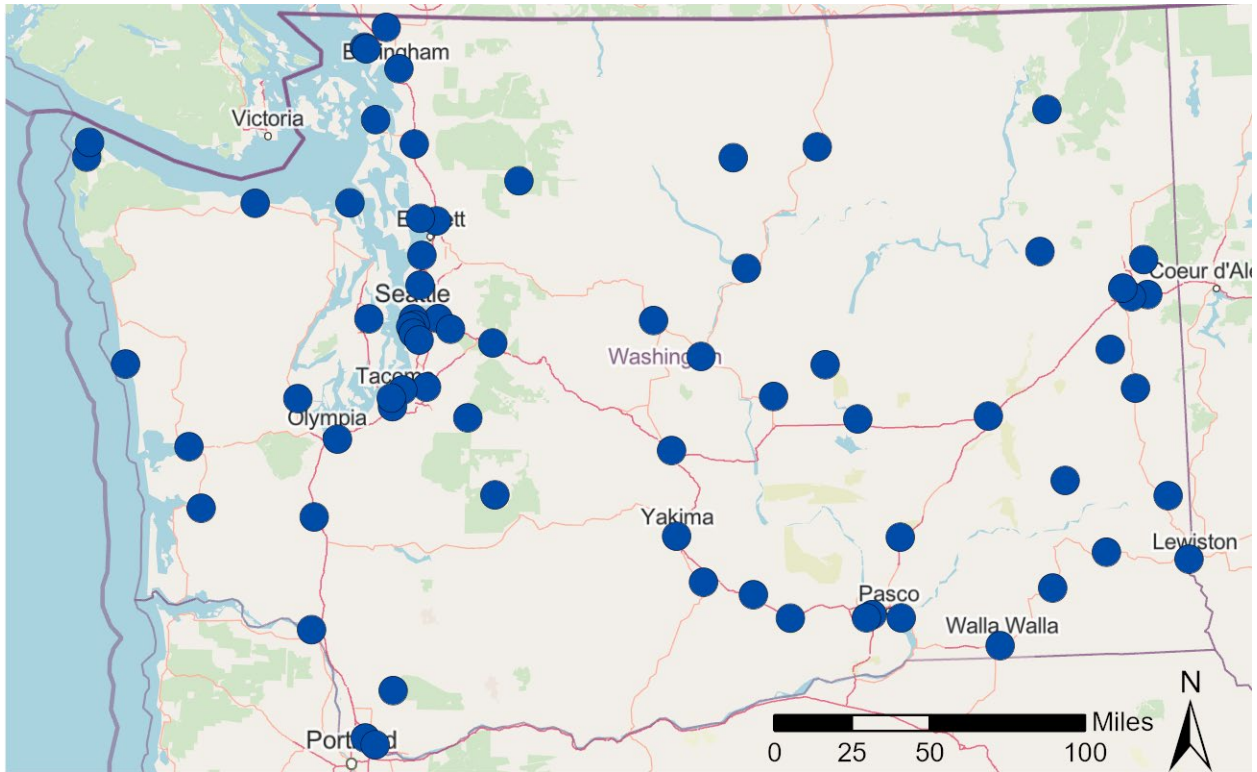


Figure 3. Map of all Washington Network monitoring sites

Table 4. Summary of parameters monitored at Washington Network monitoring sites

CBSA	Site	AQS ID	CO	NO2	O3	SO2	PM2.5 (FEM)	PM2.5 (Non-FEM)	PM10	Met	CSN
Aberdeen, WA	Aberdeen-Division St	530272002						x			
Aberdeen, WA	Taholah-Quinault Tribe	530270011						x			
Bellingham, WA	Bellingham-Pacific St	530730019					x				
Bellingham, WA	Custer-Loomis	530730005			x						
Bellingham, WA	Ferndale-Kickerville Road	530730013				x					
Bellingham, WA	Ferndale-Mountain View Rd	530730017				x				x	
Bremerton-Silverdale-Port Orchard, WA	Bremerton-Spruce Ave	530350007					x				
Centralia, WA	Chehalis-Market Blvd	530410004						x			
Ellensburg, WA	Ellensburg-Ruby St	530370002					x	x			
Kennewick-Richland, WA	Kennewick-Metaline	530050002						x	x	x	
Kennewick-Richland, WA	Kennewick-S Steptoe St	530050003			x						
Kennewick-Richland, WA	Mesa-Pepiot Way	530210002						x			
Kennewick-Richland, WA	Prosser-Highland Dr	530050004						x			
Lewiston, ID-WA	Clarkston-13th St	530030004						x			
Longview, WA	Longview-30th Ave	530150015						x			
Moses Lake, WA	Moses Lake-Balsam St	530251002						x			
Moses Lake, WA	Quincy-3rd Ave NE	530251003						x		x	
Moses Lake, WA	Soap Lake-4th Ave SE	530250003						x			
Mount Vernon-Anacortes, WA	Anacortes-202 O Ave	530570011			x	x	x				
Mount Vernon-Anacortes, WA	Mt Vernon-S Second St	530570015						x			
None	Dayton-W Main St	530130002						x			
None	Omak-Colville Tribe	530470013					x			x	
None	Pomeroy-Pataha St	530230001						x			
None	Port Townsend-San Juan Ave	530310003						x			
None	Raymond-4th St	530490003						x			
None	Twisp-S Lincoln St	530470009						x			
Olympia-Lacey-Tumwater, WA	Lacey-College St	530670013			x			x			
Othello, WA	Ritzville-Alder St	530010003						x			
Port Angeles, WA	Cheeka Peak	530090013	x	x	x	x		x		x	
Port Angeles, WA	Neah Bay-Makah Tribe	530090015						x			
Port Angeles, WA	Port Angeles-E 5th St	530090017						x			
Portland-Vancouver-Hillsboro, OR-WA	Vancouver NE 84th Ave	530110024					x				
Portland-Vancouver-Hillsboro, OR-WA	Vancouver-Blairmont Dr	530110011			x					x	
Portland-Vancouver-Hillsboro, OR-WA	Yacolt-Yacolt Rd	530110022						x			

CBSA	Site	AQS ID	CO	NO2	O3	SO2	PM2.5 (FEM)	PM2.5 (Non-FEM)	PM10	Met	CSN
Pullman, WA	LaCrosse-Hill St	530750005						x			
Pullman, WA	Pullman-Dexter SE	530750003						x			
Pullman, WA	Rosalia-Josephine St	530750006						x			
Seattle-Tacoma-Bellevue, WA	Auburn-29th St	530330047						x			
Seattle-Tacoma-Bellevue, WA	Bellevue-SE 12th St	530330031						x			
Seattle-Tacoma-Bellevue, WA	Darrington-Fir St	530610020					x				
Seattle-Tacoma-Bellevue, WA	Everett-Beverly Park Rd	530610022					x		x		
Seattle-Tacoma-Bellevue, WA	Enumclaw-Mud Mtn.	530330023			x					x	
Seattle-Tacoma-Bellevue, WA	Issaquah-Lake Sammamish	530330010									
Seattle-Tacoma-Bellevue, WA	Lake Forest Park	530330024						x			
Seattle-Tacoma-Bellevue, WA	Marysville-7th Ave	530611007					x				
Seattle-Tacoma-Bellevue, WA	Mt Rainier-Jackson Visitors Ctr	530530012			x						
Seattle-Tacoma-Bellevue, WA	North Bend-North Bend Way	530330017			x			x		x	
Seattle-Tacoma-Bellevue, WA	Seattle-10th & Weller	530330030	x	x			x			x	
Seattle-Tacoma-Bellevue, WA	Seattle-Beacon Hill	530330080	x	x	x	x	x		x	x	X
Seattle-Tacoma-Bellevue, WA	Seattle-Duwamish	530330057					x				
Seattle-Tacoma-Bellevue, WA	Seattle-South Park	530331011						x			
Seattle-Tacoma-Bellevue, WA	Tacoma-Alexander Ave	530530031					x				
Seattle-Tacoma-Bellevue, WA	Tacoma-L Street	530530029					x				X
Seattle-Tacoma-Bellevue, WA	Tacoma-S 36th St	530530024		x			x			x	
Seattle-Tacoma-Bellevue, WA	Tukwila Allentown	530330069					x				
Seattle-Tacoma-Bellevue, WA	Tulalip-Totem Beach Rd	530610021						x			
Shelton, WA	Shelton-W Franklin	530450007						x			
Spokane-Spokane Valley, WA	Cheney-Turnbull	530630001			x				x		
Spokane-Spokane Valley, WA	Colville-E 1st St	530650005					x	x	x	x	
Spokane-Spokane Valley, WA	Spokane Valley-E Broadway Ave	530630017					x		x		
Spokane-Spokane Valley, WA	Spokane-E Sprague Ave	530630054						x			
Spokane-Spokane Valley, WA	Spokane-Greenbluff	530630046			x						
Spokane-Spokane Valley, WA	Spokane-Monroe St	530630047						x			
Spokane-Spokane Valley, WA	Wellpinit-Spokane Tribe	530650002						x			

CBSA	Site	AQS ID	CO	NO2	O3	SO2	PM2.5 (FEM)	PM2.5 (Non-FEM)	PM10	Met	CSN
Walla Walla, WA	Burbank-Maple St	530710006							x	x	
Walla Walla, WA	Walla Walla-12th St	530710005						x			
Wenatchee, WA	Chelan-Woodin Ave	530070007						x			
Wenatchee, WA	Leavenworth-Evans St	530070010						x			
Wenatchee, WA	Wenatchee-Fifth St	530070011						x		x	
Yakima, WA	Sunnyside-S 16th St	530770005					x				
Yakima, WA	Toppenish-Yakama Tribe	530770015					x			x	X
Yakima, WA	Yakima-4th Ave	530770009					x		x		X

Carbon monoxide (CO, 42101)

There are three CO monitoring sites in the Washington Network. All Washington Network CO monitoring sites collect hourly data with method code 593 (Teledyne API 300 EU). The monitoring objective of the Cheeka Peak and Beacon Hill CO monitors is general/background, and the monitoring objective of the Seattle-10th & Weller CO monitor is source-oriented. All CO monitors in the Washington Network meet the requirements of 40 C.F.R. Part 58 Appendices A, B, C, D, and E, where applicable.

Table 5. Washington Network CO monitoring sites

AQS ID	Site Name	CBSA	Established	Type	Scale	POC
530090013	Cheeka Peak	Port Angeles, WA	05/2006	SLAMS, NCore	Regional	2
530330030	Seattle-10 th & Weller	Seattle-Tacoma-Bellevue, WA	04/2014	SLAMS, Near-road	Microscale	1
530330080	Seattle-Beacon Hill	Seattle-Tacoma-Bellevue, WA	03/2007	SLAMS, NCore	Urban	1

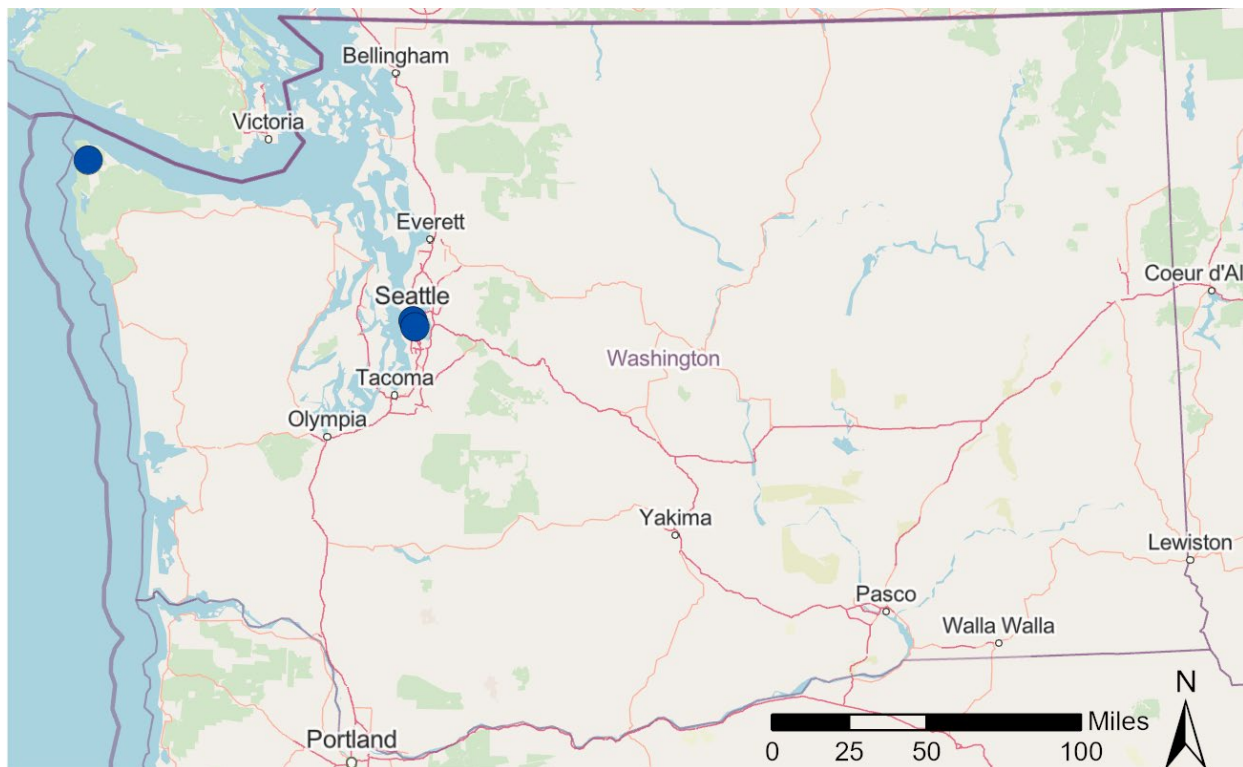


Figure 4. Map of Washington Network CO monitoring sites

Minimum monitoring requirements

Ecology is required to operate a CO monitor collocated with one required near-road NO₂ monitor in CBSAs with a population of 1,000,000 or more. In the Seattle-Tacoma-Bellevue CBSA, this requirement is met at the Seattle-10th & Weller near-road monitoring site (530330030). In the Portland-Vancouver-Hillsboro, OR-WA MSA, Oregon DEQ fulfills this requirement.

Recent modifications

None.

Recommended/proposed modifications

None.

Nitrogen dioxide (NO₂, 42602/42612)

There are three hourly NO₂ (42602) monitoring sites in the Washington Network and two sites that monitor hourly trace NO_y-NO (42612). Seattle-Beacon Hill monitors both area-wide NO₂ and trace NO_y-NO. The monitoring objective of the trace NO_y-NO monitors is general/background. The monitoring objective of the Seattle-Beacon Hill NO₂ monitor is population exposure, and the monitoring objective of the near-road NO₂ monitors is source-

oriented. All NO₂ and NO_y-NO monitors in the Washington Network meet the requirements of 40 C.F.R. Part 58 Appendices A, B, C, D, and E, where applicable.

Table 6. Washington Network NO₂ and Trace NO_y-NO monitoring sites

AQS ID	Site Name	CBSA	NO ₂	Trace NO _y -NO	Est.	Type	Scale	Method	POC
530090013	Cheeka Peak	Port Angeles, WA		✓	01/2011	SLAMS, NCore	Regional	Teledyne API 200 EU (699)	2
530330030	Seattle-10 th & Weller	Seattle-Tacoma-Bellevue, WA	✓		04/2014	SLAMS, Near-road	Microscale	Teledyne API 200 EU (599)	1
530330080	Seattle-Beacon Hill	Seattle-Tacoma-Bellevue, WA	✓	✓	08/2013	SLAMS, NCore	Urban	NO ₂ : Teledyne API T500U (212) Trace NO _y -NO: Teledyne API T200U (599)	NO ₂ : 1 NO _y -NO: 2
530530024	Tacoma-S 36 th	Seattle-Tacoma-Bellevue, WA	✓		01/2016	SLAMS, Near-road	Microscale	Teledyne API 200 EU (599)	1

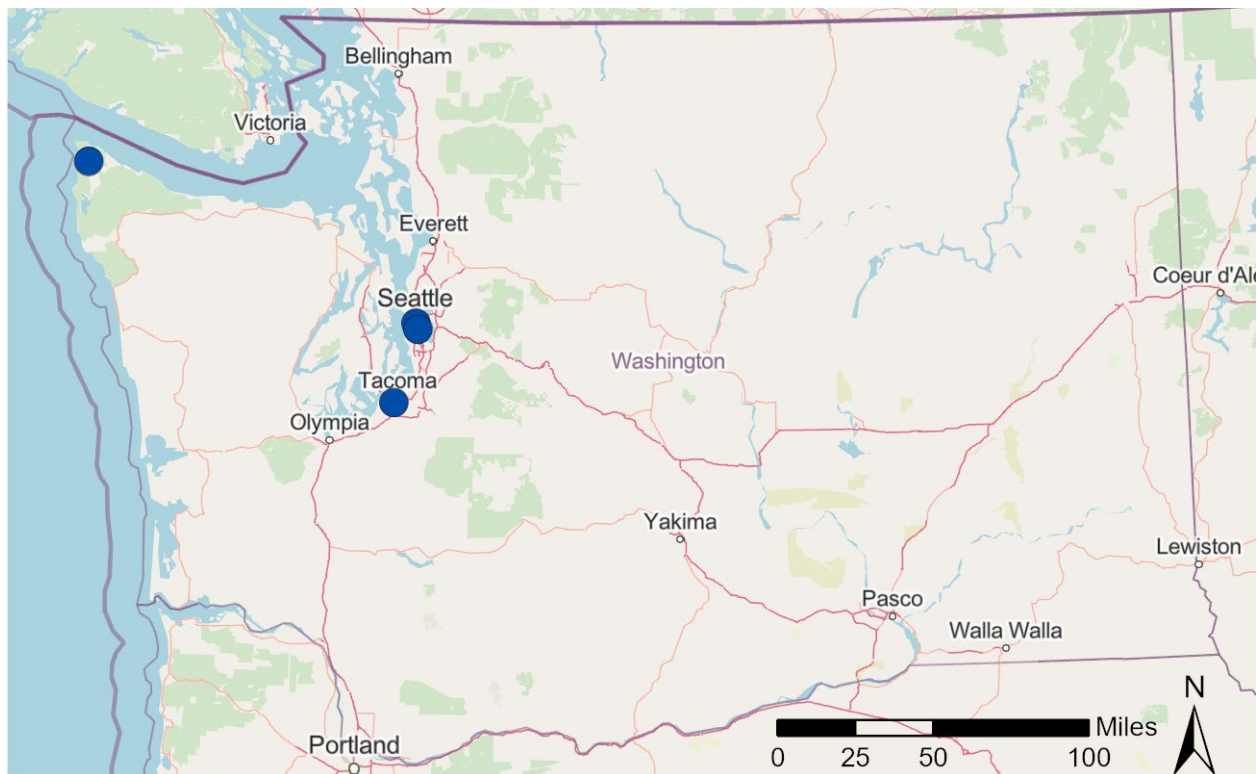


Figure 5. Map of Washington Network NO₂ and Trace NO_y-NO monitoring sites

Minimum monitoring requirements

Ecology is required to monitor both near-road and area-wide NO₂ in each CBSA with a population of 1,000,000 or greater. In CBSAs with a population of 2,500,000 or more, two near-road NO₂ monitoring sites are required. Ecology fulfills the near-road monitoring requirements for the Seattle-Tacoma-Bellevue, WA MSA at the Seattle-10th & Weller (530330030) and Tacoma-S 36th St (530530024) near-road sites. Seattle-Beacon Hill (530330080) fulfills the requirement for area-wide NO₂ monitoring.

In the Portland-Vancouver-Hillsboro, OR-WA MSA, Oregon DEQ fulfills these requirements. This MSA surpassed 2.5 million people in 2020, which prompts the requirement for a second near-road NO₂ site. Oregon DEQ is currently working to identify a suitable location for a second near-road site near Interstate 5 in North Portland.

Recent modifications

None.

Recommended/proposed modifications

Ecology and PSCAA propose to add a SPM for NO₂ to the Seattle-Duwamish monitoring site (530330057) on October 1, 2024. This monitor will be part of the expanded monitoring in overburdened communities required by the Washington Climate Commitment Act. The monitoring method will be a Teledyne API N500 (Method Code 256). The monitor is expected to

represent the microscale with objectives of highest concentration and source oriented. The monitor is expected to meet the applicable requirements of 40 C.F.R. Part 58 Appendices A, B, C, D, and E. The probe height has not yet been determined.

Ozone (O₃, 44201)

There are 13 ozone monitoring sites in the Washington Network. All Washington Network ozone sites collect data under method code 087 (UV Absorbance) using Teledyne API 400 analyzers and all report data using POC 1. The monitoring objective of most ozone monitors is population exposure; exceptions are two monitors for general/background (Cheeka Peak and Mt Rainier-Jackson Visitors Ctr) and two monitors for regional transport (Custer-Loomis and Enumclaw-Mud Mtn). All ozone monitors in the Washington Network meet the requirements of 40 C.F.R. Part 58 Appendices A, B, C, D, and E, where applicable.

Washington’s ozone monitoring season is May 1 – September 30. Ozone monitors operate only during this season except those noted with a * in Table 7, which operate year-round.

Table 7. Washington Network ozone monitoring sites

AQS ID	Site Name	CBSA	Established	Type	Scale
530570011	Anacortes-202 O Ave	Mount Vernon-Anacortes, WA	05/2012	SLAMS	Neighborhood
530090013	Cheeka Peak*	Port Angeles, WA	05/2006	SLAMS, NCore	Regional
530630001	Cheney-Turnbull	Spokane-Spokane Valley, WA	05/1999	SLAMS	Urban
530730005	Custer-Loomis	Bellingham, WA	04/1989	SLAMS	Regional
530330023	Enumclaw-Mud Mtn	Seattle-Tacoma-Bellevue, WA	07/1998	SLAMS	Urban
530330010	Issaquah-Lake Sammamish	Seattle-Tacoma-Bellevue, WA	12/1975	SLAMS	Urban
530050003	Kennewick-S Steptoe St	Kennewick-Richland, WA	06/2015	SLAMS	Urban
530670013	Lacey-College St	Olympia-Lacey-Tumwater, WA	05/2022	SPM	Urban
530530012	Mt Rainier-Jackson Visitors Ctr*	Seattle-Tacoma-Bellevue, WA	07/1998	SLAMS	Regional
530330017	North Bend-North Bend Way	Seattle-Tacoma-Bellevue, WA	06/1998	SLAMS	Neighborhood
530330080	Seattle-Beacon Hill*	Seattle-Tacoma-Bellevue, WA	03/2007	SLAMS, NCore	Urban
530630046	Spokane-Greenbluff	Spokane-Spokane Valley, WA	04/1990	SLAMS	Urban
530110011	Vancouver-Blairmont	Portland-Vancouver-Hillsboro, OR-WA	05/1988	SLAMS	Urban

* indicates year-round monitor.

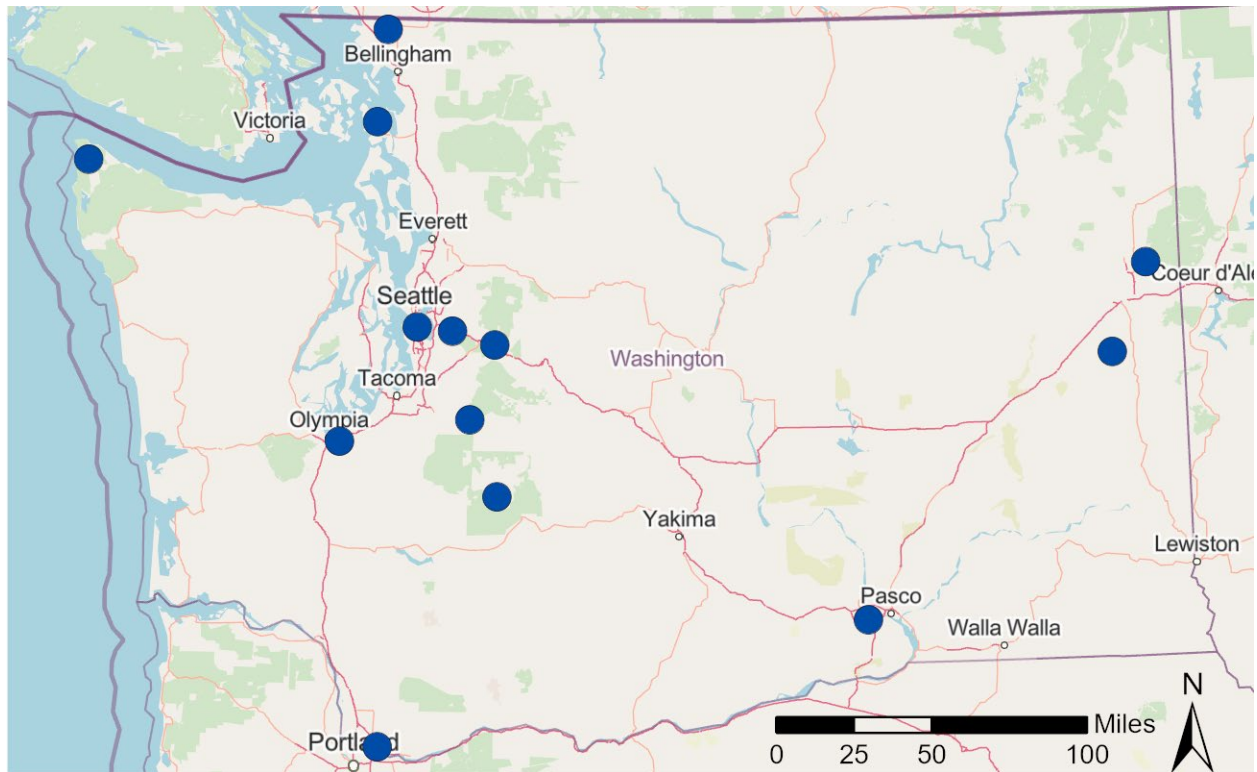


Figure 6. Map of Washington Network ozone monitoring sites

Ecology temporarily suspended ozone monitoring at the Yelm-Northern Pacific monitoring site (530670005) for the summer 2021 ozone season due to a planned construction project at the wastewater treatment facility where the site is located. Ecology was informed by the facility that the site construction is now expected to last until 2025. In May 2022, ORCAA added a temporary ozone SPM at the nearby Lacey monitoring site (530670013) until monitoring at Yelm can resume. Approval for this temporary modification to the ozone network was granted in a waiver from EPA Region 10 on May 5, 2022, and this approval is provided in Appendix B. Ecology plans to resume monitoring at Yelm when the site is once again available, which is expected to be in summer 2025.

Minimum monitoring requirements

The Washington Network meets the minimum monitoring requirements for ozone defined in 40 C.F.R. Part 58 Appendix D. In each CBSA, the number of existing ozone monitors meets or exceeds the number of required monitors, as summarized in Table 8. The design values listed are the maximum valid design value of all sites within the CBSA. For a full list of design values at all ozone sites in the Washington Network, see Appendix A.

Table 8. EPA minimum monitoring requirements for ozone

CBSA	2023 Population Estimate	Highest Monitoring Site	2023 Design Value (ppm)	Number of Required Monitors	Number of Existing Monitors
Seattle-Tacoma-Bellevue, WA	4,044,837	Enumclaw-Mud Mtn	0.073	3	5
Portland-Vancouver-Hillsboro, OR-WA**	2,508,050	Portland-Carus	0.065	2	5
Spokane-Spokane Valley, WA	600,292	Spokane-Greenbluff	0.064	2	2
Kennewick-Richland, WA	314,253	Kennewick-S Steptoe St	0.066	1	1
Olympia-Lacey-Tumwater, WA	299,003	Lacey-College St	0.055*	0	1
Bellingham, WA	231,919	Custer-Loomis	0.051*	0	1
Mount Vernon-Anacortes, WA	131,417	Anacortes-202 O Ave	0.048	0	1
Port Angeles, WA	77,616	Cheeka Peak	0.052	0	1

* Design values are estimated from incomplete data

** Washington shares the Portland-Vancouver-Hillsboro MSA with the state of Oregon. The minimum monitoring requirements for ozone in this MSA are met through a combination of monitors operated by Ecology and Oregon DEQ. Ecology and Oregon DEQ renewed a Memorandum of Understanding on April 5, 2024, to formalize this arrangement (Appendix E).

Recent modifications

None.

Recommended/proposed modifications

None.

Sulfur dioxide (SO₂, 42401)

There are five SO₂ monitoring sites in the Washington Network. All report data using POC 2. Two have a monitoring objective of source-oriented (Ferndale-Kickerville Rd and Ferndale-Mountain View Rd), two of general/background (Cheeka Peak and Seattle-Beacon Hill), and one of population exposure (Anacortes-202 O Ave). All SO₂ monitors in the Washington Network meet the requirements of 40 C.F.R. Part 58 Appendices A, B, C, D, and E, where applicable.

Table 9. Washington Network SO₂ monitoring sites

AQS ID	Site Name	CBSA	Established	Type	Scale	Method
530570011	Anacortes-202 O Ave	Mount Vernon-Anacortes, WA	01/2013	SLAMS	Neighborhood	TAPI 100 EU (600)
530090013	Cheeka Peak	Port Angeles, WA	05/2006	SLAMS, NCore	Regional	TAPI 100 EU (600)
530730013	Ferndale-Kickerville Rd	Bellingham, WA	01/2017	SLAMS	Microscale	TAPI 100 (077)
530730017	Ferndale-Mountain View Rd	Bellingham, WA	01/2017	SLAMS	Microscale	TAPI 100 (077)
530330080	Seattle-Beacon Hill	Seattle-Tacoma-Bellevue, WA	03/2007	SLAMS, NCore	Urban	TAPI 100 EU (600)

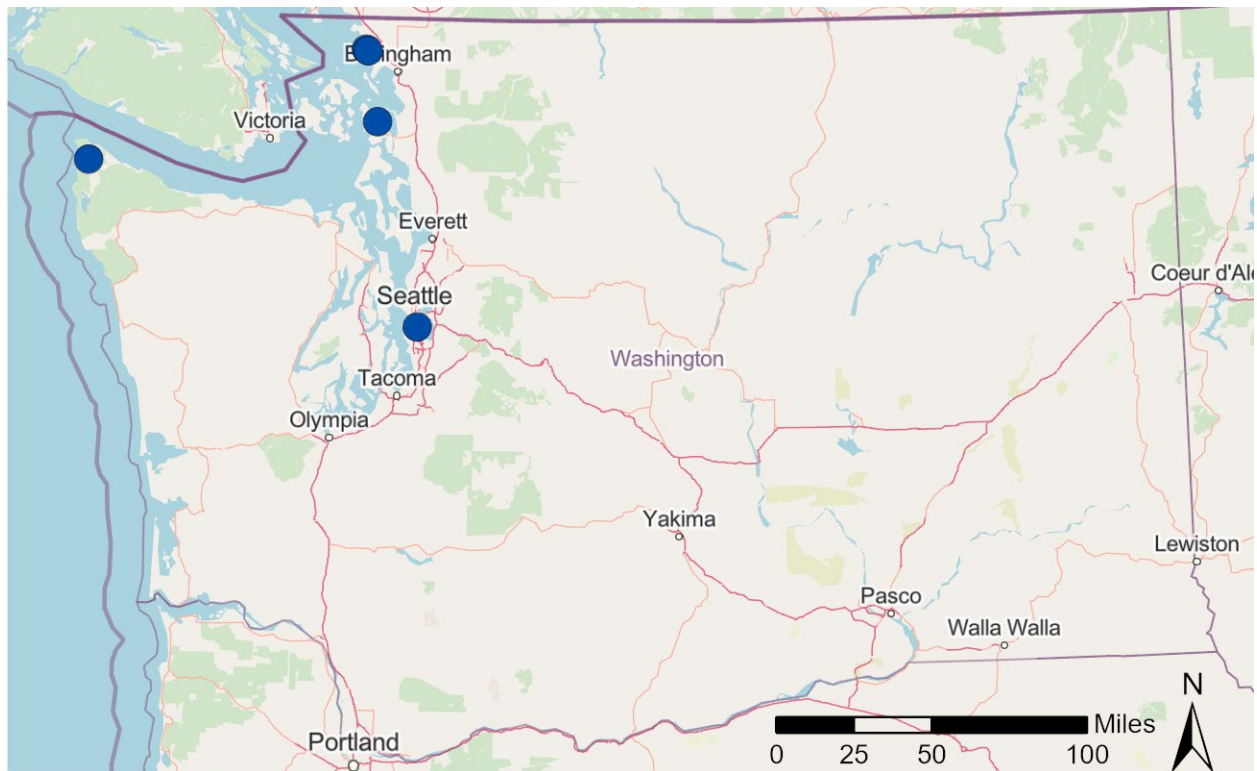


Figure 7. Map of Washington Network SO₂ monitoring sites

Minimum monitoring requirements

The Seattle-Beacon Hill NCore site (530330080) is used to satisfy the minimum monitoring requirement for the Seattle-Tacoma-Bellevue, WA CBSA, which is the only CBSA in Washington with required SO₂ monitoring based on the Population Weighted Emissions Index.

Recent modifications

None.

Recommended/proposed modifications

Ecology proposes to discontinue SO₂ monitoring at the Ferndale-Mountain View Rd (530730017) and Ferndale-Kickerville Rd (530730013) sites on December 31, 2024, or upon EPA approval of the “Redesignation to Attainment and 1st 10-year Maintenance Plan for the Intalco-Ferndale Sulfur Dioxide Nonattainment Area” (hereafter “SO₂ Maintenance Plan”, wherein continued monitoring is not required), whichever is later. Ecology expects to submit the SO₂ Maintenance Plan to EPA in June 2024.

The Ferndale-Mountain View Rd and Ferndale-Kickerville Rd monitoring sites were established in 2017 to meet the requirements of EPA’s 2015 Data Requirements Rule, which directed states to evaluate levels of SO₂ in ambient air near sources emitting over 2,000 tons of SO₂ per year. The monitors were sited north and west of the Intalco aluminum smelter, respectively, specifically to capture peak concentrations downwind of the smelter. From 2017-2020, both the Ferndale-Mountain View and Ferndale-Kickerville monitors recorded numerous exceedances of the 1-hour SO₂ NAAQS of 75 ppb. However, only the Ferndale-Mountain View monitor has recorded a design value above 75 ppb.

In April 2020, Alcoa announced its intent to curtail operations at the Intalco facility. Intalco fully curtailed operations on August 26, 2020. As soon as operations were curtailed, SO₂ concentrations at both Ferndale monitoring sites dropped to single digits (ppb). Beginning in 2020, the annual 99th percentile concentrations recorded at Ferndale-Mountain View were below the 75 ppb level of the SO₂ NAAQS.

Table 10 and Table 11 summarize the annual 99th percentiles of 1-hour daily maximum concentrations and the 3-year design values at Ferndale-Mountain View Rd and Ferndale-Kickerville Rd, respectively.

Table 10. Summary of Ferndale-Mountain View Rd Annual 99th Percentiles and DVs (in ppb of SO₂)

Year	99th Percentile	3-year design value
2017	113.6	---
2018	101.3	---
2019	104.5	106
2020	62	89
2021	2.6	56

Year	99th Percentile	3-year design value
2022	3.3	23
2023	4.4	3

Table 11. Summary of Ferndale-Kickerville Rd Annual 99th Percentiles and DVs (in ppb of SO₂).

Year	99 th percentile	3-year DV
2017	70	---
2018	73.7	---
2019	69.9	71
2020	59.2	68
2021	2.4	44
2022	3.1	22
2023	4.4	3

The annual 99th percentiles are shown in comparison with the 1-hour SO₂ NAAQS in the graph in Figure 8.

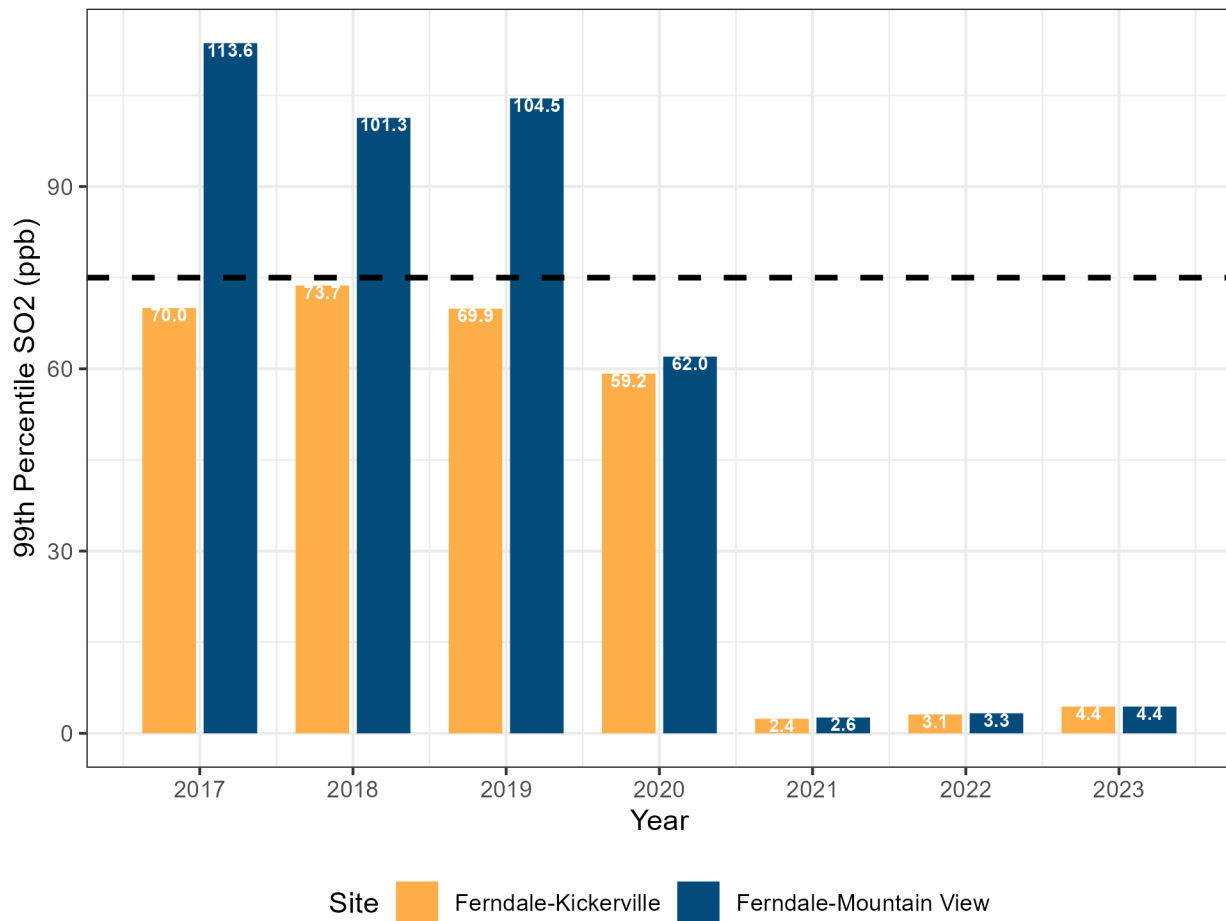


Figure 8. Annual 99th percentile daily maximum 1-hour concentrations

Between the curtailment in August 2020 and the end of 2023, the maximum 1-hour concentration recorded at Ferndale-Kickerville was 5.4 ppb, and at Ferndale-Mountain View was 6.0 ppb. A time-series graph of the daily maximum 1-hour SO₂ concentrations at both sites from 2020-2023 is shown in Figure 9, with the date of the curtailment marked with a dashed line.

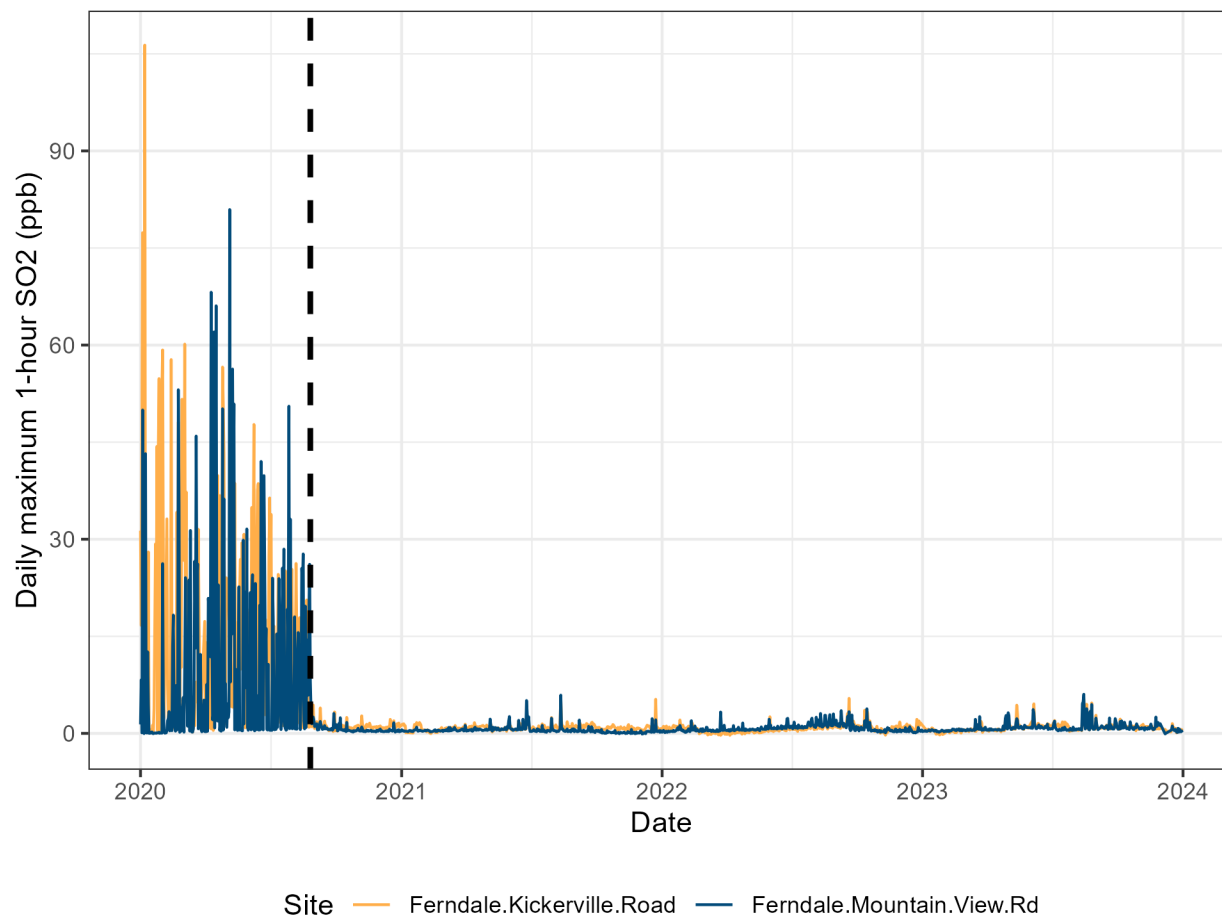


Figure 9. Time-series graph of daily maximum 1-hour SO₂ concentrations at Ferndale monitoring sites, January 2020 through December 2023. Curtailment date is marked with a dashed black line.

Upon EPA approval of the SO₂ Maintenance Plan, wherein continued monitoring is not required, the monitor is expected to meet the requirements for discontinuation described in 40 C.F.R. Part 51.1203(c)(3):

“Any SO₂ monitor identified by an air agency in its approved Annual Monitoring Network Plan as having the purpose of meeting the requirements of this paragraph (c) that: Is not located in an area designated as nonattainment as the 2010 SO₂ NAAQS is not also being used to satisfy other ambient SO₂ minimum monitoring requirements listed in 40 CFR part 58, appendix D, section 4.4; and is not otherwise required as part of a SIP, permit, attainment plan or maintenance plan, may be eligible for shut down upon

EPA approval if it produces a design value no greater than 50 percent of the 2010 SO₂ NAAQS from data collected in either its first or second 3-year period of operation.”

The Ferndale-Mountain View Rd and Ferndale-Kickerville Rd monitors are located in a portion of Whatcom County that was designated as a nonattainment area for SO₂ in December 2020. The SO₂ Maintenance Plan asks that EPA redesignate the area to attainment and approve the specific, reproducible approach to representing the air quality of the area using emissions and modeling described therein. Upon approval of the SO₂ Maintenance Plan, the area will be in attainment, and the monitors will no longer be located in a nonattainment area.

Neither the Ferndale-Mountain View Rd nor the Ferndale-Kickerville Rd monitor is used to meet SO₂ minimum monitoring requirements in 40 CFR Part 58 Appendix D, section 4.4. Upon approval of the alternative, specific, reproducible approach to representing the air quality of the Intalco-Ferndale area described in the SO₂ Maintenance Plan (wherein continued monitoring is not required), neither monitor will be required as part of a SIP, permit, attainment, or maintenance plan.

Though the implications of design values after the second 3-year period of operation are not addressed in 40 C.F.R. Part 51.1203(c)(3), both monitors recorded design values less than 50 percent of the SO₂ NAAQS in 2022 and 2023, and Ecology expects 2024 design values to be below this threshold as well.

The monitors also meet the requirements for discontinuation described in 40 C.F.R. Part 58.14(c)(3):

“For any pollutant, any SLAMS monitor in a county (or portion of a county within a distinct attainment, nonattainment, or maintenance area, as applicable) provided the monitor has not measured violations of the applicable NAAQS in the previous five years, and the approved SIP provides for a specific, reproducible approach to representing the air quality of the affected county in the absence of actual monitoring data.”

By December 31, 2024, Ecology expects that both the Ferndale-Mountain View Rd and Ferndale-Kickerville Rd monitors will show a record of 5 consecutive annual 99th percentile concentrations below the level of the SO₂ NAAQS (2020-2024). The SO₂ Maintenance Plan describes a specific, reproducible approach to representing the air quality of the Intalco-Ferndale area without monitoring data, using an inventory of cumulative potential emissions and modeled cumulative potential impacts. The SO₂ Maintenance Plan describes a series of increasingly stringent action levels and associated verification measures: annual emissions inventories, NSR permitting programs, cumulative modeling of multiple sources, and, if the highest action level is reached, the process to site a new monitor.

As described in the SO₂ Maintenance Plan, the use of a non-monitoring approach is appropriate because the facility that caused the NAAQS exceedances has ceased operating, the area now contains no major or minor SO₂ emitting sources, and the area now has very low 1-hour SO₂ monitored concentrations.

Ecology expects to submit the SO₂ Maintenance Plan in June 2024. EPA may take up to 18 months to respond to the SO₂ Maintenance Plan. Ecology requests that EPA approve the discontinuation of the Ferndale-Mountain View Rd and Ferndale-Kickerville Rd monitors contingent upon EPA approval of the SO₂ Maintenance Plan, wherein continued monitoring is not required. Ecology requests such approval be granted as of December 31, 2024, or the date of approval of the SO₂ Maintenance Plan, whichever is later. The reason for considering these two dates is that the monitors must meet the two requirements of 58.14(c)(3) to be eligible for discontinuation: 5 years without a NAAQS violation (expected on December 31, 2024), and approval of a specific, reproducible approach to representing the air quality of the affected county (expected upon approval of the SO₂ Maintenance Plan, wherein continued monitoring is not required). Ecology expects that approval of this discontinuation request will also be contingent upon continued SO₂ monitoring at both sites throughout the remainder of 2024, meeting data completeness requirements for calculation of valid design values, and 2024 design values below the level of the SO₂ NAAQS.

Particulate matter 2.5 (PM_{2.5}, 88101/88502)

FRM/FEM PM_{2.5} (88101)

There are 21 sites in the Washington Network that monitor PM_{2.5} with FRM or Class III FEM monitors. All sites listed in Table 12 are suitable for comparison with the annual PM_{2.5} NAAQS with the exception of the Everett-Beverly Park Rd SPM. As a unique micro-scale site for a localized hotspot, this monitor will be suitable for comparison with the 24-hour PM_{2.5} NAAQS after 24 months of operation but will not be suitable for comparison with the annual PM_{2.5} NAAQS, consistent with 40 C.F.R. Part 58.30. All BAM 1020 and BAM 1022 monitors operate continuously. Sampling schedules for filter-based FRMs are noted next to the monitor's POC in Table 12 (1:3 or 1:6). All PM_{2.5} monitors in the Washington Network meet the requirements of 40 C.F.R. Part 58 Appendices A, B, C, D, and E, where applicable.

Table 12. Washington Network FEM and FRM PM_{2.5} monitoring sites

AQS ID	Site Name	CBSA	Est.	Type	Scale/ Objective	Method	POC
530570011	Anacortes- 202 O Ave	Mount Vernon- Anacortes, WA	10/ 2011	SLAMS	Neighborhood/ Population exposure	Met One BAM 1020 (170)	5
530730019	Bellingham- Pacific St	Bellingham, WA	01/ 2018	SLAMS	Neighborhood/ Population exposure	Met One BAM 1020 (170)	5
530350007	Bremerton- Spruce Ave	Bremerton- Silverdale- Port Orchard, WA	05/ 2012	SLAMS	Neighborhood/ Population exposure	Met One BAM 1020 (170)	5
530650005	Colville- E 1 st St	Spokane- Spokane Valley, WA	11/ 2019	SLAMS	Neighborhood/ Population exposure	Met One BAM 1020 (170)	5

AQS ID	Site Name	CBSA	Est.	Type	Scale/ Objective	Method	POC
530610020	Darrington-Fir St	Seattle-Tacoma-Bellevue, WA	12/2010	SLAMS	Neighborhood/Population exposure	Met One BAM 1020 (170)	5
530370002	Ellensburg-Ruby St	Ellensburg, WA	10/2007	SLAMS	Neighborhood/Population exposure	Met One BAM 1020 (170)	5
530610022	Everett-Beverly Park Rd	Seattle-Tacoma-Bellevue, WA	06/2024	SPM	Micro/ Highest concentration and source oriented	Met One BAM 1020 (170)	5
530611007	Marysville-7th Ave	Seattle-Tacoma-Bellevue, WA	02/2010	SLAMS	Neighborhood/Population exposure	Met One BAM 1020 (170)	5
530470013	Omak-Colville Tribe	None	10/2010	Tribal	Neighborhood/Population exposure	Met One BAM 1020 (170)	5
530330030	Seattle-10th & Weller	Seattle-Tacoma-Bellevue, WA	06/2014	SLAMS, Near-road	Micro/ Highest concentration and source oriented	Met One BAM 1020 (170)	5
530330080	Seattle-Beacon Hill	Seattle-Tacoma-Bellevue, WA	02/2010	SLAMS, NCore	Urban/General background	Met One BAM 1022 (Primary) (209); Met One E-SEQ-FRM (Collocated) (545) (1:3)	Primary: POC 8 Collocated : POC 1
530330057	Seattle-Duwamish	Seattle-Tacoma-Bellevue, WA	12/2009	SLAMS	Neighborhood/Population exposure	Met One BAM 1020 (Primary) (170); Met One E-SEQ-FRM (Collocated) (545) (1:6)	Primary: POC 5 Collocated : POC 1
530630017	Spokane Valley-E Broadway Ave	Spokane-Spokane Valley, WA	01/2021	SLAMS	Neighborhood/Population exposure	Met One BAM 1020 (170)	5
530770005	Sunnyside-S 16th St	Yakima, WA	05/2023	SLAMS	Neighborhood/Population exposure	Met One BAM 1020 (170)	5
530530031	Tacoma-Alexander Ave	Seattle-Tacoma-Bellevue, WA	01/2022	SLAMS	Neighborhood/Population exposure	Met One BAM 1020 (170)	5
530530029	Tacoma- L Street	Seattle-Tacoma-Bellevue, WA	01/2010	SLAMS	Neighborhood/Population exposure	Met One BAM 1020 (170)	5

AQS ID	Site Name	CBSA	Est.	Type	Scale/ Objective	Method	POC
530530024	Tacoma-S 36th St	Seattle- Tacoma- Bellevue, WA	01/ 2016	SLAMS, Near- road	Microscale/ Highest concentration and source oriented	Met One BAM 1020 (170) (Primary and Collocated)	Primary: POC 5 Collocated : POC 6
530770015	Toppenish- Yakama Tribe	Yakima, WA	08/ 2008	Tribal	Neighborhood/ Population exposure	Met One BAM 1020 (170)	5
530330069	Tukwila Allentown	Seattle- Tacoma- Bellevue, WA	04/ 2021	SLAMS	Neighborhood/ Population exposure	Met One BAM 1020 (170)	5
530110024	Vancouver NE 84th Ave	Portland- Vancouver- Hillsboro, OR-WA	12/ 2014	SLAMS	Neighborhood/ Population exposure	Met One BAM 1020 (170)	5
530770009	Yakima-4th Ave	Yakima, WA	05/ 2011	SLAMS	Neighborhood/ Population exposure	Met One BAM 1020 (Primary) (170); Met One E-SEQ- FRM (Collocated) (545) (1:6)	Primary: POC 5 Collocated : POC 1

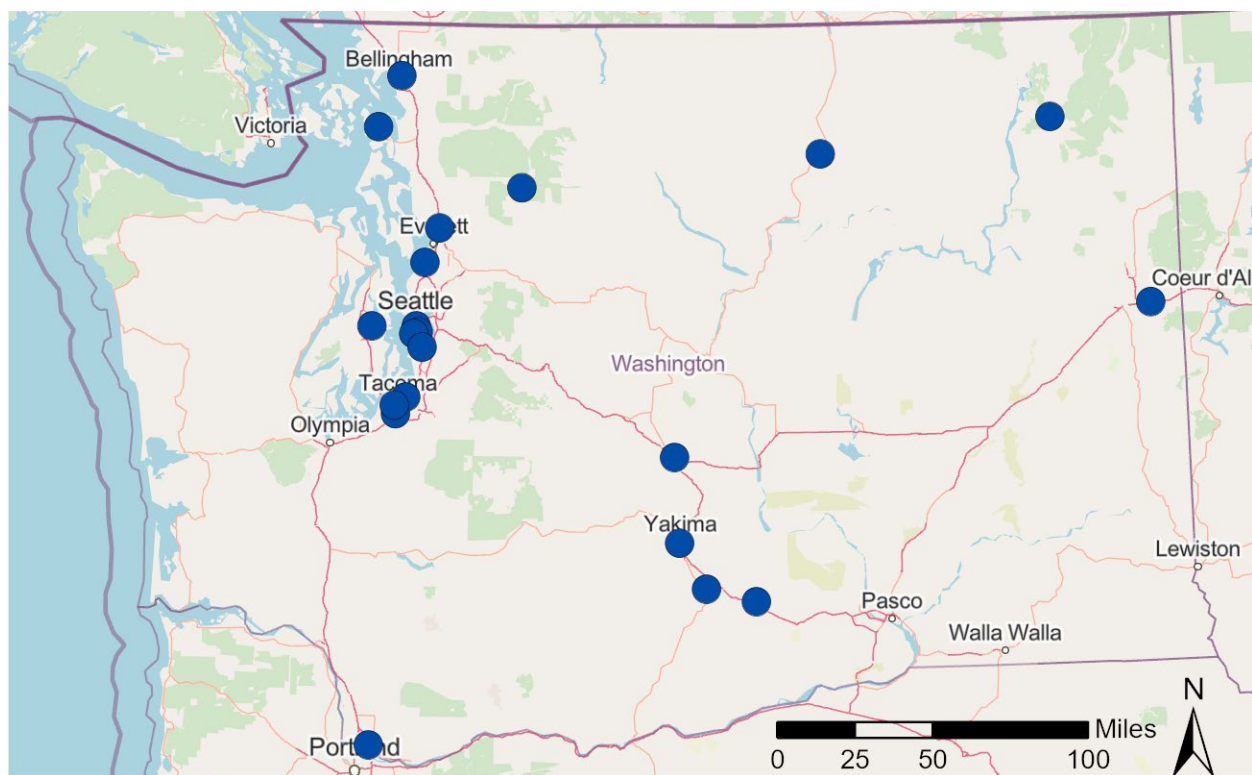


Figure 10. Map of Washington Network PM_{2.5} monitoring sites

Minimum monitoring requirements

Minimum monitoring requirements for PM_{2.5} are defined in 40 C.F.R. Part 58 Appendix D. Table 13 below summarizes the number of required and existing monitors in each of Washington’s CBSAs where monitoring is conducted. The design values listed are the maximum valid design value of all sites within the CBSA. The Washington Network is currently meeting or exceeding the minimum monitoring requirements in all CBSAs.

For a full list of design values at all Washington Network PM_{2.5} monitoring sites, see Appendix A.

Table 13. EPA minimum monitoring requirements for FRM/FEM PM_{2.5}

CBSA	2023 Population Estimate	Highest 2023 24-hour Design Value (µg/m ³) (Site)	Highest 2023 Annual Design Value (µg/m ³) (Site)	Number of Required Monitors	Number of Existing Monitors
Seattle-Tacoma-Bellevue, WA	4,044,837	38 (Darrington-Fir St)	8.3* (Seattle-10 th & Weller)	3	9
Portland-Vancouver-Hillsboro, OR-WA**	2,508,050	24 (Vancouver-NE 84 th Ave)	6.7 (Portland-SE Lafayette)	3	4
Spokane-Spokane Valley, WA	600,292	41 (Colville-E 1 st St)	10.1 (Colville-E 1 st St)	2	2
Bremerton-Silverdale, WA	277,658	17 (Bremerton-Spruce Ave)	5.5 (Bremerton-Spruce Ave)	0	1
Yakima, WA	256,643	41 (Yakima-4 th Ave)	10.2 (Toppenish-Yakama Tribe)	1	3
Bellingham, WA	231,919	20* (Bellingham-Pacific St)	5.0* (Bellingham-Pacific St)	0	1
Mount Vernon-Anacortes, WA	131,417	12* (Anacortes-202 O Ave)	5.2* (Anacortes-202 O Ave)	0	1
Ellensburg, WA	45,508	22 (Ellensburg-Ruby St)	6.6 (Ellensburg-Ruby St)	0	1

*Design value was estimated from incomplete data.

** Washington shares the Portland-Vancouver-Hillsboro MSA with the state of Oregon. The minimum monitoring requirements for PM_{2.5} in this MSA are met through a combination of monitors operated by Ecology and the Oregon DEQ. Ecology and Oregon DEQ renewed a Memorandum of Understanding on April 5, 2024, to formalize this arrangement (Appendix E).

At-risk community monitoring requirement: In February 2024, EPA strengthened the annual NAAQS for PM_{2.5} from 12.0 µg/m³ to 9.0 µg/m³. Along with this revision, EPA also modified the network design criteria for PM_{2.5} in 40 CFR part 58, appendix D, 4.7.1(b)(3), which applies to MSAs where three SLAMS for PM_{2.5} are required:

“For areas with additional required SLAMS, a monitoring station is to be sited in an at-risk community with poor air quality, particularly where there are anticipated effects from sources in the area (e.g., a major industrial area, point source(s), port, rail yard, airport, or other transportation facility or corridor).”

Ecology notes that the PM_{2.5} sources provided as examples in this revision to 40 CFR part 58, appendix D, 4.7.1(b)(3) are not the dominant sources of PM_{2.5} emissions in Washington, which are wildfires and residential wood combustion.

In the Seattle-Tacoma-Bellevue, WA MSA, the requirement for monitoring in an at-risk community with poor air quality is already met at the Seattle-10th & Weller monitoring site (530330030), which is located in a neighborhood considered “at-risk” by numerous environmental justice screening tools, including EPA’s EJScreen (>90th percentile for Diesel Particulate Matter Index, Traffic Proximity Index, and Demographic Index), and the federal Climate and Economic Justice Screening Tool. Seattle-10th & Weller is located less than 100 meters from the major transportation corridor of Interstate 5 and in 2023 had the highest annual PM_{2.5} design value of all sites in the Seattle-Tacoma-Bellevue, MSA, though incomplete. Thus Seattle-10th & Weller meets the requirements for (relatively) poor air quality and anticipated effects from sources.

Seattle-10th & Weller can also be considered in fulfillment of the network design criteria 40 CFR part 58, appendix D, 4.7.1(b)(2), “For CBSAs with a population of 1,000,000 or more persons, at least one PM_{2.5} monitor is to be collocated at a near-road NO₂ station required in section 4.3.2(a) of this appendix.” Since the 4.7.1(b)(2) requirement is also met by the Tacoma-S 36th near-road site, Ecology considers the requirements of 4.7.1(b) fully met, with Tacoma-S 36th used to fulfill 4.7.1(b)(2) and Seattle-10th & Weller used to fulfill the revised 4.7.1(b)(3). Ecology does not anticipate the need to install additional SLAMS for PM_{2.5} in order to comply with this revision to 40 C.F.R. Appendix D, 4.7.1(b).

Collocation requirements

The monitoring sites listed in Table 14 are used to fulfill the collocation requirements described in 40 C.F.R. Part 58 Appendix A.

Table 14. PM_{2.5} collocation requirements

Method Code	# Primary Monitors	# Required Collocated Monitors	# Active Collocated Monitors	Site	Distance between collocated monitors (m)
209	1	1	1	Seattle-Beacon Hill	4
170	19	3	3	Tacoma-S 36 th (530530024); Seattle-Duwamish (530530057); Yakima-4 th Ave S (530770009)	2 2 2

Recent modifications

As of December 31, 2023, the collocated Federal Reference Monitor (FRM) (POC 2) at the Seattle-Duwamish monitoring site (530330057) was discontinued and the Federal Equivalent Method (FEM) BAM 1020 (POC 5) was designated the primary monitor. This modification was approved in EPA Region 10's response to Ecology's 2023 Ambient Air Monitoring Network Plan.

As of December 31, 2023, the sampling frequency of the Yakima-4th Ave S (530770009) collocated FRM was reduced from 1:3 to 1:6. This modification was approved in EPA Region 10's response to Ecology's 2023 Ambient Air Monitoring Network Plan.

Everett: On June 17, 2024, Ecology established a new site Everett-Beverly Park Rd (530610022) with Special Purpose Monitors (SPMs) for FEM PM_{2.5} and PM₁₀. This site is part of the expanded monitoring in overburdened communities required by the Washington Climate Commitment Act. These are micro-scale monitors with objectives of highest concentration and source impacts. The monitoring site is located at Fairmount Elementary School in unincorporated Snohomish County, adjacent to an aggregate yard that has been the subject of numerous dust and noise complaints. The location is 11401 Beverly Park Rd, Everett, WA 98204 (47.893718, -122.269825), in the Seattle-Tacoma-Bellevue, WA MSA.

The monitors are located approximately 17 meters from the fenceline of the aggregate yard. The site monitors PM_{2.5} with an FEM BAM 1020 (Method Code 170). The monitor meets the applicable requirements of 40 C.F.R. Part 58 Appendices A, B, C, D, and E. Consistent with 40 C.F.R. Part 58.30, as a unique micro-scale site for a localized hotspot, it will be suitable for comparison with the 24-hour PM_{2.5} NAAQS after 24 months but will not be suitable for comparison with the annual PM_{2.5} NAAQS.

Recommended/proposed modifications

SeaTac: In the 2023 Network Plan, Ecology proposed on behalf of PSCAA to establish a new SLAMS for regulatory PM_{2.5} monitoring in SeaTac (530330040), funded by PSCAA's American Rescue Plan direct award for air monitoring. The installation of this site has been delayed in the permitting process, but PSCAA plans to install the site by the end of 2024.

As described in the 2023 Network Plan, the proposed location is at 13659 18th Ave S in SeaTac (47.478528, -122.311111) at the King County Parks and Recreation Division property at Sunset Park, within the Seattle-Tacoma-Bellevue, WA MSA. PSCAA plans to monitor continuous PM_{2.5} with an FEM BAM 1020, and the monitor is expected to be suitable for comparison with the PM_{2.5} NAAQS. The spatial scale of representativeness will be the neighborhood scale. The monitoring objectives for this site will be population exposure and source-oriented, with the impact of the Seattle-Tacoma International Airport of particular interest to the neighboring community.

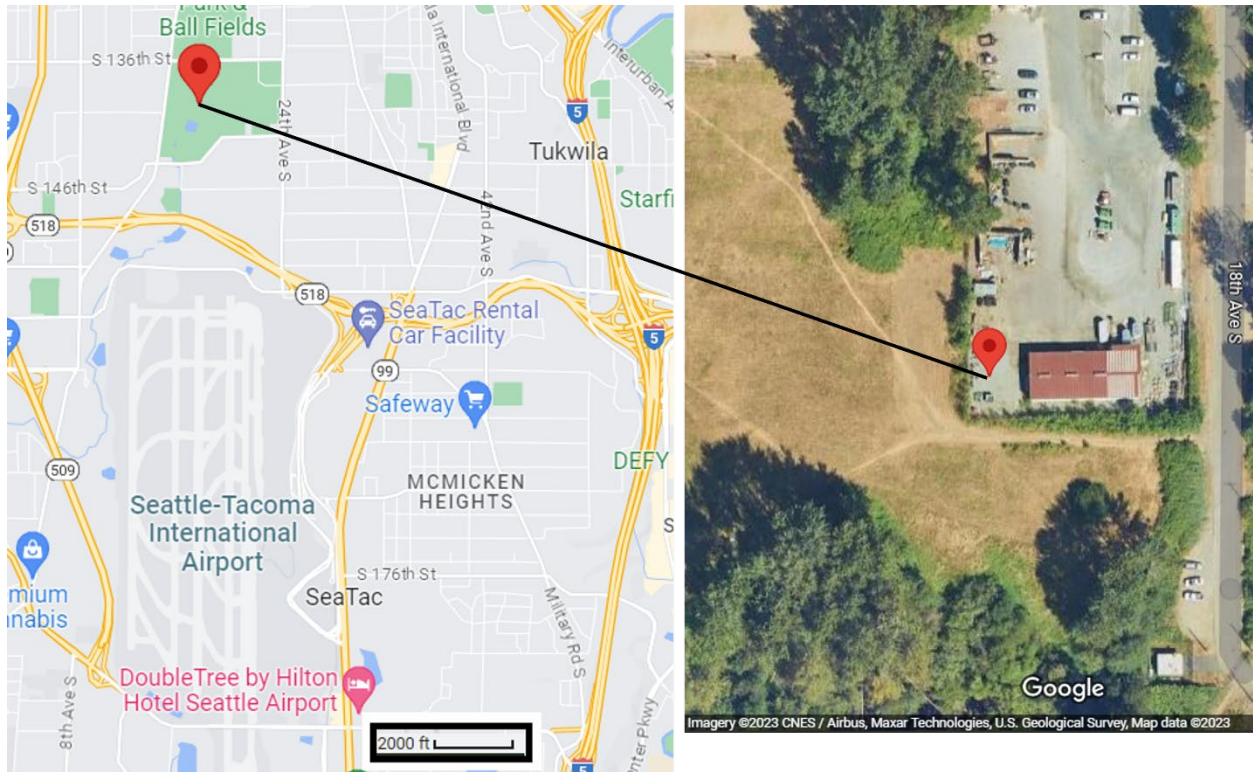


Figure 11. Map and satellite image of proposed SeaTac monitoring site location

In response to the 2023 Network Plan, EPA requested additional information on the proposed site location:

- Site photos facing from the site in each direction (N, S, E, W)
- Applicable measurements to any obstructions, trees or roadways
- The proposed probe height for the site
- Prevalent wind information
- A narrative description of how the site was chosen

Site photos from the four cardinal directions are provided in Figure 12 - Figure 15. A photo facing northeast is provided in lieu of an east-facing photo as no east-facing photo was available.



Figure 12. Photo of the proposed SeaTac site location facing north.



Figure 13. Photo of the proposed SeaTac site location facing northeast.



Figure 14. Photo of proposed SeaTac site location facing south.



Figure 15. Photo of proposed SeaTac site location facing west.

PSCAA provided the site sketch in Figure 16 to illustrate the distance to the nearest tree and obstruction in the area.

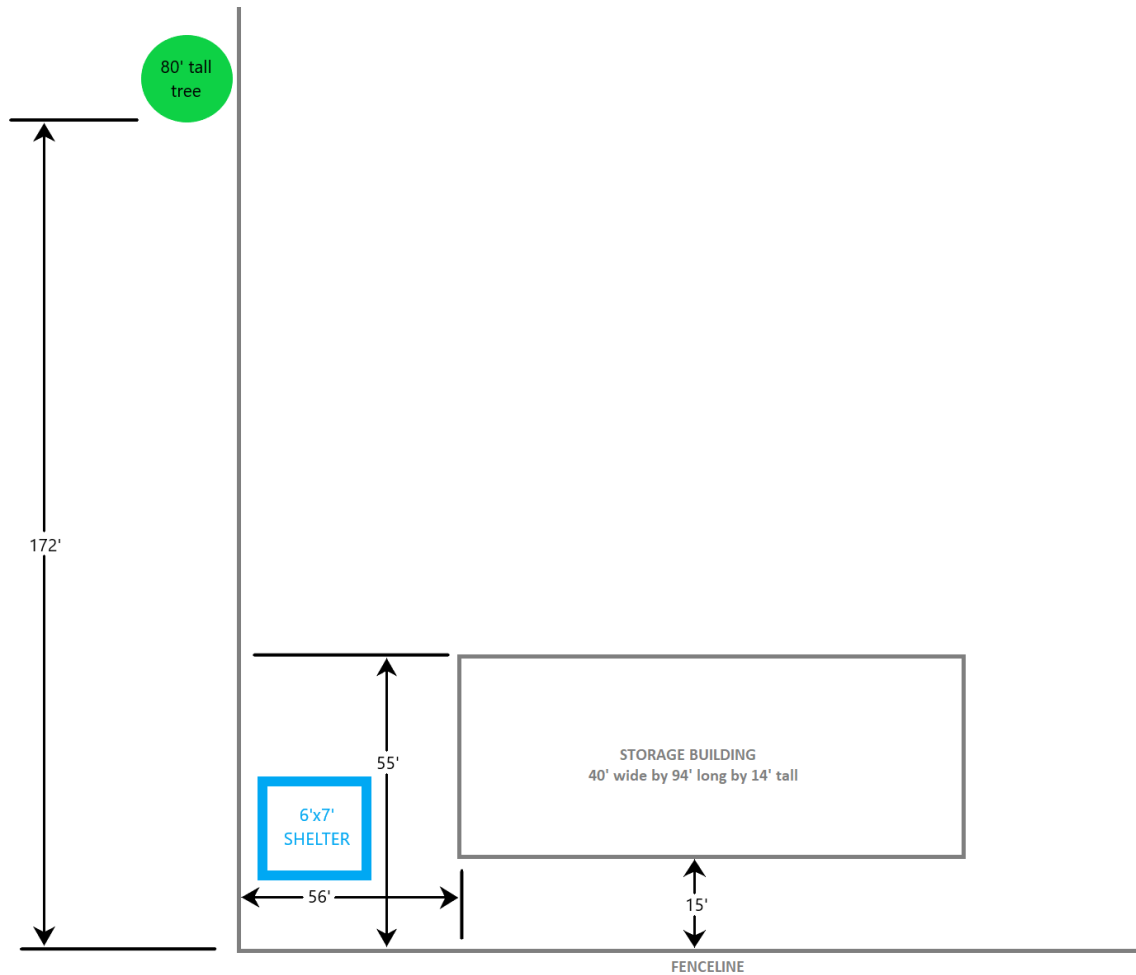


Figure 16. Sketch of proposed SeaTac site layout and measurements of obstruction heights and distances.

The planned probe height is 3 meters. Based on the measurements PSCAA provided and the 3-meter probe height, the site is expected to meet the probe and path siting criteria described in 40 C.F.R. Part 58 Appendix E, as well as other applicable requirements described in Appendices A, B, C, and D of Part 58.

The dominant wind direction in the SeaTac area is from the south as shown in Figure 17, particularly in the winter. Northerly winds are also prevalent, more so in the summer months. The proposed site location is downwind from the Seattle-Tacoma International Airport during predominant southerly winds.



Windrose Plot for [SEA] SEATTLE-TACOMA INTL
Obs Between: 31 Dec 1969 11:00 PM - 25 Jan 2024 11:53 PM America/Los_Angeles

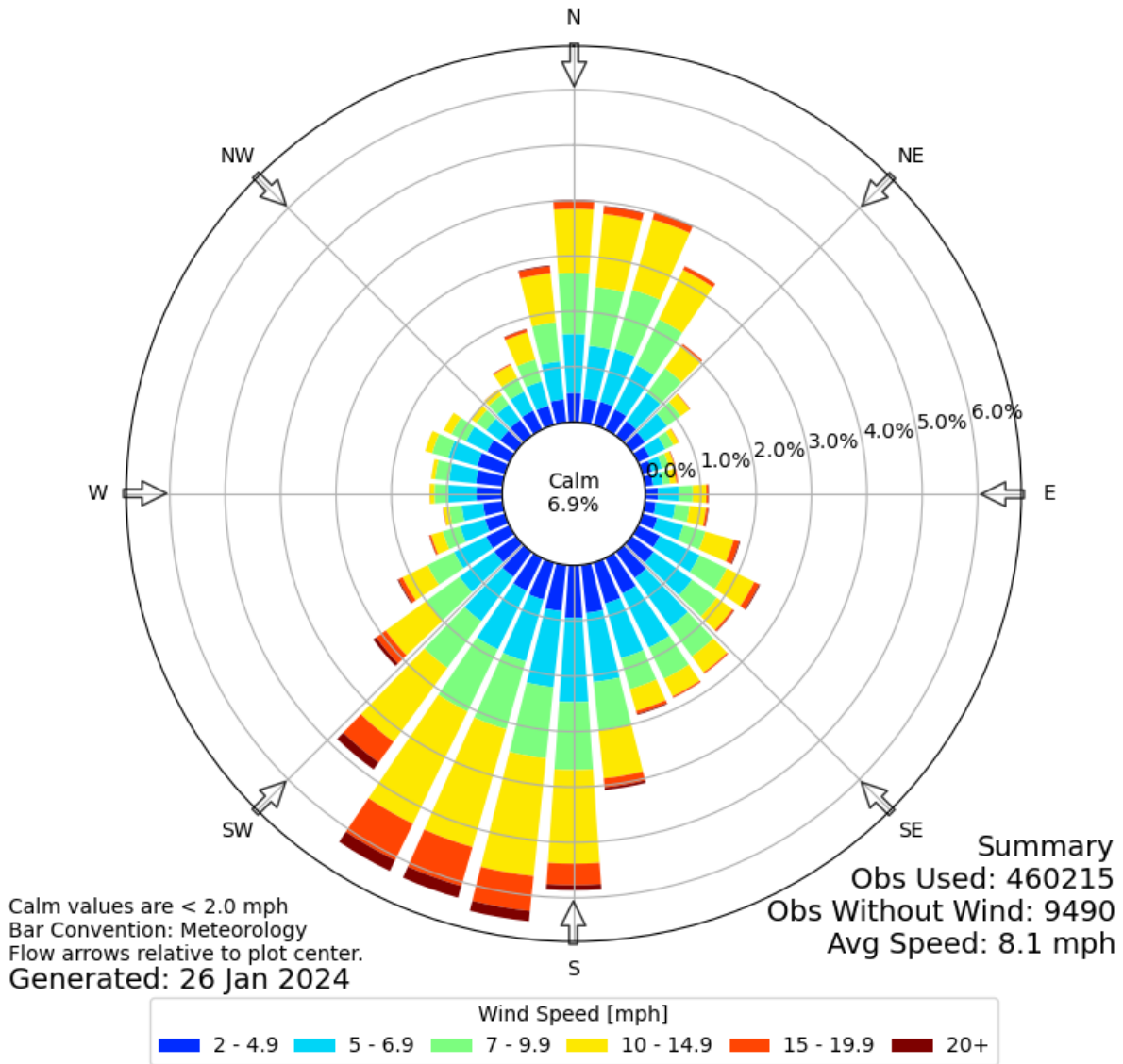


Figure 17. Wind rose from Seattle-Tacoma International Airport. Source: https://mesonet.agron.iastate.edu/sites/windrose.phtml?network=WA_ASOS&station=SEA

The proposed SeaTac site location was chosen in response to feedback from a public survey PSCAA conducted on community priorities for monitoring site placement. Respondents identified flight paths, areas close to the airport, and residential areas as their top priorities for site selection for the new SeaTac monitor, as shown in Figure 18. The survey received 85 responses. The proposed Sunset Park location was the best available location PSCAA found that fit these priorities and met the logistical and siting requirements for a new monitoring site.

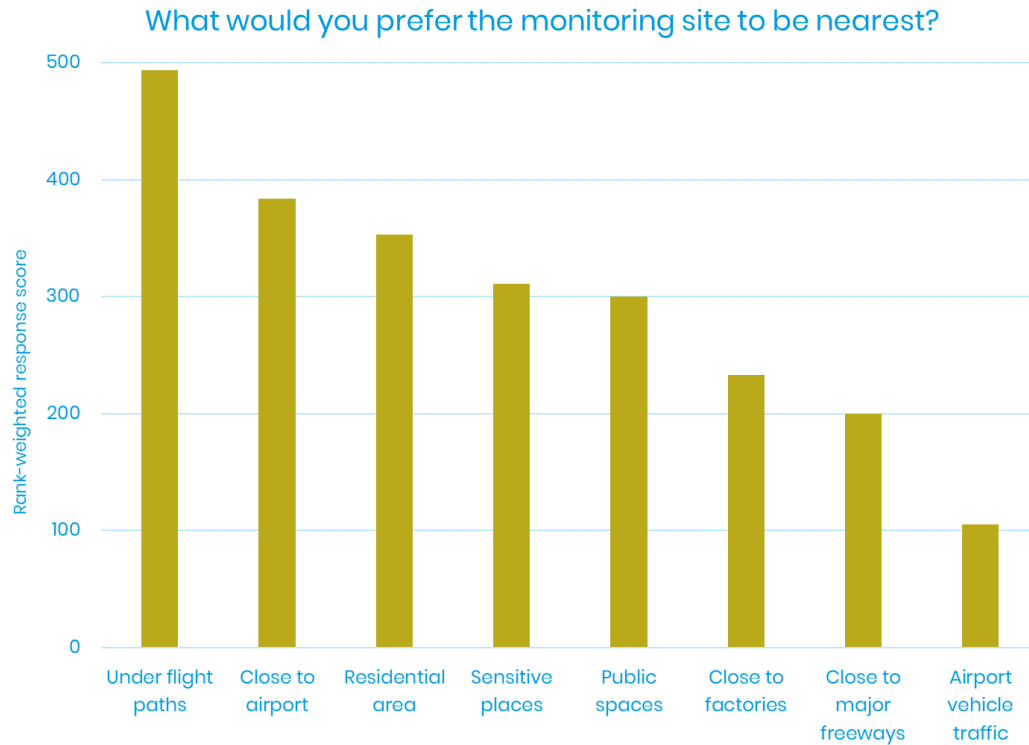


Figure 18. Results of PSCAA's community survey on SeaTac monitoring site selection priorities

Lacey-College St: Ecology and the Olympic Region Clean Air Agency (ORCAA) propose to upgrade the SLAMS for PM_{2.5} at ORCAA's Lacey-College St (530670013) monitoring site from non-regulatory (88502 POC 8) to regulatory (88101 POC 8) as of January 1, 2025. ORCAA has operated a non-regulatory monitor for PM_{2.5} and AQI reporting at Lacey College St since 2002, and currently operates a BAM 1022 with Sharp-Cut Cyclone for this purpose. Ecology and ORCAA use the Lacey-College St monitor extensively for field evaluation of air sensor performance, and upgrading this monitor to a regulatory instrument will support those efforts. ORCAA's jurisdiction currently lacks an FEM for PM_{2.5} monitoring, and upgrading the PM_{2.5} monitor in the most populous metropolitan area in their jurisdiction to an FEM will support ORCAA's air quality management efforts.

The Lacey-College St monitoring site is located at 1900 College St SE in Lacey (47.029396, -122.821548) at Mountain View Elementary School in a primarily residential area of the Olympia-Lacey-Tumwater, WA MSA. A satellite image of the site location is shown in Figure 19. The site has a dedicated monitoring shelter at ground level in the playfield. ORCAA will monitor for neighborhood-scale PM_{2.5} with a continuous BAM 1022 with Very-Sharp Cut Cyclone (Method Code 209) on the roof of the shelter. The monitor will have an objective of population exposure.



Figure 19. Satellite image of Lacey-College St site location.



Figure 20. Photo of Lacey-College St monitoring site facing north.



Figure 21. Photo of Lacey-College St monitoring site facing east.



Figure 22. Photo of Lacey-College St monitoring site facing south.



Figure 23. Photo of Lacey-College St monitoring site facing west.

The site is approximately 65 meters from the treeline at the edge of the school property and approximately 10 meters from the nearest obstruction, which is a single-story portable classroom approximately 4-5 meters high at its tallest point. The probe height will be 4 meters. Based on these measurements, the monitor will meet the probe and path siting criteria described in 40 C.F.R. Part 58 Appendix E, as well as other applicable requirements described in Appendices A, B, C, and D of Part 58.

The dominant wind direction at the Lacey-College St monitoring site is from the southeast, as shown in the wind rose in Figure 24.



Windrose Plot for [OLM] OLYMPIA
Obs Between: 01 Jan 1970 01:00 AM - 25 Jan 2024 11:54 PM America/Los_Angeles

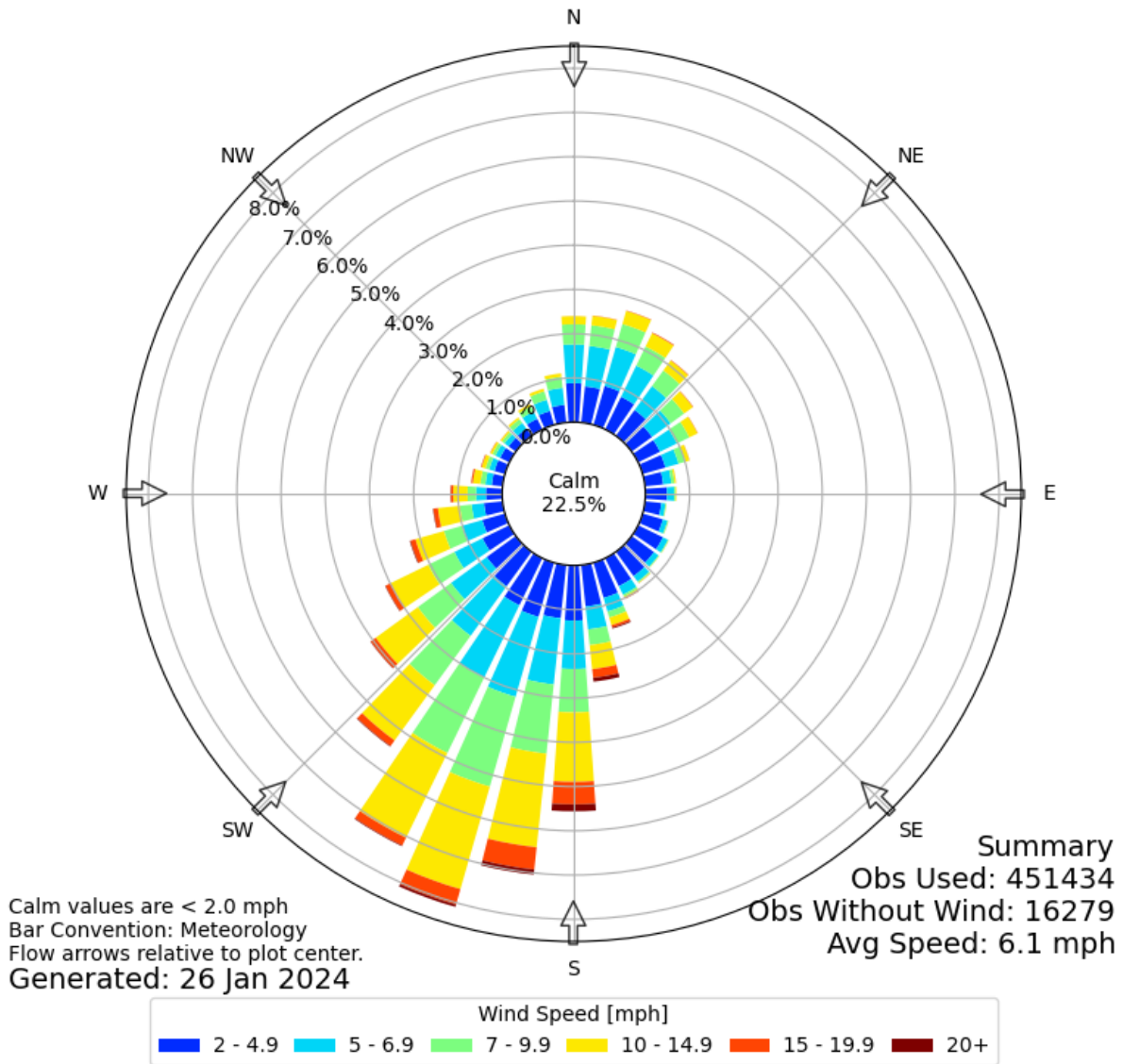


Figure 24. Wind rose from Olympia airport. Source:
https://mesonet.agron.iastate.edu/sites/windrose.phtml?network=WA_ASOS&station=OLM

Wapato: In the 2023 Network Plan, Ecology proposed to establish a Tribal regulatory PM_{2.5} and meteorological monitoring site in Wapato, owned and operated by the Yakama Nation. The equipment and installation costs for this new monitoring site were funded by EPA through the American Rescue Plan direct awards for enhanced air monitoring for criteria pollutants. The installation of the Wapato site is expected to be completed in summer 2024. As Tribal monitoring sites are not considered SLAMS, a full new site proposal is subject to agreement between EPA Region 10 and the Yakama Nation and is outside the scope of this document.

Kent: PSCAA plans to identify a new Kent SLAMS site for PM_{2.5} monitoring to replace the former Kent-Central & James site (530332004) that was discontinued when they were unable to renew their lease in 2023. PSCAA plans to identify and install the replacement site in 2025. Installation is delayed until 2025 because PSCAA plans to use funding from the forthcoming Inflation Reduction Act air monitoring grant for installation expenses. Ecology and PSCAA will provide a formal site establishment request once specific site location details are available, either in the 2025 Ambient Air Monitoring Network Plan or in a memo outside the Network Plan process.

Non-regulatory PM_{2.5} (88502)

Ecology and its partners operate 42 monitoring sites with non-regulatory PM_{2.5} instruments to report estimated PM_{2.5} concentrations and the AQI to the public. Most have a monitoring objective of population exposure; exceptions are four sites for general/background (Cheeka Peak, Chelan-Woodin Ave, Leavenworth-Evans St, Twisp-S Lincoln St) and one for regional transport (Moses Lake-Balsam St). All non-regulatory PM_{2.5} monitors meet any applicable requirements of 40 C.F.R. Part 58 Appendices A, B, C, D, and E, except where the site name is noted with a footnote in Table 15 below.

Table 15. Washington Network nephelometer monitoring sites

AQS ID	Site Name	CBSA	Est.	Type	Scale	Method	POC
530272002	Aberdeen-Division St	Aberdeen, WA	08/2002	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530330047	Auburn-29 th St ²	Seattle-Tacoma-Bellevue, WA	03/2021	SPM	Neighborhood	Ecotech M9003 (812)	4
530330031	Bellevue-SE 12th St	Seattle-Tacoma-Bellevue, WA	12/2016	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530090013	Cheeka Peak	Port Angeles, WA	05/2006	SLAMS, NCore	Regional	Radiance Research M903 (771)	4
530410004	Chehalis-Market Blvd	Centralia, WA	12/2009	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530070007	Chelan-Woodin Ave	Wenatchee, WA	12/2002	SPM	Neighborhood	Radiance Research M903 (771)	4
530030004	Clarkston-13th St	Lewiston, ID-WA	03/2007	SLAMS	Neighborhood	Met One BAM 1022 w/PM2.5 SCC (171)	8
530650005	Colville-E 1 st St	Spokane-Spokane Valley, WA	10/2015	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530130002	Dayton-W Main St	None	02/2009	SLAMS	Neighborhood	RadianceResearch M903 (771)	4
530370002	Ellensburg-Ruby St	Ellensburg, WA	10/2007	SPM	Neighborhood	Radiance Research M903 (771)	4
530050002	Kennewick-Metaline	Kennewick-Richland, WA	08/2004	SLAMS	Neighborhood	Radiance Research M903 (771)	4

² The Auburn-29th St monitor does not meet 40 C.F.R. Appendix E Probe and Path Siting Criteria requirements due to its proximity to a line of trees approximately 8m from the probe.

AQS ID	Site Name	CBSA	Est.	Type	Scale	Method	POC
530670013	Lacey-College St	Olympia-Lacey-Tumwater, WA	09/1990	SLAMS	Neighborhood	Met One BAM 1022 w/PM2.5 SCC (171)	8
530750005	LaCrosse-Hill St	Pullman, WA	10/2002	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530330024	Lake Forest Park ³	Seattle-Tacoma-Bellevue, WA	10/2003	SLAMS	Middle	Ecotech M9003 (812)	4
530070010	Leavenworth-Evans St	Wenatchee, WA	07/2005	SPM	Neighborhood	Radiance Research M903 (771)	4
530150015	Longview-30th Ave	Longview, WA	03/2003	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530210002	Mesa-Pepiot Way	Kennewick-Richland, WA	01/2003	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530251002	Moses Lake-Balsam St	Moses Lake, WA	01/2004	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530570015	Mt Vernon-S Second St	Mount Vernon-Anacortes, WA	07/2005	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530090015	Neah Bay-Makah Tribe	Port Angeles, WA	02/2010	Tribal	Neighborhood	Radiance Research M903 (771)	4
530330017	North Bend-North Bend Way	Seattle-Tacoma-Bellevue, WA	03/2003	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530230001	Pomeroy-Pataha St	None	05/2017	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530090017	Port Angeles-E 5th St	Port Angeles, WA	04/2015	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530310003	Port Townsend-San Juan Ave	None	10/2002	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530050004	Prosser-Highland Dr	Kennewick-Richland, WA	10/2022	SPM	Neighborhood	Met One BAM 1022 w/PM2.5 SCC (171)	8
530750003	Pullman-Dexter SE	Pullman, WA	10/2002	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530251003	Quincy-3rd Ave NE	Moses Lake, WA	06/2017	SPM	Neighborhood	Radiance Research M903 (771)	4
530490003	Raymond-4 th St	None	10/2023	SPM	Neighborhood	Radiance Research M903 (771)	4
530010003	Ritzville-Alder St	Othello, WA	03/2001	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530750006	Rosalia-Josephine St	Pullman, WA	10/2002	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530331011	Seattle-South Park ⁴	Seattle-Tacoma-Bellevue, WA	10/2003	SLAMS	Microscale	Ecotech M9003 (812)	4
530450007	Shelton-W Franklin	Shelton, WA	04/2011	SLAMS	Neighborhood	Radiance Research M903 (771)	4

³ The Lake Forest Park monitor does not meet 40 C.F.R. Appendix E Probe and Path Siting Criteria requirements because it is located in a parking lot with adjacent trees.

⁴ The Seattle-South Park monitor does not meet 40 C.F.R. Appendix E Probe and Path Siting Criteria requirements because the probe is affixed to the side of the building with only a 180-degree arc of free airflow.

AQS ID	Site Name	CBSA	Est.	Type	Scale	Method	POC
530250003	Soap Lake-4 th Ave SE	Moses Lake, WA	10/2022	SPM	Neighborhood	Radiance Research M903 (771)	4
530630054	Spokane-E Sprague Ave	Spokane- Spokane Valley, WA	01/2024	SPM	Middle	Met One BAM 1022 w/PM2.5 SCC (171)	8
530630047	Spokane- Monroe St	Spokane- Spokane Valley, WA	05/2004	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530270011	Taholah- Quinault Tribe	Aberdeen, WA	04/2004	Tribal	Neighborhood	Radiance Research M903 (771)	4
530610021	Tulalip-Totem Beach Rd	Seattle- Tacoma- Bellevue, WA	10/2019	Tribal	Neighborhood	Radiance Research M903 (771)	4
530470009	Twisp-S Lincoln St	None	06/2020	SPM	Neighborhood	Radiance Research M903 (771)	4
530710005	Walla Walla- 12th St	Walla Walla, WA	10/2002	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530650002	Wellpinit- Spokane Tribe	Spokane- Spokane Valley, WA	10/2008	Tribal	Neighborhood	Radiance Research M903 (771)	4
530070011	Wenatchee- Fifth St	Wenatchee, WA	11/2012	SLAMS	Neighborhood	Radiance Research M903 (771)	4
530110022	Yacolt-Yacolt Rd	Portland- Vancouver- Hillsboro, OR- WA	07/2003	SLAMS	Neighborhood	Radiance Research M903 (771)	4

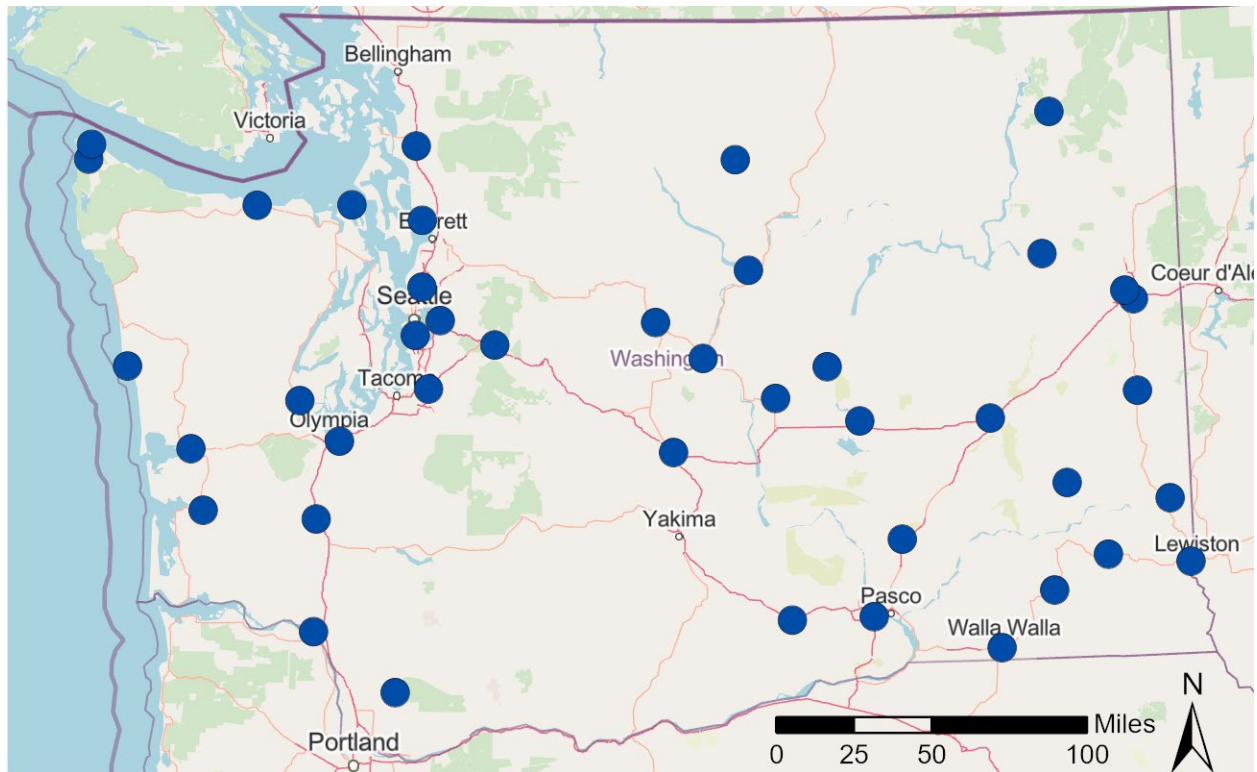


Figure 25. Map of Washington Network non-regulatory PM_{2.5} monitoring sites

Regional background/transport requirements

Appendix D (4.7.3) of 40 C.F.R. Part 58 requires each state to operate at least one PM_{2.5} monitoring site for regional background and one for regional transport. The Cheeka Peak NCore site serves as Washington’s regional background site, and the Moses Lake SLAMS is designated as a regional transport site.

Recent modifications

On January 24, 2024, Ecology and the Spokane Regional Clean Air Agency (SRCAA) established a new site Spokane-E Sprague Ave (530630054) with a SPM BAM 1022 with SCC (Method Code 171) for non-regulatory PM_{2.5}. This monitor is part of the expanded monitoring in overburdened communities required by the Washington Climate Commitment Act. This is a middle-scale monitor with objectives of highest concentration and population exposure.

On October 1, 2023, the Olympic Region Clean Air Agency (ORCAA) established a SPM for non-regulatory PM_{2.5} at the Raymond-4th St monitoring site (530490003) with a Radiance Research M903 nephelometer (Method Code 771).

The Winthrop-Chewuch Rd (530470010) SPM for non-regulatory PM_{2.5} was discontinued on April 30, 2024.

Due to a Town of Twisp construction project at the Twisp-Ewell St (530470016) site location, Ecology relocated the Twisp SPM for non-regulatory PM_{2.5} from its previous location on Ewell St

to a new location at 100 S Lincoln St on June 3, 2024. Since the new location is only a block away from the previous Twisp-S Glover St site (530470009) that was used until 2020, Ecology will use the 530470009 AQS ID with the new name Twisp-S Lincoln St. Ecology discontinued the Twisp-Ewell St site (530470016) on June 3, 2024.

Recommended/proposed modifications

Ecology and ORCAA propose to discontinue the SLAMS for non-regulatory PM_{2.5} (88502) at the Lacey-College St monitor in conjunction with the addition of a SLAMS for FEM PM_{2.5} (88101) on January 1, 2025.

Particulate matter 10 (PM₁₀, 81102)

There are seven PM₁₀ monitoring sites in the Washington Network. All have a monitoring objective of population exposure with the exception of Seattle-Beacon Hill, which has a monitoring objective of general/background. All monitor for PM₁₀ with BAM 1020s (Method 122) using POC 5.

Table 16. Washington Network PM₁₀ monitoring sites

AQS ID	Site Name	CBSA	Est.	Type	Scale
530710006	Burbank-Maple St	Walla Walla, WA	08/2017	SLAMS	Neighborhood
530630001	Cheney-Turnbull	Spokane-Spokane Valley, WA	10/2021	SLAMS	Urban
530650005	Colville-E 1 st St	Spokane-Spokane Valley, WA	10/2015	SLAMS	Neighborhood
530610022	Everett-Beverly Park Rd	Seattle-Tacoma-Bellevue, WA	06/2024	SPM	Micro
530050002	Kennewick-Metaline	Kennewick-Richland, WA	10/1994	SLAMS	Neighborhood
530330080	Seattle-Beacon Hill	Seattle-Tacoma-Bellevue, WA	03/2003	SLAMS, NCore	Urban
530630017	Spokane Valley-E Broadway Ave	Spokane-Spokane Valley, WA	03/2021	SLAMS	Neighborhood
530770009	Yakima-4 th Ave S	Yakima, WA	04/2000	SLAMS	Neighborhood

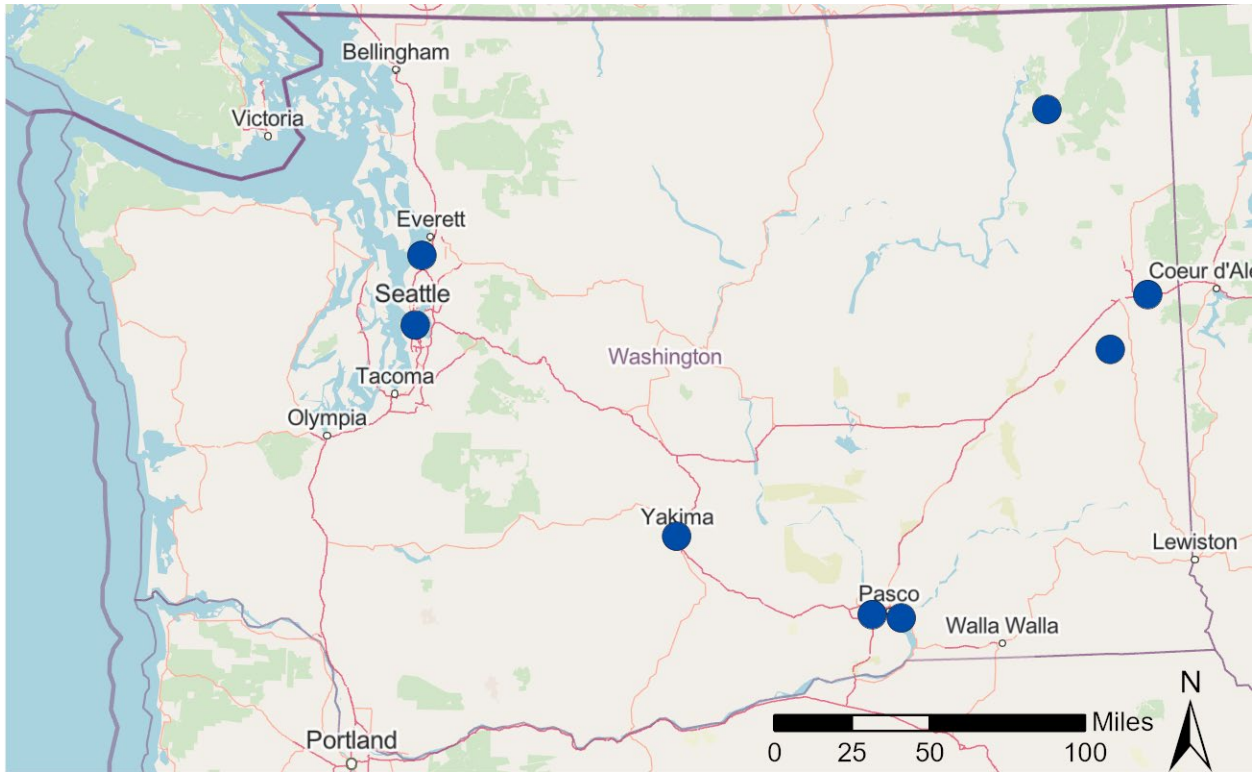


Figure 26. Map of Washington Network PM₁₀ monitoring sites

The Washington Network is currently not meeting the PM₁₀ minimum monitoring requirements defined in 40 C.F.R. Part 58 Appendix D in three metropolitan areas, as summarized in

Table 17, and has approved waivers or pending waiver requests from EPA Region 10 for the remaining unmet requirements.

Table 17. EPA minimum monitoring requirements for PM₁₀

Core-Based Statistical Area	2023 Population Estimate	Maximum 24-hour concentration in $\mu\text{g}/\text{m}^3$ (2021-2023)	Number of Required Monitors	Number of Existing Monitors
Seattle-Tacoma-Bellevue, WA	4,044,837	25 (Seattle-Beacon Hill)	2	1*
Portland-Vancouver-Hillsboro, OR-WA	2,508,050	89 (Portland-Humboldt School)	2	4
Spokane-Spokane Valley, WA	600,292	281 (Spokane Valley-E Broadway Ave)	4	3
Kennewick-Richland, WA	314,253	249 (Kennewick-Metaline)	3	1
Yakima, WA	256,643	177 (Yakima-4 th Ave S)	1	1

*The Seattle-Duwamish (530330057) PM₁₀ monitor to be established in July 2024, as described below, will meet the requirement for a second PM₁₀ monitor in the Seattle-Tacoma-Bellevue MSA.

EPA issued Ecology a waiver for the unmet monitoring requirements in the Kennewick-Richland CBSA on April 18, 2019, effective for five years. Ecology requested a renewal of this waiver on April 11, 2024.

In a letter dated February 7, 2020 (Appendix B), EPA Region 10 approved Ecology’s request for a monitoring waiver for the unmet PM₁₀ monitoring requirement in the Seattle-Tacoma-Bellevue CBSA and one of the two unmet PM₁₀ monitoring requirements in the Spokane-Spokane Valley CBSA, effective for five years.

Monitoring waiver and Cheney-Turnbull discontinuation request

In order to align the 5-year monitoring waiver cycle with the annual Network Plan process, Ecology requests an early renewal of the waiver for the unmet PM₁₀ monitoring requirements in the Spokane-Spokane Valley CBSA. Ecology also requests that this waiver be expanded to cover two of the four required monitors in the Spokane-Spokane Valley MSA, in order to allow for the discontinuation of the Cheney-Turnbull PM₁₀ monitor as soon as possible.

The Spokane-Spokane Valley MSA is currently well-represented by two PM₁₀ monitors: one at Spokane Valley-E Broadway Ave in the southern portion of the MSA (Spokane County), and another at Colville-E 1st St in the northern portion of the MSA (Stevens County). While a third monitor currently operates at the Cheney-Turnbull monitoring site in the Turnbull National Wildlife Refuge approximately 25km southwest of Spokane, it is unduly influenced by nuisance dust from local gravel roads and Ecology seeks to discontinue it.

In the 2021-2023 period, the threshold of 120% of the PM₁₀ NAAQS was only exceeded on two days in Spokane-Spokane Valley, both during an extreme wildfire smoke event in August 2023.

Table 18. Exceedances of 120% of the PM₁₀ NAAQS in Spokane-Spokane Valley MSA, 2021-2023

Date	Cheney-Turnbull 24-hour PM₁₀ concentration (µg/m³)	Spokane Valley-E Broadway Ave PM₁₀ concentration (µg/m³)	Associated event
August 19, 2023	210	281	Wildfire smoke event
August 20, 2023	189	188	Wildfire smoke event

Daily mean PM₁₀ concentrations at the Spokane Valley-E Broadway Ave and Cheney-Turnbull monitoring sites are shown in Figure 27 and Figure 28, respectively, with seasonal wildfire smoke episodes marked with red ovals.

Daily Mean PM10 Concentrations from 01/01/21 to 12/31/23

Parameter: PM10 Total 0-10um STP (Applicable standard is 150 ug/m3)

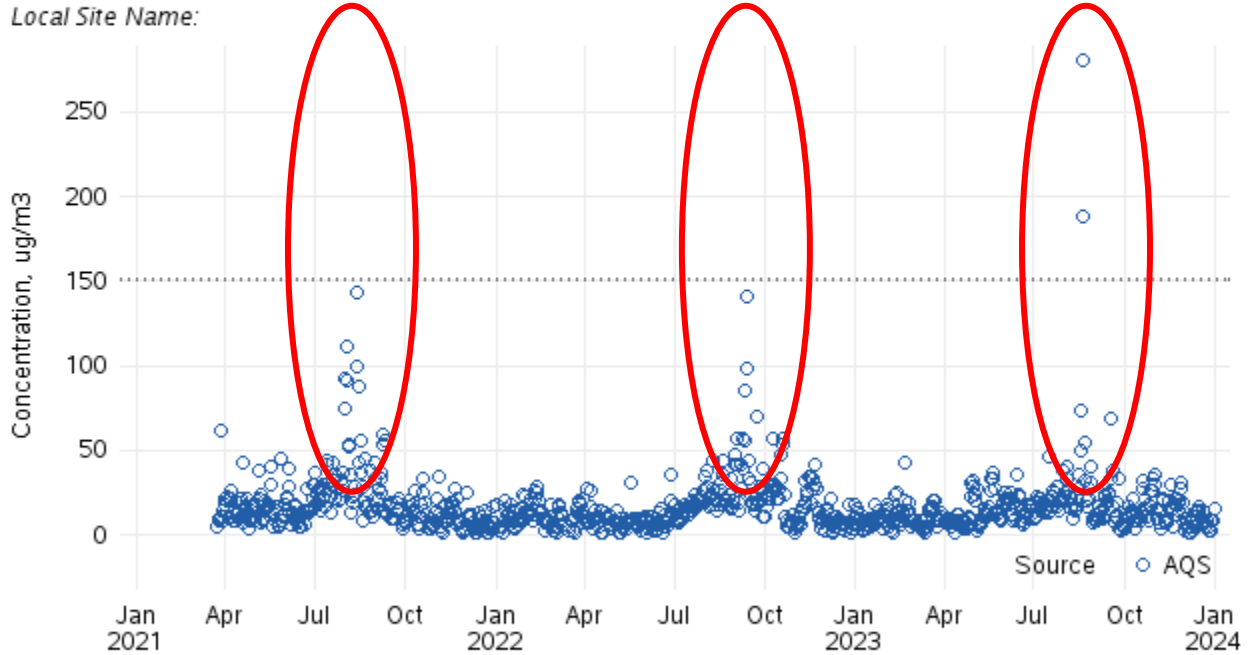
CBSA: Spokane-Spokane Valley, WA

County: Spokane

State: Washington

AQS Site ID: 530630017, poc 5

Local Site Name:



Source: U.S. EPA AirData <<https://www.epa.gov/air-data>>

Generated: April 23, 2024

Figure 27. Daily mean PM₁₀ concentrations at Spokane Valley-E Broadway Ave, 2021-2023.
Source: <https://www.epa.gov/outdoor-air-quality-data/air-data-concentration-plot>

Daily Mean PM10 Concentrations from 01/01/21 to 12/31/23

Parameter: PM10 Total 0-10um STP (Applicable standard is 150 ug/m3)

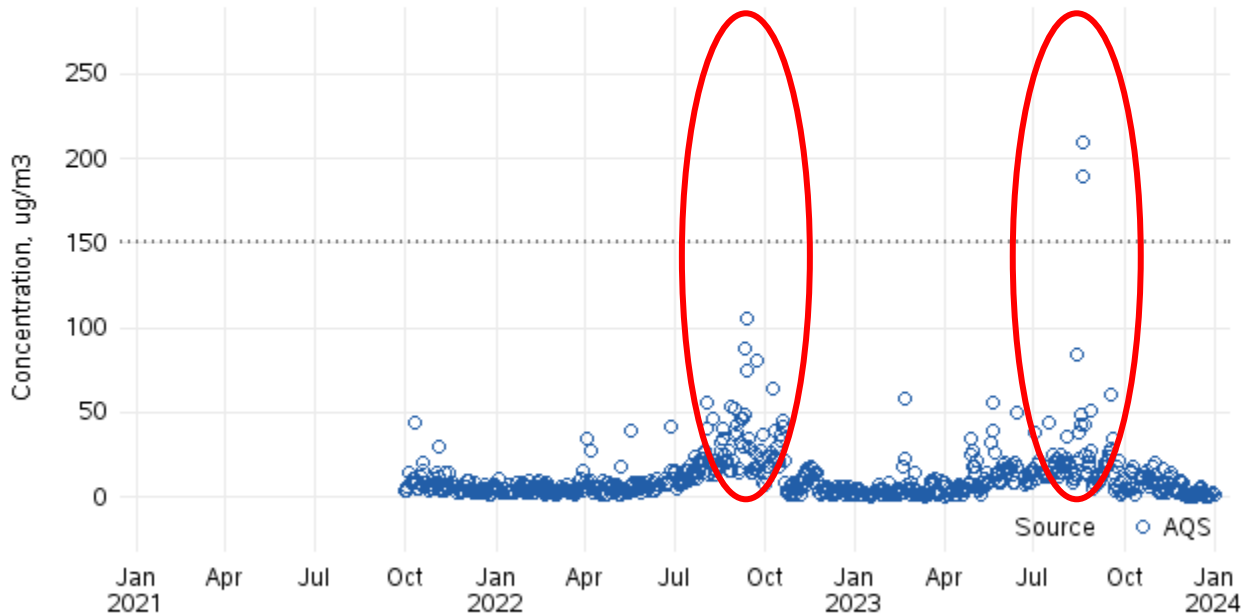
CBSA: Spokane-Spokane Valley, WA

County: Spokane

State: Washington

AQS Site ID: 530630001, poc 5

Local Site Name: CHENEY - TURNBULL



Source: U.S. EPA AirData <<https://www.epa.gov/air-data>>

Generated: April 23, 2024

Figure 28. Daily mean PM₁₀ concentrations at Cheney-Turnbull, 2021-2021. Source: <https://www.epa.gov/outdoor-air-quality-data/air-data-concentration-plot>.

During the wildfire smoke events on August 19 and 20, 2023, heavy smoke blanketed most of Washington, causing widespread exceedances of both the PM_{2.5} and PM₁₀ standards across the state. The satellite image in Figure 29 shows the broad extent of this regional smoke episode. Figure 30 and Figure 31 show the widespread extent of PM_{2.5} concentrations in the Unhealthy-to-Hazardous AQI range across eastern Washington on both days.



20 Aug 2023 19:01Z - NOAA/NESDIS/STAR GOES-West

Figure 29. Satellite image of widespread wildfire smoke across Washington, August 20, 2023 (source: NOAA/NESDIS/STAR GOES-West)

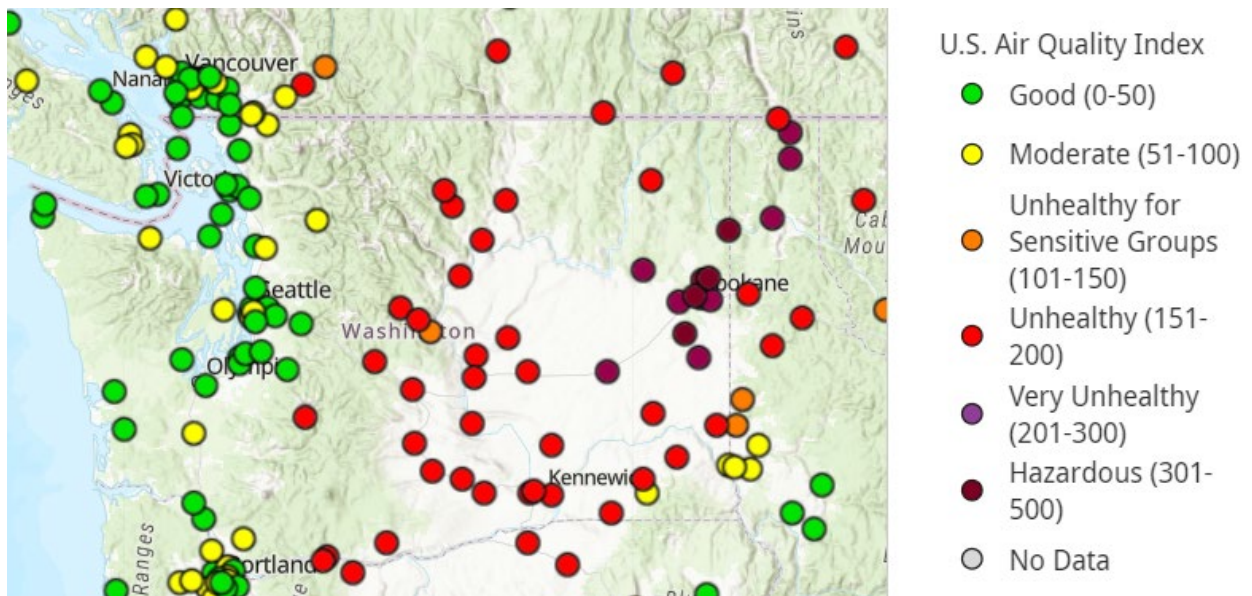


Figure 30. AirNow 24-hour PM2.5 concentration map, August 19, 2023 (source: airnow.gov)

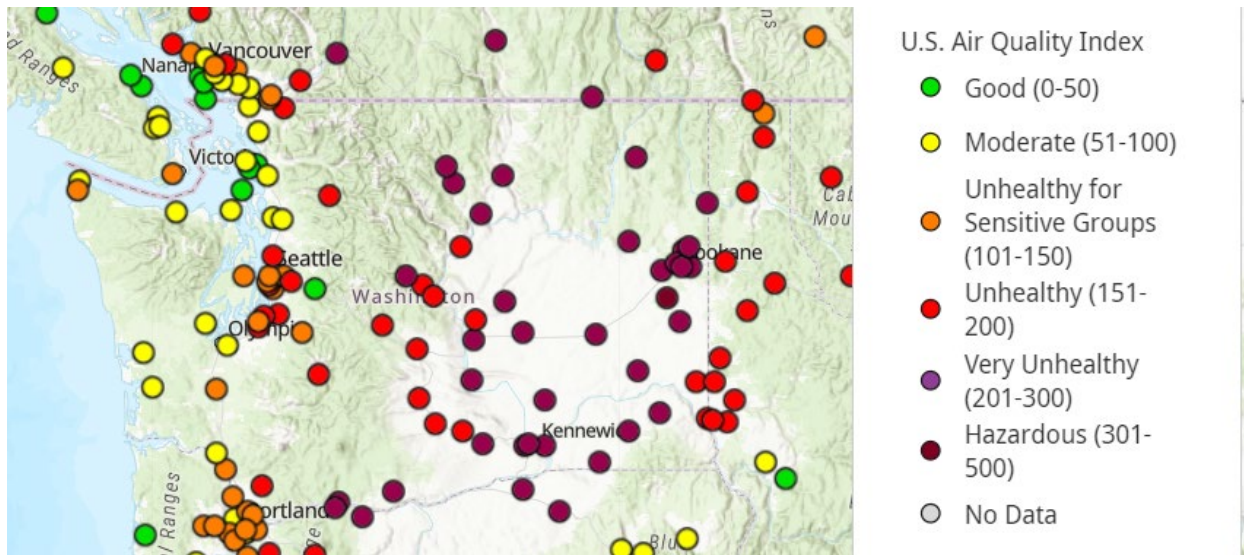


Figure 31. AirNow 24-hour PM_{2.5} concentration map, August 20, 2023 (source: airnow.gov)

Given that the only exceedances of the PM₁₀ NAAQS occur during extreme wildfire smoke events that are regional in scale, Ecology maintains that little value would be gained by expanding the PM₁₀ monitoring network to 4 sites within the Spokane-Spokane Valley MSA. The Spokane Valley-E Broadway Ave and Colville-E 1st St monitors are adequately representative of PM₁₀ conditions in the MSA outside of extreme events. During regional wildfire smoke events, a high-density PM₁₀ monitoring network within the MSA would likely show homogeneous conditions due to the broad regional scale of these events. In addition, the Spokane-Spokane Valley MSA has an extensive network of PM_{2.5} monitors that report the Air Quality Index, which is a more relevant and targeted source of public information during wildfire smoke conditions than an expanded PM₁₀ network would be.

In order to avoid duplicative PM₁₀ monitoring within a relatively small MSA, and in order to direct monitoring resources toward higher-value efforts such as PM_{2.5} monitoring, Ecology requests a waiver for the two of the required PM₁₀ monitors in the Spokane-Spokane Valley MSA.

Ecology also seeks approval to discontinue the Cheney-Turnbull PM₁₀ SLAMS monitor as soon as possible. This monitor is located in a remote, unpopulated area inside the Turnbull National Wildlife Refuge approximately 25km southwest of the Spokane metropolitan area, as shown in Figure 32.

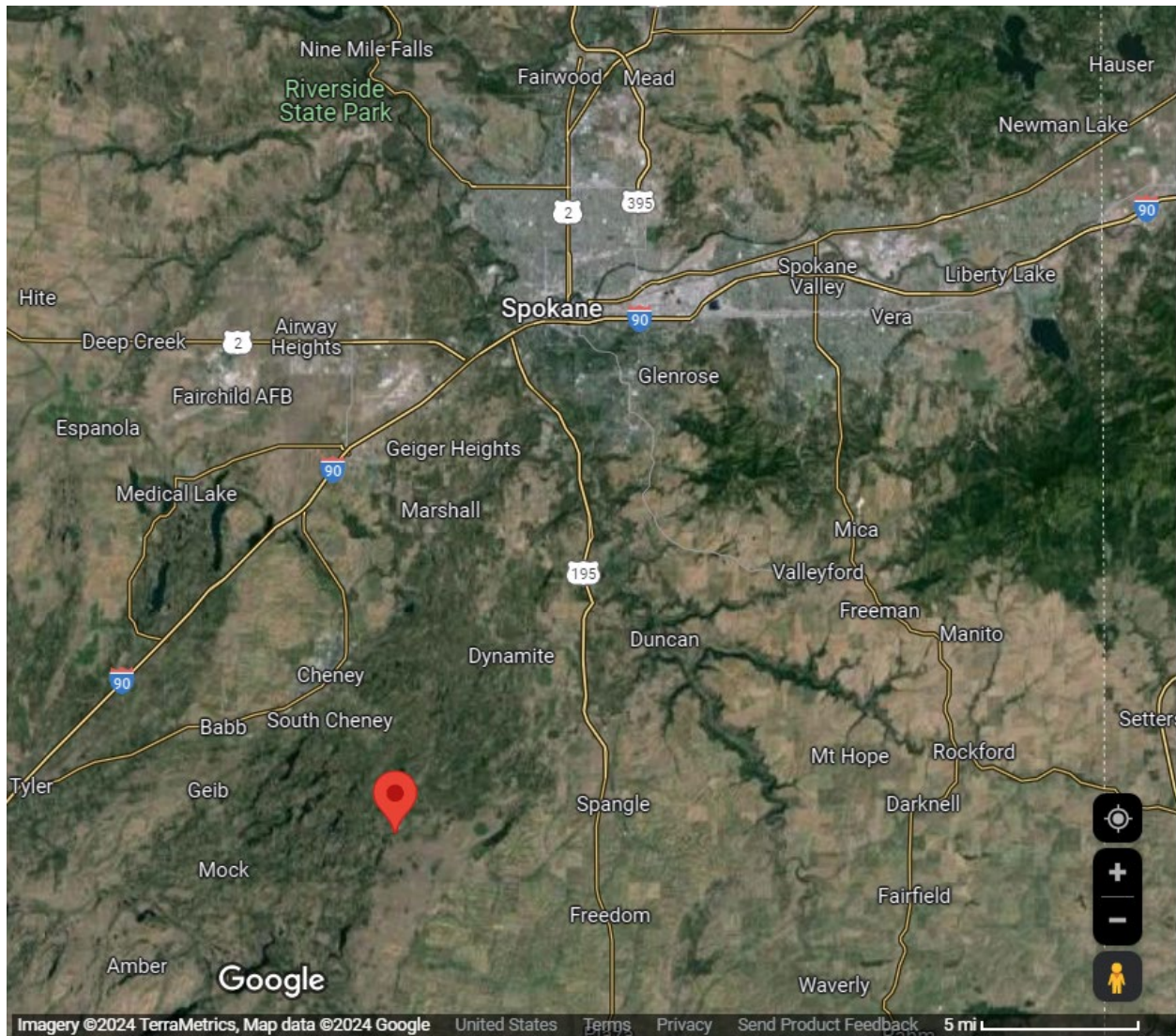


Figure 32. Satellite image of Cheney-Turnbull PM₁₀ monitor location relative to Spokane metropolitan area

Within the national wildlife refuge, the PM₁₀ monitor is located in an area of open space and partial vegetation, near gravel roads traveled frequently by refuge maintenance vehicles and wildland firefighting vehicles. Maintenance vehicles routinely use the Smith Rd approximately 35 meters north of the monitor to reach the refuge maintenance shop and conduct frequent grading of the road in the summer. Firefighting teams use nearby gravel lots as a staging area for wildland firefighting activities during wildfire season and make frequent trips along Smith Rd.

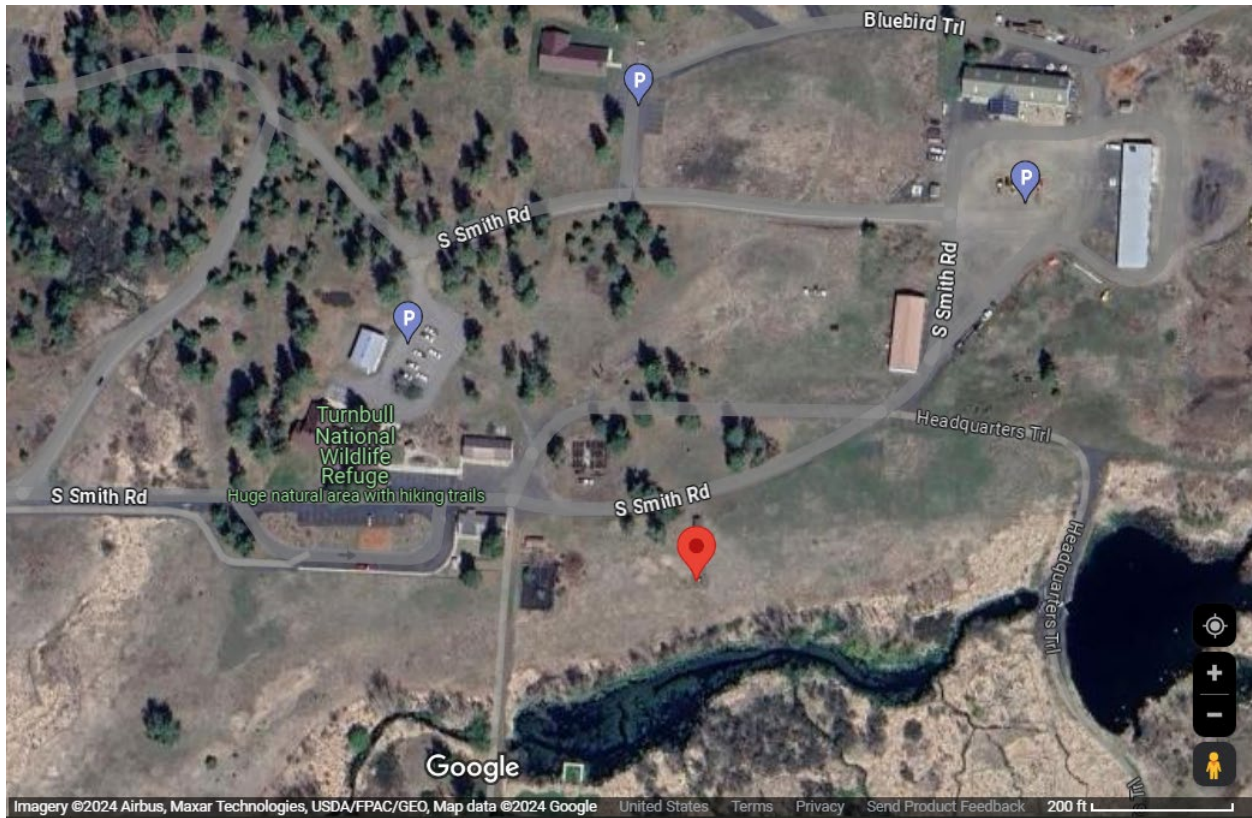


Figure 33. Close-up satellite image of Cheney-Turnbull monitoring site. PM10 monitor is marked with the red flag.

In 2023, multiple instances of elevated PM₁₀ concentrations due to dust from grading and routine use of the nearby gravel road were observed. These spikes in PM₁₀ concentrations from local dust caused Enviroflash alerts to be issued about air quality conditions in Spokane County, causing confusion among Enviroflash subscribers since Spokane’s air quality was otherwise unimpaired. Hourly PM₁₀ data from two such examples (7/2/2023 and 8/13/2023) exceeding 500 µg/m³ are shown in Figure 34 and Figure 35 below, with hourly PM_{2.5} data from the collocated SensWA sensor also included for comparison to demonstrate the coarse nature of this dust.

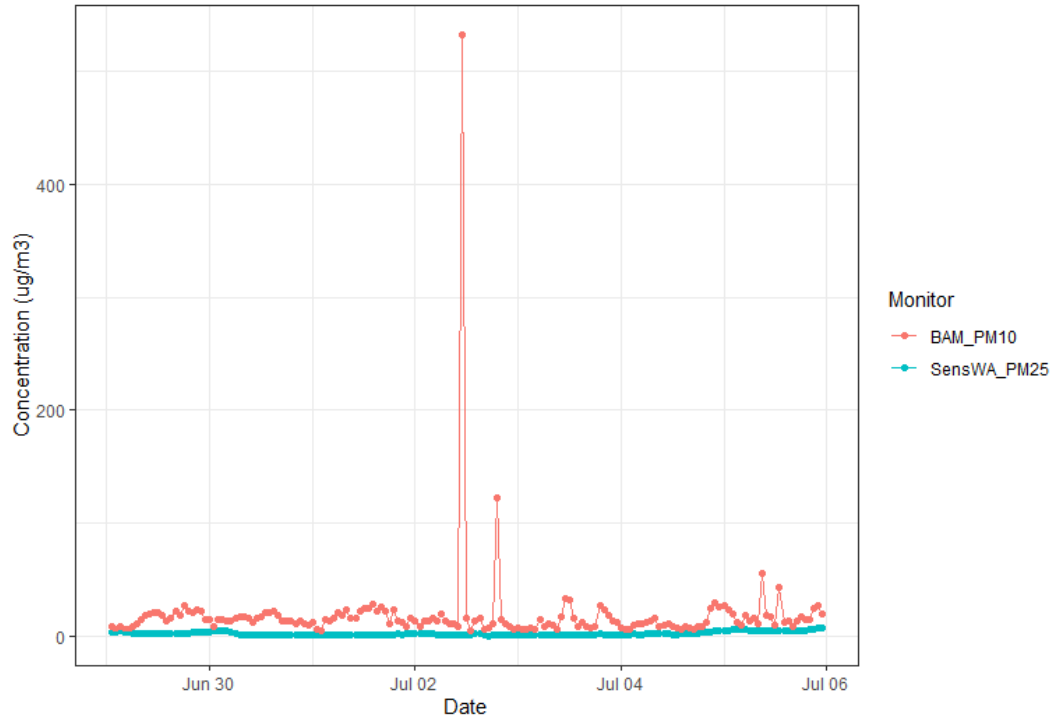


Figure 34. Hourly PM₁₀ and PM_{2.5} comparison from Cheney-Turnbull on July 2, 2023, when dust from local roads caused multiple PM₁₀ spikes.

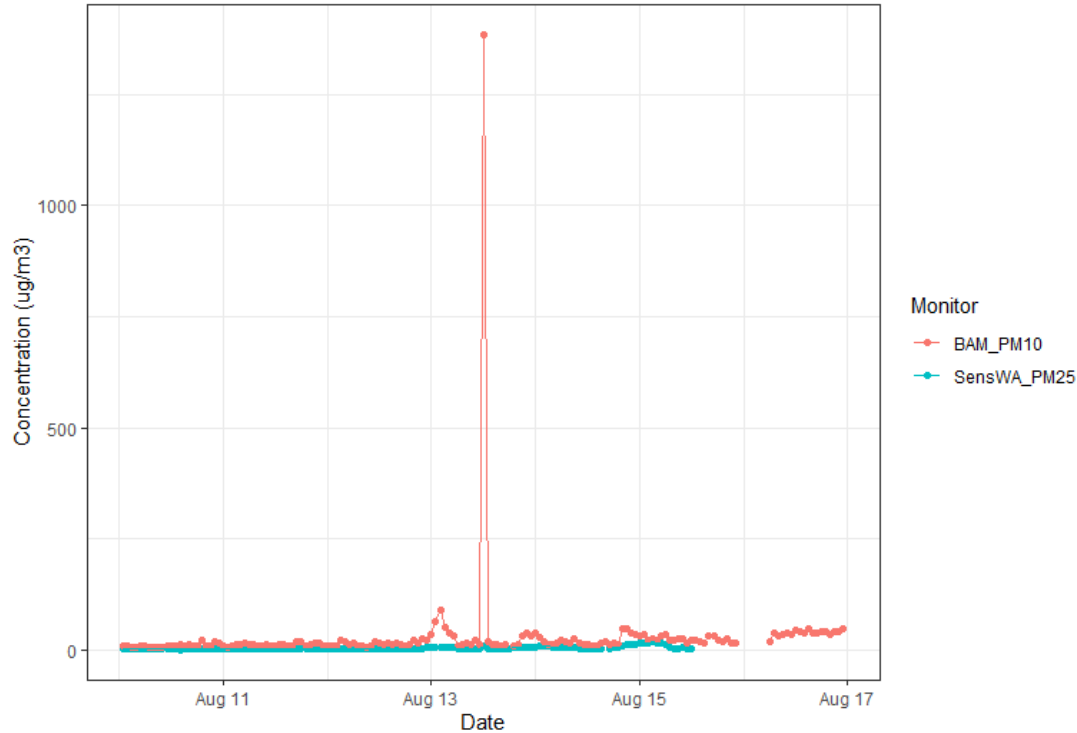


Figure 35. Hourly PM₁₀ and PM_{2.5} comparison from Cheney-Turnbull on August 13, 2023, when dust from local roads caused a large PM₁₀ spike.

The only reason that the Cheney-Turnbull PM₁₀ monitor was added to the Washington Network as a SLAMS in 2021 was because it was previously operated outside of a PQAQO by SRCAA and not submitted to AQS. EPA Region 10 identified this as inconsistent with 40 C.F.R. Part 58.16 (Data submittal and archiving requirements) and requested it be added as a SLAMS so that data would be submitted to AQS. Its addition was strictly due to this administrative requirement, and it was not specifically sited to provide public health information, inform pollution control strategies, support air pollution research, or otherwise support the goals and objectives of the Washington Network.

Before the monitor was added as a SLAMS in 2021, SRCAA was aware that local dust was an issue in the nearby area and relocated the monitor as far as practical from the gravel roads and lots, which was as far as electrical service could be extended. After the relocation, Ecology expected that the site would meet 40 C.F.R. Part 58 Appendix E requirements. However, in light of evidence of PM₁₀ impacts from local dust over the past year, Ecology has determined that the site does not meet the requirements of Appendix E Section 3 (Spacing from minor sources), specifically 3(a) “Particulate matter sites should not be located in an unpaved area unless there is vegetative ground cover year-round, so that the impact of wind blown dusts will be kept to a minimum.” Because the effects of local dust are readily apparent in the PM₁₀ data, Ecology does not consider this site suitable for NAAQS comparisons, AQI reporting, or representing any scale larger than the microscale.

Outside of local dust impacts, the Cheney-Turnbull PM₁₀ monitor is consistently lower than the Spokane Valley-E Broadway Ave monitor located in the populated area of Spokane-Spokane Valley and used in maintenance planning to represent the Spokane PM₁₀ maintenance area. Given that Cheney-Turnbull consistently measures lower concentrations than another monitor in the county, and given that it routinely records elevated dust concentrations from microscale sources and triggers superfluous Enviroflash alerts, and given that these local dust impacts render the data unusable for evaluating urban-scale conditions and population exposure, Ecology requests EPA approval to discontinue it as soon as possible. The monitor meets the requirements of 40 C.F.R. Part 58.14(c)(2) for discontinuation:

“Any SLAMS monitor for CO, PM₁₀, SO₂, or NO₂ which has consistently measured lower concentrations than another monitor for the same pollutant in the same county (or portion of a county within a distinct attainment area, nonattainment area, or maintenance area, as applicable) during the previous five years, and which is not specifically required by an attainment plan or maintenance plan, if control measures scheduled to be implemented or discontinued during the next five years would apply to the areas around both monitors and have similar effects on measured concentrations, such that the retained monitor would remain the higher reading of the two monitors being compared.”

During the 2021-2023 period when both monitors were reporting to AQS, the mean difference in 24-hour average PM₁₀ concentrations between Spokane Valley-E Broadway Ave and Cheney-Turnbull was 4.1 µg/m³, with a mean ratio of 1.99. A plot of the difference between the two monitors by date is shown in Figure 36. Days with a difference of less than -10 µg/m³ are

generally those when Cheney-Turnbull experienced local dust impacts. The two days shown as examples in Figure 34 and Figure 35 are circled in red.

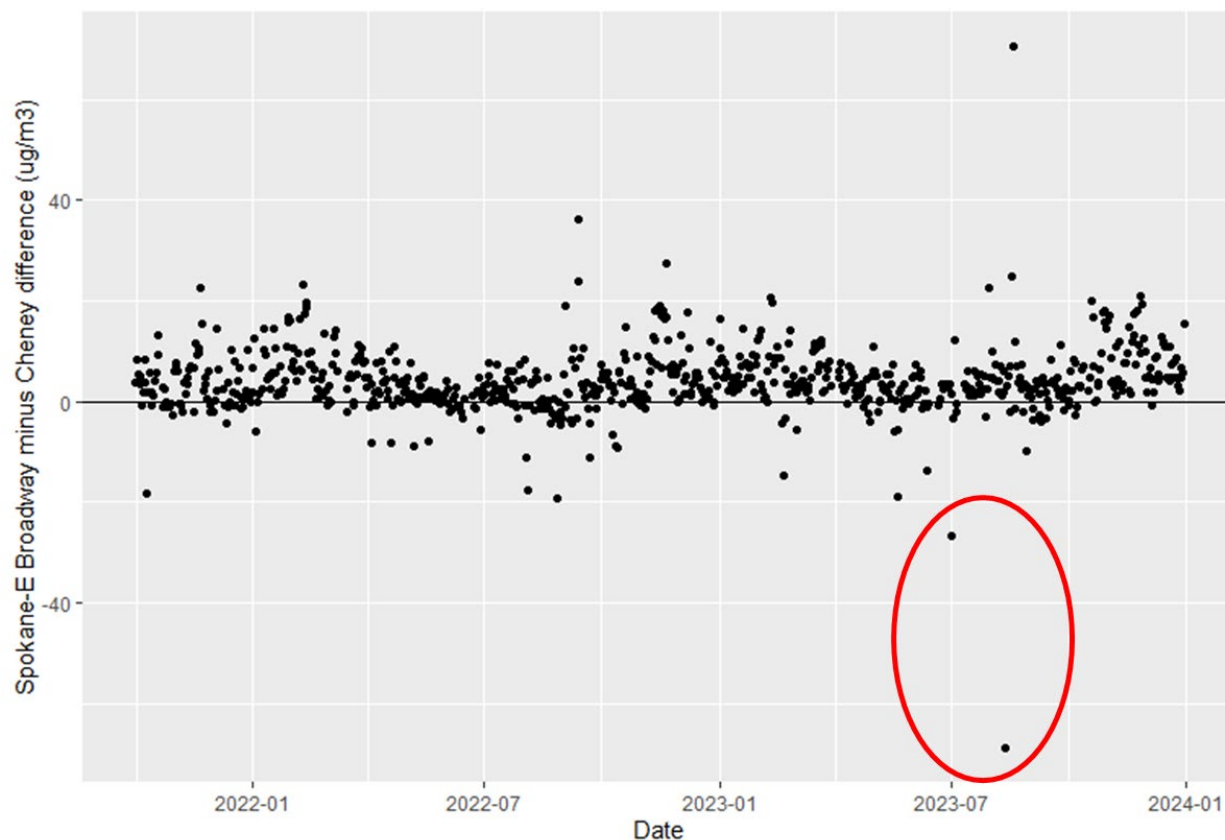


Figure 36. Difference in daily PM₁₀ concentrations between Spokane Valley-E Broadway Ave and Cheney-Turnbull. Two days with local dust impacts due to road grading at Cheney-Turnbull (7/2/2023 and 8/13/2023) are circled in red.

The Spokane Valley-E Broadway Ave monitor is located within the Spokane PM₁₀ maintenance area, which will reach the end of its 20-year maintenance period in 2025. However, there are no changes in control measures associated with the end of the maintenance period or otherwise planned. Since the Spokane Valley-E Broadway Ave monitor is located in a representative, neighborhood-scale location in the population center of the Spokane-Spokane Valley MSA, it is expected to remain the higher of the two monitors. Therefore, this discontinuation request meets the requirements of 40 C.F.R. Part 58.14(c)(2), and Ecology seeks to discontinue Cheney-Turnbull PM₁₀ as soon as possible.

Recent modifications

On January 1, 2024, Ecology updated the method used to monitor PM₁₀ at the Seattle-Beacon Hill SLAMS (530330080) from a filter-based Federal Reference Method (FRM) monitor (81102 POC 2) to a continuous BAM 1020 (81102 POC 5). With this change, Ecology is no longer deficient in the collocation requirements for PM₁₀ monitoring described in 40 C.F.R. Part 58 Appendix A. Ecology continues to monitor for PM₁₀ with an FRM monitor as part of the PM_{10-2.5} monitoring requirement for NCore stations and continues to report PM₁₀ data in local

conditions to 85101, but discontinued reporting these data in standard temperature and pressure to 81102. The new POC 5 monitor has a 5-meter probe height. Ecology informed EPA Region 10 of this method change via email on July 18, 2023.

Recommended/proposed modifications

Cheney-Turnbull: Ecology proposes to discontinue the Cheney-Turnbull PM₁₀ SLAMS monitor, as described above.

Seattle-Duwamish: Ecology and PSCAA propose to add a SLAMS monitor for PM₁₀ to PSCAA's Seattle-Duwamish monitoring site (530330057). This monitor will be part of the expanded monitoring in overburdened communities required by the Washington Climate Commitment Act. The PM₁₀ monitor will fulfill the currently-unmet 40 C.F.R. Part 58 Appendix D requirement for a second PM₁₀ monitor in the Seattle-Tacoma-Bellevue, WA MSA, for which EPA Region 10 provided Ecology with a waiver in 2020 effective for five years. Renewal of this waiver will not be necessary with the addition of the new PM₁₀ monitor to the Seattle-Duwamish site.

The Seattle-Duwamish site is located at 4700 East Marginal Way South in Seattle (47.55975, -122.338265), in the Seattle-Tacoma-Bellevue, WA MSA. It is located in an area of industrial/maritime zoning, with some residential neighborhoods 1-2km south.

Seattle-Duwamish is a long-term PSCAA monitoring site first established in 1971. PM_{2.5} monitoring began at the site in 1999. PSCAA recently conducted a community-scale air toxics monitoring study that included measurements of key air toxics at the Seattle-Duwamish site. One of the conclusions of that study was that resuspended dust from unpaved roads, curbs, and corners in surrounding neighborhoods was likely a key source of PM₁₀ and PM₁₀ metals measured at the site during the study. The addition of continuous, long-term PM₁₀ monitoring to the site will be useful for corroborating that study finding and providing additional particle pollution data in one of Seattle's overburdened communities highly impacted by air pollution.

Ecology and PSCAA plan to monitor PM₁₀ with a continuous BAM 1020 (Method 122), reporting to POC 5. The monitoring objectives will be population oriented and highest concentration, and the monitor will represent the neighborhood scale. The probe height will be approximately 4 meters. The nearest obstruction is a single-story building no more than 5 meters high and approximately 25 meters to the east. The nearest major road is approximately 80 meters west with a 2022 annual average daily traffic value of 40,000. The site is expected to meet all applicable requirements of C.F.R. Part 58 Appendices A, B, C, D, and E, and data will be suitable for comparison with the PM₁₀ NAAQS.

A satellite image of the site location in red relative to the surrounding area is shown in Figure 37. Site photos from the four cardinal directions are shown in Figure 38, Figure 39, Figure 40, and Figure 41.

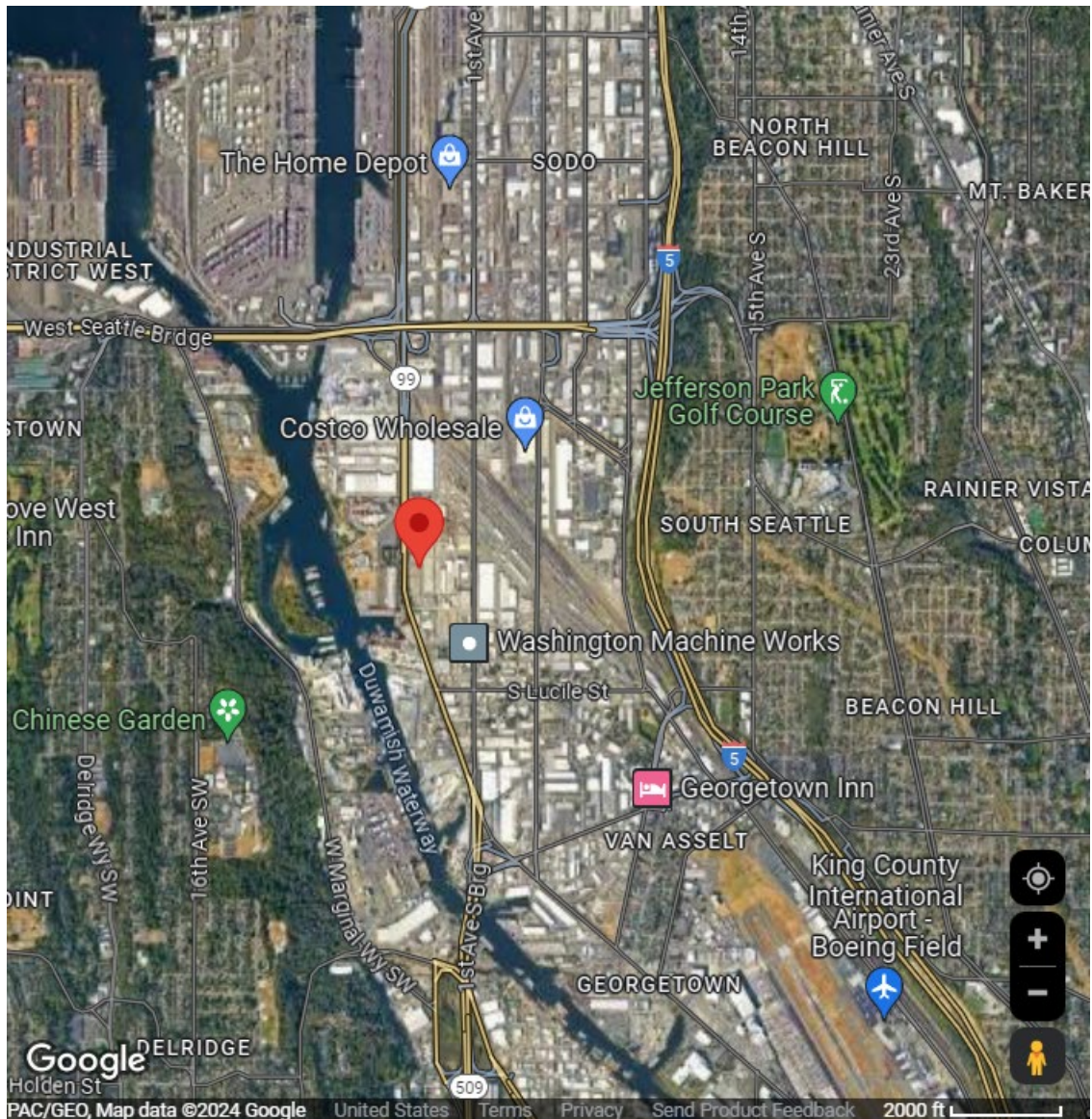


Figure 37. Satellite image of Seattle-Duwamish site location.



Figure 38. Photo of Seattle-Duwamish monitoring site facing north.



Figure 39. Photo of Seattle-Duwamish monitoring site facing east.



Figure 40. Photo of Seattle-Duwamish monitoring site facing south.



Figure 41. Photo of Seattle-Duwamish monitoring site facing west.

The dominant wind directions at the site are from the south and southeast, as show in the wind rose in Figure 42. South and southeast winds are particularly dominant in the winter, while northwest winds are also frequent in the summer months.



Windrose Plot for [BFI] SEATTLE/BOEING FLD
Obs Between: 01 Jan 1972 12:00 AM - 25 Jan 2024 11:53 PM America/Los_Angeles

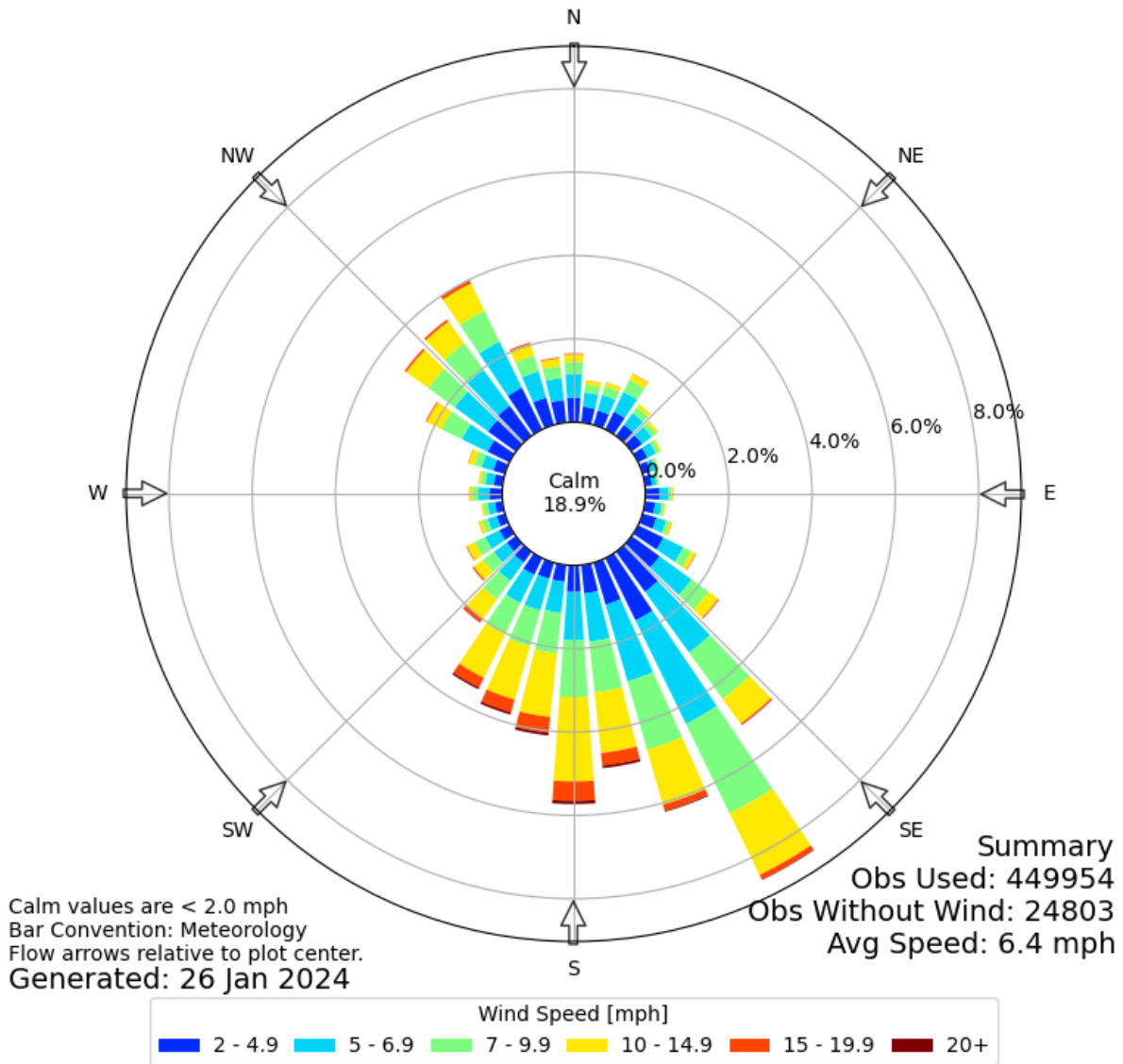


Figure 42. Wind rose from King County International Airport/Boeing Field. Source: https://mesonet.agron.iastate.edu/sites/windrose.phtml?network=WA_ASOS&station=BFI

Meteorological monitoring (61101/61102/61103/61104/62101)

There are 15 meteorological monitoring sites in the Washington Network. All Washington Network meteorological monitoring sites collect scalar and vector wind speed and direction using RM Young or Vaisala sonic anemometers (method codes 062 and 060, respectively) and ambient temperature under method code 040 (electronic or machine average). All Washington Network meteorological sites follow EPA’s monitoring guidelines for prevention of significant deterioration (PSD).

Table 19. Washington Network meteorological monitoring sites

AQS ID	Site Name	Established	Type	Scale
530710006	Burbank-Maple St	03/2018	SLAMS	Urban
530090013	Cheeka Peak	08/2007	SLAMS, NCore	Urban
530650005	Colville-E 1st St	05/2016	SLAMS	Urban
530330023	Enumclaw-Mud Mtn.	02/2004	SLAMS	Urban
530730017	Ferndale-Mountain View Rd	01/2017	SLAMS	Urban
530050002	Kennewick-Metaline	08/2012	SLAMS	Urban
530330017	North Bend-North Bend Way	01/2000	SLAMS	Urban
530470013	Omak-Colville Tribe	10/2010	Tribal	Urban
530251003	Quincy-3rd Ave NE	06/2017	SPM	Urban
530330030	Seattle-10th & Weller	04/2014	SLAMS, Near-road	Urban
530330080	Seattle-Beacon Hill	01/1991	SLAMS, NCore	Urban
530530024	Tacoma-S 36th St	02/2016	SLAMS, Near-road	Urban
530770015	Toppenish-Yakama Tribe	06/2009	Tribal	Urban
530110011	Vancouver-Blairmont Dr	12/2007	SLAMS	Urban
530070011	Wenatchee-Fifth St	11/2012	SLAMS	Urban

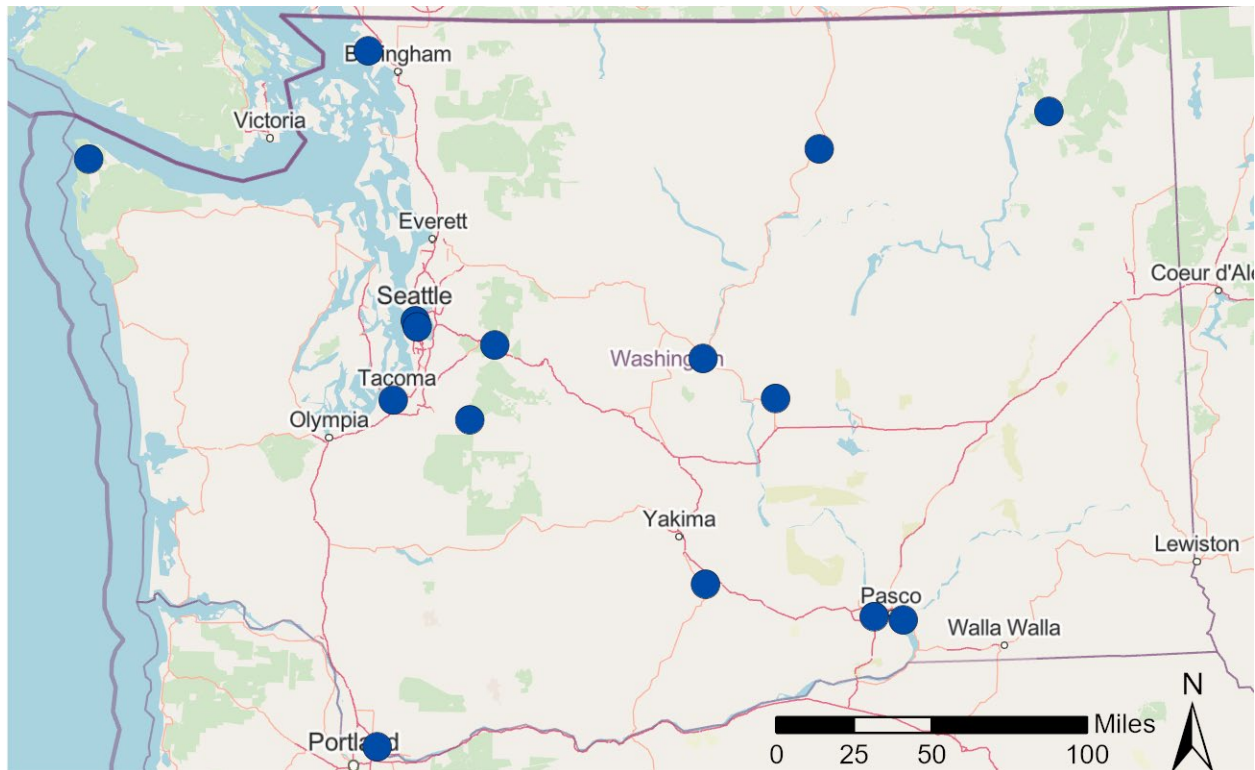


Figure 43. Map of Washington Network meteorological monitoring sites

Recent modifications

Meteorological monitoring resumed at the renovated Vancouver-Blairmont Dr site (530110011) on August 8, 2023. Meteorological monitoring had been suspended since 2020 due to construction at the high school where the site is located.

Meteorological monitoring is resumed at the North Bend-North Bend Way site (530330017) on April 18, 2024. Meteorological monitoring had been suspended since 2018 pending relocation of the meteorological tower, after a development of multi-story townhomes was built in the immediate vicinity of the previous tower location.

Recommended/proposed modifications

Ecology and the Yakama Nation plan to add meteorological monitoring to the Yakama Nation's new Wapato site to be established in summer 2024.

Lead (Pb)

Ecology reports Pb in PM₁₀ concentrations as part of the National Air Toxics Trends Station (NATTS) monitoring at Seattle-Beacon Hill (530330080). At the request of EPA, Ecology ceased reporting to parameter code 85129 and began reporting to parameter code 85128 (POC 6) as of January 1, 2019. The monitor has an objective of population exposure.

As described in 40 C.F.R. Part 58, Appendix D (4.5), source-oriented lead monitoring is required in the vicinity of sources that emit 0.5 tons per year or more of lead. No Washington Pb sources exceeded 0.5 tons per year in the 2020 National Emissions Inventory, and therefore no source-oriented Pb monitoring is required.

Chemical Speciation Network (CSN)

Ecology and its partners operate 4 speciation monitoring sites as part of the national Chemical Speciation Network, including one Speciation Trends Network (STN) site and three supplemental CSN sites. Monitoring objectives, methods and POCs vary by site and parameter.

Table 20. Washington Chemical Speciation Network monitoring sites

AQS ID	Site Name	CBSA	Established	Type	Scale
530330080	Seattle-Beacon Hill	Seattle-Tacoma-Bellevue, WA	02/2000	Speciation Trends Network (STN)	Urban
530530029	Tacoma-L St	Seattle-Tacoma-Bellevue, WA	01/2006	Supplemental CSN	Neighborhood
530770015	Toppenish-Ward Rd (Yakama Tribe)	Yakima, WA	11/2023	Supplemental CSN	Neighborhood
530770009	Yakima-4 th Ave S	Yakima, WA	11/2007	Supplemental CSN	Neighborhood

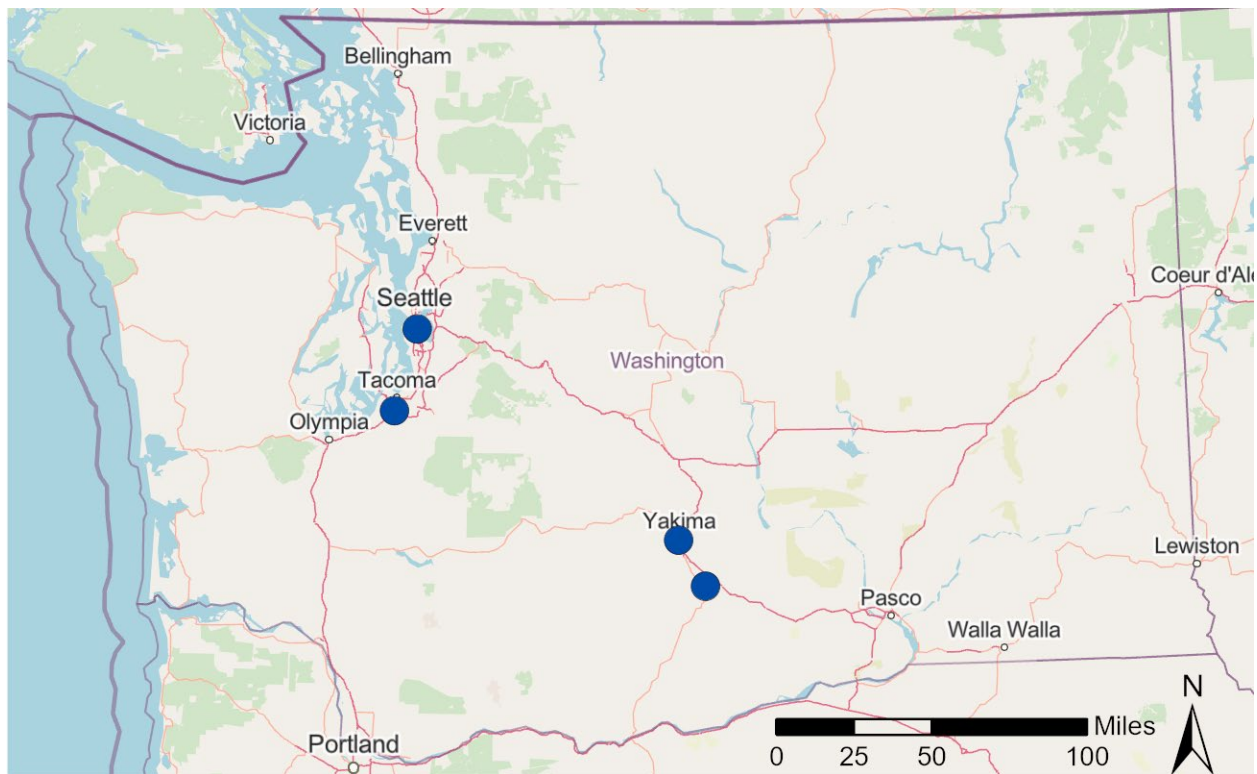


Figure 44. Map of Washington Chemical Speciation Network monitoring sites

Each speciation site samples the following parameters:

Table 21. Chemical Speciation Network monitoring parameters

Code	Parameter	Code	Parameter	Code	Parameter	Code	Parameter
88102	Antimony	88126	Iron	88167	Zinc	88370	OC CSN Rev Unadjusted
88103	Arsenic	88128	Lead	88168	Strontium	88374	OC1 CSN Rev Unadjusted
88104	Aluminum	88131	Indium	88169	Sulfur	88375	OC2 CSN Rev Unadjusted
88107	Barium	88132	Manganese	88176	Rubidium	88376	OC3 CSN Rev Unadjusted
88109	Bromine	88136	Nickel	88180	Potassium	88377	OC4 CSN Rev Unadjusted
88110	Cadmium	88140	Magnesium	88184	Sodium	88378	OP CSN Rev Unadjusted
88111	Calcium	88152	Phosphorus	88185	Zirconium	88380	EC CSN Rev Unadjusted
88112	Chromium	88154	Selenium	88301	Ammonium Ion	88383	EC1 CSN Rev Unadjusted
88113	Cobalt	88160	Tin	88302	Sodium Ion	88384	EC2 CSN Rev Unadjusted
88114	Copper	88161	Titanium	88303	Potassium Ion	88385	EC3 CSN Rev Unadjusted
88115	Chlorine	88164	Vanadium	88306	Total Nitrate	88388	OP CSN Rev Unadjusted
88117	Cerium	88165	Silicon	88355	OC CSN Rev Unadjusted	88403	Sulfate
88118	Cesium	88166	Silver	88357	EC CSN Rev Unadjusted	88502	PM _{2.5} Speciation Mass

Recent modifications

Speciation sampling was added to the Toppenish-Yakama Tribe monitoring site (530770015) as of November 2, 2023.

Recommended/proposed modifications

None.

National Core (NCore)

There are two NCore sites in the Washington Network: Seattle-Beacon Hill (530330080) is an urban NCore site in the Seattle-Tacoma-Bellevue, WA CBSA, and Cheeka Peak (530090013) is a rural NCore site in the Port Angeles, WA CBSA. The parameters monitored at each site are summarized in Table 22. The Olympic Region Clean Air Agency (ORCAA) is funded directly by EPA for operation of the Cheeka Peak NCore site. Per ORCAA’s arrangement with EPA, the site does not include FRM/FEM PM_{2.5}, PM_{10-2.5} or NO₂ monitoring.

Table 22. NCore parameters monitored at Cheeka Peak and Seattle-Beacon Hill

Parameter	Cheeka Peak	Seattle-Beacon Hill
Trace CO (42101)	✓	✓
Trace NO _y (42600)	✓	✓
Area-wide NO ₂ (42602)		✓
Ozone (44201)	✓	✓
Trace SO ₂ (42401)	✓	✓
Filter-based PM ₁₀ (81102)		✓
Filter-based PM _{2.5} (88101)		✓
Continuous FEM PM _{2.5} (88101)		✓
Nephelometer PM _{2.5} (88502)	✓	
Meteorological (61101/61102/61103/61104/62101/64101/62201)	✓	✓
PM _{2.5} speciation		✓
PM _{10-2.5} (86101)		✓

National Air Toxics Trends Station (NATTS)

Seattle-Beacon Hill (530330080) is a National Air Toxics Trends Station (NATTS) as well as a CSN, NCore and SLAMS site.

Photochemical Assessment Monitoring Station (PAMS)

On January 8, 2020, EPA published a final rule in the federal register extending the start date for new required Photochemical Assessment Monitoring Stations (PAMS) from June 1, 2019, to June 1, 2021. Ecology is required to conduct PAMS measurements at the Seattle-Beacon Hill NCore site (530330080), as PAMS measurements are required at each NCore site in a core-based statistical area (CBSA) with population 1,000,000 or more (40 C.F.R. Part 58 Appendix D), which applies to the Seattle-Tacoma-Bellevue, WA CBSA.

The following PAMS parameters are monitored at Seattle-Beacon Hill:

- Hourly averaged VOCs (by June 1, 2023)
- Three 8-hour averaged carbonyl samples per day on a 1/3 schedule
- Hourly averaged O₃

- Hourly averaged NO, true nitrogen dioxide (NO₂), and total reactive nitrogen (NO_y)
- Hourly averaged ambient temperature
- Hourly vector-averaged wind direction
- Hourly vector-averaged wind speed
- Hourly average atmospheric pressure
- Hourly averaged relative humidity
- Hourly precipitation
- Hourly averaged mixing height

Monitoring for all PAMS parameters except hourly speciated VOCs began by June 1, 2021. Due to a number of delays in the installation of the automated gas chromatograph (AutoGC) and delays in required instrument service by the AutoGC vendor, hourly VOC monitoring began on August 26, 2021. Ecology experienced additional operational challenges and instrument malfunctions during the 2022 PAMS season and did not collect any valid hourly VOC measurements during 2022. Ecology resolved these issues prior to the 2023 PAMS season and began hourly speciated VOC monitoring on June 1, 2023.

In November 2020, EPA approved a waiver request to collect the required solar and ultraviolet radiation parameters at the Seattle-Duwamish site (530330057) as an alternative location due to the lack of suitable space for those measurements at Seattle-Beacon Hill. This waiver is included in Appendix B. Monitoring for these parameters at Seattle-Duwamish also began by June 1, 2021.

References

- Ambient Air Monitoring Reference and Equivalent Methods, 40 C.F.R. Part 53, 2011.
- Ambient Air Quality Surveillance, 40 C.F.R. Part 58, 2020.
- Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD), EPA-450/4-87-007, May 1987.
- National Primary and Secondary Ambient Air Quality Standards, 40 C.F.R. Part 50, 2015.
- U.S. Census Bureau. “State-based Metropolitan and Micropolitan Statistical Areas Maps.” <https://www.census.gov/geographies/reference-maps/2020/demo/state-maps.html> (February 2022).
- U.S. Census Bureau. “Metropolitan and Micropolitan Statistical Areas Population Totals: 2020-2023.” <https://www.census.gov/data/tables/time-series/demo/popest/2020s-total-metro-and-micro-statistical-areas.html> (March 2024).

Appendices

Appendix A. Criteria Pollutant Design Values

Tables 23-29 show criteria pollutant design values for all sites in the Washington Network.

Table 23. Carbon monoxide (CO) 2023 design values

Site	AQS ID	2023 Exceedances
Cheeka Peak	530090013	0
Seattle 10th & Weller	530330030	0
Seattle Beacon Hill	530330080	0

Table 24. Nitrogen dioxide (NO₂) 2023 design values (ppb)

Site	AQS ID	2021 98 th Percentile	2022 98 th Percentile	2023 98 th Percentile	2023 Design Value
Seattle 10th & Weller	530330030	48.6	54.0	50.4	51
Seattle Beacon Hill	530330080	41.6	43.0	42.0	42
Tacoma S 36th	530530024	37.7	39.0	36.9	38

Table 25. Ozone (O₃) 2023 design values (ppm)

Site	AQS ID	2021 4th Highest D8M	2022 4th Highest D8M	2023 4th Highest D8M	2023 Design Value
Anacortes 202 Avenue	530570011	0.042	0.057	0.046	0.048
Cheeka Peak	530090013	0.057	0.050	0.050	0.052
Cheney Turnbull	530630001	0.068	0.056	0.059	0.061
Custer Loomis	530730005	0.052	0.048	0.055	0.051*
Enumclaw Mud Mtn	530330023	0.078	0.075	0.068	0.073
Issaquah Lake Sammamish	530330010	NA	0.065	0.056	0.060
Kennewick S Steptoe St	530050003	0.068	0.064	0.067	0.066
Lacey College St	530670013	NA	0.055	0.055	0.055
Mt Rainier Jackson Visitors Ctr	530530012	0.058	0.060	0.057	0.058
North Bend North Bend Way	530330017	0.055	0.067	0.066	0.062
Seattle Beacon Hill	530330080	0.052	0.047	0.049	0.049
Spokane Greenbluff	530630046	0.069	0.061	0.062	0.064
Vancouver Blairmont Dr	530110011	0.057	0.056	0.062	0.058*

D8M is the daily maximum 8-hour average concentration.

*indicates design value is not valid due to missing data.

Table 26. Sulfur dioxide (SO₂) 2023 design values (ppb)

Site	AQS ID	2021 99 th Percentile	2022 99 th Percentile	2023 99 th Percentile	2023 Design Value
Anacortes 202 Ave	530570011	3.5*	1.8*	3.9	3*
Cheeka Peak	530090013	0.4	0.5	1.0	1
Ferndale-Kickerville Rd	530730013	2.4	3.1	4.4	3
Ferndale-Mountain View Rd	530730017	2.6	3.3	4.4	3
Seattle-Beacon Hill	530330080	2.5	3.4	2.6	3

*indicates design value is not valid due to missing data.

Table 27. PM_{2.5} 2023 24-hour design values and pseudo-design values (µg/m³)

Design values from FEM and FRM monitors are in bold. Other values are pseudo-DVs from non-regulatory monitors.

Site	AQS ID	2021 98 th Percentile	2022 98 th Percentile	2023 98 th Percentile	2023 Design Value
Aberdeen Division St	530272002	8.8	12.8	13.1	12
Anacortes 202 O Ave	530570011	10.1*	13.9	12.3	12*
Auburn 29th St	530330047	15.9*	38.5	17.4	24*
Bellevue SE 12th St	530330031	6.3	29.5	13.2*	16*
Bellingham Pacific St	530730019	11.9*	35.0*	12.4	20*
Bremerton Spruce Ave	530350007	11.8	19.6	18.9	17
Cheeka Peak	530090013	4.7	16.1	5.7	9
Chehalis Market Blvd	530410004	11.5	37.1	18.6	22
Chelan Woodin Ave	530070007	19.3	29.1	24.4	24
Clarkston 13th St	530030004	51.3	30.4	32.3	38
Colville E 1st St	530650005	60.5	31.4	31.4	41
Darrington Fir St	530610020	21.8	69.4	22.4	38
Dayton W Main St	530130002	36.3	17.3	16.5	23
Ellensburg Ruby St	530370002	22.8	25.1	18.4	22
Kennewick Metaline	530050002	28.6	17.1	16.1	21
Lacey College St	530670013	11.5	20.1	11.9	15
LaCrosse Hill St	530750005	41.0	13.6*	17.8	24*
Lake Forest Park Town Center	530330024	15.8	33.3	16.7	22
Leavenworth Evans St	530070010	20.2	64.4	19.7	35
Longview 30th Ave	530150015	11.1	21.6	15.3	16
Marysville 7th Ave	530611007	22.1	38.1	25.5	29
Mesa Peplot Way	530210002	15.4	21.1	21.5	19
Moses Lake Balsam St	530251002	28.5	24.4	20.8	25
Mt Vernon S Second St	530570015	11.4*	28.1	12.3	17*
Neah Bay Makah Tribe	530090015	9.6	12.2	12.8	12
North Bend North Bend Way	530330017	10.5	32.0	11.2	18
Omak Colville Tribe	530470013	62.4	31.0	51.2	48

Site	AQS ID	2021 98 th Percentile	2022 98 th Percentile	2023 98 th Percentile	2023 Design Value
Pomeroy Pataha St	530230001	34.2	17.8	14.8	22
Port Angeles E 5th St	530090017	13.2	20.5	15.8	17
Port Townsend San Juan Ave	530310003	7.9	13.6	10.9	11
Prosser Highland Dr	530050004	NA	21.7*	20.1	21*
Pullman Dexter SE	530750003	40.0	21.7	20.2	27
Quincy 3rd Ave NE	530251003	20.1	19.8	21.4	20
Raymond 4th St	530490003	NA	NA	11.9*	12*
Ritzville Alder St	530010003	27.2	17.3	21.2	22
Rosalia Josephine St	530750006	32.8	18.6	22.8	25
Seattle 10th & Weller	530330030	14.7	29.7*	19.1	21*
Seattle Beacon Hill	530330080	11.8	27.7	19.4	20
Seattle Duwamish	530330057	16.2	27.6	22.7	22
Seattle South Park	530331011	15.4	31.1	20.8	22
Shelton W Franklin	530450007	11.8	23.9	17.2	18
Soap Lake	530250003	NA	16.7*	32.6	25*
Spokane Valley E Broadway Ave	530630017	32.8	29.7	24.7	29
Spokane Monroe St	530630047	31.5	26.3	25.1	28
Sunnyside S 16th St	530770005	42.3**	34.4**	27.6**	35**
Tacoma Alexander Ave	530530031	16.2**	33.6	20.9	24**
Tacoma L Street	530530029	21.4	38.1	28.5	29
Tacoma S 36th St	530530024	17.2	30.7	21.5	23
Taholah Quinault Tribe	530270011	11.3	11.4	13.9	12
Toppenish Yakama Tribe	530770015	65.1	29.2	26.1	40
Tukwila Allentown	530330069	17.7**	30.5	24.2	24**
Tulalip Totem Beach Rd	530610021	8.0	14.9*	4.1	9*
Twisp Ewell St	530470016	99.8	27.5	21.7	50
Vancouver NE 84th Ave	530110024	16.4	29.4	25.4	24
Walla Walla 12th St	530710005	28.1	21.5	17.9	23
Wellpinit Spokane Tribe	530650002	59.4	21.4	27.0	36
Wenatchee Fifth St	530070011	17.7	70.9	19.9	36
Winthrop-Chewuch Rd	530470010	163.3	26.0	38.6	76
Yacolt-Yacolt Rd	530110022	13.0	23.6	16.9	18
Yakima-4th Ave	530770009	69.4	29.4	25.4	41

* indicates design value is not valid due to missing data.

** indicate sites where FEMs were installed within the three-year period, and data were combined with prior nephelometer data to calculate complete DVs for informational purposes only.

Table 28. PM_{2.5} 2023 annual design values and pseudo-design values

Design values from FEM and FRM monitors are in bold. Other values are pseudo-DVs from non-regulatory monitors.

Site	AQS ID	2021 Annual Mean	2022 Annual Mean	2023 Annual Mean	2023 Design Value
Aberdeen Division St	530272002	4.32	4.59	4.32	4.4
Anacortes 202 O Ave	530570011	4.76*	5.63	5.27	5.2*

Site	AQS ID	2021 Annual Mean	2022 Annual Mean	2023 Annual Mean	2023 Design Value
Auburn 29th St	530330047	6.06*	8.88	6.93	7.3*
Bellevue SE 12th St	530330031	2.79	4.92	3.61*	3.8*
Bellingham Pacific St	530730019	4.02*	6.09*	4.96	5.0*
Bremerton Spruce Ave	530350007	5.20	6.36	4.90	5.5
Cheeka Peak	530090013	1.77	2.57	1.90	2.1
Chehalis Market Blvd	530410004	4.72	7.85	5.66	6.1
Chelan Woodin Ave	530070007	4.80	7.33	6.26	6.1
Clarkston 13th St	530030004	10.25	9.45	8.82	9.5
Colville E 1st St	530650005	11.40	8.92	10.11	10.1
Darrington Fir St	530610020	5.56	12.16	4.22	7.3
Dayton W Main St	530130002	6.98	5.44	6.22	6.2
Ellensburg Ruby St	530370002	6.27	7.06	6.48	6.6
Kennewick Metaline	530050002	5.77	5.54	6.57	6.0
Lacey College St	530670013	4.12	5.01	4.10	4.4
LaCrosse Hill St	530750005	6.04	4.29*	5.66	5.3*
Lake Forest Park Town Center	530330024	5.46	7.89	6.13	6.5
Leavenworth Evans St	530070010	6.90	10.78	7.18	8.3
Longview 30th Ave	530150015	4.15	5.38	4.92	4.8
Marysville 7th Ave	530611007	7.01	9.11	8.45	8.2
Mesa Pepiot Way	530210002	4.89	5.83	7.65	6.1
Moses Lake Balsam St	530251002	6.69	7.03	7.65	7.1
Mt Vernon S Second St	530570015	4.61*	5.72	4.30	4.9*
Neah Bay Makah Tribe	530090015	3.61	3.93	3.99	3.8
North Bend North Bend Way	530330017	3.13	5.53	3.20	4.0
Omak Colville Tribe	530470013	14.88	10.28	11.79	12.3
Pomeroy Pataha St	530230001	6.84	5.30	4.27	5.5
Port Angeles E 5th St	530090017	5.95	7.00	6.71	6.6
Port Townsend San Juan Ave	530310003	4.00	4.77	4.61	4.5
Prosser Highland Dr	530050004	NA	9.19*	7.31	8.3*
Pullman Dexter SE	530750003	6.08	5.67	5.20	5.7
Quincy 3rd Ave NE	530251003	4.79	5.53	5.81	5.4
Raymond 4th St	530490003	NA	NA	4.13*	4.1*
Ritzville Alder St	530010003	5.51	4.97	5.76	5.4
Rosalia Josephine St	530750006	6.25	5.73	6.93	6.3
Seattle 10th & Weller	530330030	6.53	10.53*	7.85	8.3*
Seattle Beacon Hill	530330080	4.35	7.01	6.02	5.8
Seattle Duwamish	530330057	6.64	8.78	7.73	7.7
Seattle South Park	530331011	7.37	9.52	8.14	8.3
Shelton W Franklin	530450007	4.56	6.13	5.59	5.4
Soap Lake	530250003	NA	6.1*	7.06	6.6*
Spokane Valley E Broadway Ave	530630017	8.99	7.73	7.71	8.1
Spokane Monroe St	530630047	7.70	7.22	8.52	7.8
Sunnyside S 16th St	530770005	10.92**	11.18**	9.42**	10.5**
Tacoma Alexander Ave	530530031	5.48**	8.56	7.26	7.1**
Tacoma L Street	530530029	6.10	8.70	7.17	7.3
Tacoma S 36th St	530530024	6.64	8.34	6.43	7.1
Taholah Quinault Tribe	530270011	4.64	3.38	4.16	4.1

Site	AQS ID	2021 Annual Mean	2022 Annual Mean	2023 Annual Mean	2023 Design Value
Toppenish Yakama Tribe	530770015	11.52	9.62	9.46	10.2
Tukwila Allentown	530330069	6.33**	8.10	7.50	7.3**
Tulalip Totem Beach Rd	530610021	2.17	4.27*	1.49	2.6*
Twisp Ewell St	530470016	11.67	8.91	7.84	9.5
Vancouver NE 84th Ave	530110024	5.65	7.70	6.39	6.6
Walla Walla 12th St	530710005	5.63	6.19	6.79	6.2
Wellpinit Spokane Tribe	530650002	7.32	4.72	5.97	6.0
Wenatchee Fifth St	530070011	6.07	10.20	7.20	7.8
Winthrop-Chewuch Rd	530470010	14.01	7.78	9.20	10.3
Yacolt-Yacolt Rd	530110022	4.34	5.77	4.95	5.0
Yakima-4th Ave	530770009	10.98	9.13	8.79	9.6

* indicates design value is not valid due to missing data.

** indicate sites where FEMs were installed within the three-year period, and data were combined with prior nephelometer data to calculate complete DVs for informational purposes only.

Table 29. PM₁₀ 2023 design values

Site	AQS ID	2021 Expected Exceedances	2022 Expected Exceedances	2023 Expected Exceedances	3-Year Estimated Exceedances
Burbank Maple St	530710006	1.1	0	3	1.4
Cheney-Turnbull	530630001	0*	0	2.1	0.7*
Colville E 1 st St	530650005	1	0	2	1
Kennewick Metaline	530050002	2.1	0	3	1.7
Seattle Beacon Hill	530330080	0*	0*	0*	0*
Spokane Valley E Broadway Ave	530630021	0	0	2	0.7
Yakima 4th Ave S	530770009	1	0	2.1	1

* indicates design value is not valid due to missing data.

Appendix B. Monitoring Waivers

Spokane CO

On July 14, 2016, Federal Register #81 FR 45417, EPA approved an alternate method of verification of attainment of the CO NAAQS in Spokane and qualification for the limited maintenance plan option under 40 C.F.R. Part 58.14(c) in the Spokane Maintenance Area. Under this alternative, EPA considers the limited maintenance plan criteria met and continued verification of attainment of the CO NAAQS if the total of the three predominant CO emission source categories calculated as part of the triennial emissions inventory (onroad mobile, nonroad, and residential wood combustion) remain below the corresponding total of the 2002 emission inventory source categories approved at the time the Spokane area was redesignated to attainment. SRCAA and Ecology will compare future year 2017, 2020 and 2023 triennial emission analysis results to the baseline 2002.

Seattle-Tacoma-Bellevue and Spokane-Spokane Valley PM₁₀



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 10

1200 Sixth Avenue, Suite 155
Seattle, WA 98101-3123

AIR & RADIATION
DIVISION

FEB - 7, 2020

Ms. Jill Schulte
Ambient Air Monitoring Coordinator
Department of Ecology
State of Washington
P.O. Box 47600
Olympia, Washington 98504-7600

Dear Ms. Schulte:

The U.S. Environmental Protection Agency, Region 10 evaluated the Washington Department of Ecology's 2019 Annual Monitoring Network Plan (ANP) dated June 25, 2019. This approval letter documents Region 10's findings from the review of this ANP. Based on our review of the ANP, we did not identify any monitoring deficiencies for Washington State's ambient air monitoring network other than the PM₁₀ network size that was previously identified by Ecology in the ANP. The ANP's description of modifications for the Washington State network was helpful in our review and is appreciated.

On April 2, 2019, Ecology requested a waiver from the minimum PM₁₀ network size requirements for the following MSAs: Seattle-Tacoma-Bellevue, Spokane-Spokane Valley, Kennewick-Richland, and Yakima. On April 18, 2019, Region 10 approved Ecology's waiver request with the exception of the PM₁₀ monitoring for the Seattle-Tacoma-Bellevue and Spokane-Spokane Valley MSAs. For these MSAs, EPA delayed its decision pending further review as these requests presented unique issues for consideration.

We have completed our assessment of the information Ecology provided on April 2, 2019. For the Seattle-Tacoma-Bellevue MSA, we agree with Ecology's conclusions from the April 2, 2019, correspondence to our office regarding the limited benefit of operating additional PM₁₀ monitors in this MSA. As such, pursuant to 40 CFR Part 58, Appendix D §4.6(a), EPA approves your waiver request to limit the required PM₁₀ SLAMS monitoring for the Seattle-Tacoma-Bellevue MSA to the single station located at the Beacon Hill NCore station. The EPA accepts your assertion that PM₁₀ monitoring at Seattle-Beacon Hill is sufficient to characterize emissions across the MSA and concludes that expanding the size of the network at this time would provide limited additional information that is disproportionate to the costs associated with a network expansion.

While the EPA has flexibility to adjust the minimum monitoring requirements for MSAs in Region 10, the monitoring regulations do not provide provisions to waive the data reporting requirements of 40 CFR §§ 58.16 and 58.20. We understand that some local air agencies in Washington State operate more FRM/FEM monitors than are reported to AQS. The data from these additional monitoring stations are reported to the public through Washington's AQI webpage services and also submitted by Ecology to the EPA's AIRNow AQI system. However, in addition to these two data reporting systems, ambient air quality measurements obtained from FRM and FEM monitors are required to be submitted to AQS. As such, we request that all data from FRM and FEM monitors in the Washington State network be

uploaded to AQS going forward. Accordingly, data from the FEM PM₁₀ monitor at Turnbull National Wildlife Refuge in the Spokane-Spokane Valley MSA should be reported to AQS.

For the Spokane-Spokane Valley MSA, in addition to reporting all FRM/FEM data to AQS, we also request that the FEM PM₁₀ monitor at Turnbull National Wildlife Refuge in this MSA be designated as SLAMS. As such the monitor will count toward the minimum monitoring requirements for this MSA. The designation of the Turnbull PM₁₀ monitor as a SLAMS for the Spokane-Spokane Valley MSA will bring the total number of SLAMS PM₁₀ stations to three. Ecology has requested a waiver from the requirement to maintain a minimum of four SLAMS PM₁₀ network monitoring stations in the Spokane-Spokane Valley MSA. To address your concerns expressed in your waiver request that expanding the PM₁₀ network beyond the size of the existing network would adversely impact the statewide PM_{2.5} network, EPA through this network approval letter waives the requirement to operate the fourth PM₁₀ station in the Spokane-Spokane Valley MSA.

This PM₁₀ network size waiver for reducing the monitoring requirements in the Seattle-Tacoma-Bellevue MSA to one station and the Spokane-Spokane Valley MSA to three stations is in effect for five years from the date of this correspondence. We ask that you reference this waiver approval in future ANPs. We also ask that Ecology evaluate whether additional PM₁₀ monitors continue to provide limited air quality value relative to their operational costs for these MSAs during the network assessment and future Annual Network Plan submittals to our office. Additionally, changes to the air quality concentrations in the Spokane-Spokane Valley MSA may warrant reducing or modifying this network in the future.

The EPA appreciates Ecology's establishment of a MOU with the Oregon Department of Environmental Quality for jointly meeting the criteria pollutant monitoring requirements for the Portland-Vancouver-Hillsboro OR-WA MSA. Through this network approval letter, as provided by 40 CFR Part 58, Appendix D §2(e), Region 10 allows the minimum network size requirements for this MSA to be satisfied jointly by Ecology and the Oregon Department of Environmental Quality. The EPA requests that Ecology and the Oregon Department of Environmental Quality review and reaffirm this MOU periodically and renew the request from Region 10 to waive full monitoring requirements by Ecology for this MSA every five years.

Region 10 approves the State of Washington's 2019 ANP. Region 10 appreciates the timeliness and detail provided in the ANP. Please notify us when Ecology has determined the location for the second PM_{2.5} SLAMS for the Spokane MSA and notify Region 10 when the supplemental Chemical Speciation Network (CSN) sampling at the 10th and Weller (53-033-0030) and/or L-Street (53-053-0029) stations ceases or is relocated. Since these monitoring stations are supplemental CSN stations and not members of the national Speciation Trends Network (STN), these approvals can be made by our Regional Office. If you have any questions about our approval of the ANP, please contact me or Doug Jager at (206) 553-2961.

Sincerely,



Debra Suzuki, Manager
Air Planning, State/Tribal Coordination Branch

PAMS Solar and Ultraviolet Radiation



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10**

1200 Sixth Avenue, Suite 155
Seattle, WA 98101-3123

AIR & RADIATION
DIVISION

November 3, 2020

Ms. Jill Schulte
Ambient Air Monitoring Coordinator
Department of Ecology
State of Washington
P.O. Box 47600
Olympia, Washington 98504-7600

Dear Ms. Schulte:

This letter is in response to your October 7, 2020, correspondence requesting a waiver to collect solar radiation measurements for the Seattle Photochemical Assessment Monitoring Station (PAMS) at an alternative location. In this correspondence you explained that the Seattle-Beacon Hill station (AQS ID: 53-033-0080), where the remainder of the PAMS sampling will be located, is unacceptable for solar radiation measurements. This is due to the shadow cast on the monitoring site for part of the day by a nearby driving range net. Your proposed solution is to locate the radiometer and pyranometer instruments at the Seattle-Duwamish monitoring station (AQS ID: 53-033-0057) instead. You explained that this alternative siting is appropriate because of the proximity of the stations (1.55 miles) and the lack of obstructions at the Seattle-Duwamish station.

My staff completed the review of the information you provided and consulted the EPA's Office of Air Quality Planning and Standards regarding this request. We agree that siting the PAMS solar radiation instrumentation at the Seattle-Duwamish station is an acceptable solution. Per 40 CFR Part 58, Appendix D, Section 5(c) the EPA can grant a waiver to allow the collection of required PAMS measurements at an alternative location if the alternative location will provide representative and useful data. In this instance, we conclude that those standards will be met at the alternative location.

Region 10 approves the alternative siting of the PAMS solar radiation measurements at the Seattle-Duwamish station (AQS ID: 53-033-0057), instead of the Seattle-Beacon Hill station (AQS ID: 53-033-0080). Please reference and attach this waiver in future Annual Network Plan reports, and address whether this alternative location continues to be appropriate in future five-year network assessments. We also request that you continue to keep my staff informed of any other developments with the PAMS monitoring. If you have any questions regarding this waiver, please contact me at (206) 553-0985 or Sarah Waldo at (206) 553-1504.

Sincerely,

DEBRA SUZUKI

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Debra Suzuki, Manager
Air Planning, State/Tribal Coordination Branch

Thurston County Ozone



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 10

1200 Sixth Avenue, Suite 155
Seattle, WA 98101-3144

AIR & RADIATION
DIVISION

May 5, 2022

Ms. Kathy Taylor
Air Quality Program Manager
Department of Ecology
State of Washington
P.O. Box 47600
Olympia, Washington 98504-7600

Dear Ms. Taylor:

This letter is in response to your April 12, 2022, correspondence requesting a waiver to temporarily relocate the Washington Department of Ecology's (Ecology) Thurston County ozone (O₃) State and Local Air Monitoring Station (SLAMS). Ecology must suspend operation at the current site (Yelm, AQS ID: 53-067-0005) for the next 1-2 years due to a construction and renovation project. Ecology proposes temporarily discontinuing the Yelm O₃ monitoring site and relocating the monitor to Lacey (AQS ID: 53-067-0013) beginning May 1, 2022. Ecology expects to resume monitoring at the Yelm site when it becomes available again in 2023 or 2024. By this letter, Region 10 approves Ecology's request for temporary discontinuation and relocation of the Yelm O₃ monitor to Lacey.

According to 40 CFR § 58.14(c), EPA may approve requests for site discontinuation on a case-by-case basis if discontinuance does not compromise data collection needed for implementation of the National Ambient Air Quality Standards (NAAQS) and the minimum monitoring requirements for O₃ continue to be met. My staff reviewed the information you provided on the historical O₃ design values at Yelm and the minimum monitoring requirements for the Olympia-Lacey-Tumwater MSA. The 2020 DV for Yelm was <80% of the O₃ NAAQS (0.057 ppm), and no O₃ monitoring sites are required in the MSA per the 40 CFR Part 58, Appendix D requirements. Furthermore, relocation will prevent any interruption in Air Quality Index (AQI) reporting and health messaging for Thurston County as the two sites are both representative of urban-scale ozone conditions and are influenced by the same O₃ precursors and meteorology. This is supported by the results of parallel O₃ monitoring at Yelm and Lacey, which showed similar O₃ levels and patterns. Based on all this information, we agree that temporary relocation of O₃ to Lacey is an acceptable solution.

Please reference and attach this approval in future Annual Network Plans. We also request that you continue to keep my staff informed of the status of the construction and renovation project at the Yelm site. If you have any questions regarding this approval, please contact me at (206) 553-0985 or Sarah Waldo at (206) 553-1504.

Sincerely,

Suzuki,
Debra

Digitally signed
by Suzuki, Debra
Date: 2022.05.05
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Debra Suzuki, Manager
Air Planning and State/Tribal Coordination Branch

Appendix C. Special Purpose Monitors (SPMs) Statements of Purpose

Ecology is required to include a statement of purpose for each SPM in the annual monitoring network plan according to 40 C.F.R. Part 58.20. Table 30 below contains the statements of purpose for each SPM in the Washington Network.

Table 30. Statements of purpose for Special Purpose Monitors (SPMs)

Site	AQS ID	Parameter	Statement of Purpose
Auburn-29 th St SE	530330047	PM _{2.5} AQI (88502)	The Auburn SPM nephelometer site was established to report neighborhood-scale PM _{2.5} conditions in the Auburn area. The site operates as a non-regulatory SPM site because a line of evergreen trees approximately 8 meters from the site prevents the site from meeting probe and path siting criteria for SLAMS PM _{2.5} monitoring.
Chelan-Woodin Ave	530070007	PM _{2.5} AQI (88502)	The Chelan monitoring site was previously operated by the U.S. Forest Service as a non-EPA federal monitor to inform smoke management decisions. Ecology temporarily took over operational responsibility for the site as a SPM on October 1, 2018.
Ellensburg-Ruby St	530370002	PM _{2.5} AQI (88502)	The Ellensburg Ruby St SPM nephelometer is used for ongoing evaluation of the correlation between nephelometer bscat and PM _{2.5} mass concentrations as measured by the FEM BAM 1020.
Everett-Beverly Park Rd	530610022	PM _{2.5} (88101), PM ₁₀ (81102)	The Everett-Beverly Park Rd site was established in 2024 as part of the expanded monitoring in overburdened communities required by the Washington Climate Commitment Act. The PM _{2.5} and PM ₁₀ monitors are micro-scale monitors with objectives of highest concentration and source impacts. The monitoring site is located at Fairmount Elementary School in unincorporated Snohomish County, adjacent to an aggregate yard that has been the subject of numerous dust and noise complaints. The monitors are located approximately 17 meters from the fenceline of the aggregate yard.
Lacey-College St	530670013	Ozone (44201)	The Lacey ozone SPM was established in May 2022 to temporarily provide ozone data and AQI information in Thurston County while the permanent Yelm ozone monitoring site (530670005) is under construction until 2024.
Leavenworth-Evans St	530070010	PM _{2.5} AQI (88502)	The Leavenworth monitoring site was previously operated by the U.S. Forest Service as a non-EPA federal monitor to inform smoke management decisions. Ecology temporarily took over operational responsibility for the site as a SPM on October 1, 2018.

Site	AQS ID	Parameter	Statement of Purpose
Prosser-Highland Dr	530050004	PM _{2.5} AQI (88502)	Prosser is a previously unmonitored community at the southern end of the Yakima Valley. The Yakima Valley is known to have elevated PM _{2.5} from a variety of sources, though previous monitoring has only been conducted in other communities north of Prosser. The Benton Clean Air Agency uses Prosser data to evaluate air quality complaints, inform curtailment calls, and identify opportunities for wood stove replacement funding in their jurisdiction.
Raymond-4 th St	530490003	PM _{2.5} AQI (88502)	ORCAA operates the Raymond-4 th St PM _{2.5} SPM in order to report the AQI and support its air quality management efforts in Pacific County.
Quincy-3 rd Ave NE	530251003	PM _{2.5} AQI (88502)	The Quincy-3 rd Ave NE SPM site exists to provide meteorological and non-FEM PM _{2.5} data in a previously unmonitored community and to support a health risk assessment of diesel emissions in the Quincy area published in 2020.
Soap Lake-4 th Ave SE	530250003	PM _{2.5} AQI (88502)	The Soap Lake-4 th Ave SE SPM is a temporary trailer site to inform agricultural and outdoor burn decision making and smoke management in a previously unmonitored community.
Spokane-E Sprague Ave	530630054	PM _{2.5} AQI (88502)	The Spokane-E Sprague Ave SPM was established in 2024 as part of the expanded monitoring in overburdened communities required by the Washington Climate Commitment Act.
Twisp-S Lincoln St	530470009	PM _{2.5} AQI (88502)	The previous Twisp monitoring site was operated by the U.S. Forest Service as a non-EPA federal monitor to inform smoke management decisions. Ecology temporarily took over operational responsibility for monitoring at the previous Twisp-Glover site on October 1, 2018. Ecology relocated the site to Twisp-Ewell St in 2020, and relocated the site back within 1 block of Glover St, renamed Twisp-S Lincoln St in 2024.

Appendix D. Detailed Site and Monitor Information

Appendix D contains location information for all Washington Network monitoring sites.

Location information for Washington Network monitoring sites

Table 31. Location information for Washington Network monitoring sites

Site Name	AQS ID	Latitude	Longitude	Street Address	City	Zip code
Aberdeen-Division St	530272002	46.97228	-123.83173	359 N Division St	Aberdeen	98520
Anacortes-202 O Ave	530570011	48.52008	-122.613213	3rd St between O Ave and Commercial Ave	Anacortes	98221
Auburn-29th St	530330047	47.2814	-122.2233	402 29th St	Auburn	98002
Bellevue-SE 12th St	530330031	47.600863	-122.148397	14310 SE 12th St	Bellevue	98007
Bellingham-Pacific St	530730019	48.760036	-122.456463	2221 Pacific St	Bellingham	98229
Bremerton-Spruce Ave	530350007	47.592675	-122.62739	3250 Spruce Ave	Bremerton	98310
Burbank-Maple St	530710006	46.20011	-119.00862	755 Maple St	Burbank	99323
Cheeka Peak	530090013	48.29786	-124.62491	Spur-4 Rd	Neah Bay	98357
Chehalis-Market Blvd	530410004	46.66409	-122.96732	350 N Market Blvd	Chehalis	98532
Chelan-Woodin Ave	530070007	47.83861	-120.02306	428 W Woodin Ave	Chelan	98816
Cheney-Turnbull	530630001	47.4164	-117.52982	26010 S Smith Rd	Cheney	99004
Clarkston-13th St	530030004	46.425416	-117.060445	13th St and Port Way	Clarkston	99403
Colville-E 1st St	530650005	48.54469	-117.903222	261 E 1st St	Colville	99114
Custer-Loomis	530730005	48.95074	-122.55441	1330 Loomis Trail Rd	Custer	98240
Darrington-Fir St	530610020	48.2468	-121.6031	1085 Fir St	Darrington	98241
Dayton-W Main St	530130002	46.318	-117.985	206 W Main St	Dayton	99328
Ellensburg-Ruby St	530370002	46.99364	-120.545	201 N Ruby St	Ellensburg	98926
Enumclaw-Mud Mtn.	530330023	47.1411	-121.9379	30525 SE Mud Mountain Rd	Enumclaw	98022
Everett-Beverly Park Rd	530610022	47.893718	-122.269825	11401 Beverly Park Rd	Everett	98204
Ferndale-Kickerville Road	530730013	48.855274	-122.7047	6036 Kickerville Rd	Ferndale	98248
Ferndale-Mountain View Rd	530730017	48.848065	-122.688888	4050 Mountain View Rd	Ferndale	98248

Site Name	AQS ID	Latitude	Longitude	Street Address	City	Zip code
Issaquah-Lake Sammamish	530330010	47.5525	-122.064722	2000 NW Sammamish Rd	Issaquah	98027
Kennewick-Metaline	530050002	46.21835	-119.20152	5929 W Metaline Ave	Kennewick	99336
Kennewick-S Steptoe St	530050003	46.204582	-119.243743	526 S Steptoe St	Kennewick	99336
Kent-Central & James	530332004	47.38614	-122.23195	614 Railroad Ave N	Kent	98032
Lacey-College St	530670013	47.029396	-122.821548	1900 College St SE	Lacey	98503
LaCrosse-Hill St	530750005	46.8153	-117.8739	111 Hill Ave	LaCrosse	99143
Lake Forest Park	530330024	47.75452	-122.28034	17171 Bothell Way NE	Lake Forest Park	98155
Leavenworth-Evans St	530070010	47.59886	-120.6647	330 Evans St	Leavenworth	98826
Longview-30th Ave	530150015	46.139443	-122.961944	1234 30th Ave	Longview	98632
Marysville-7th Ave	530611007	48.054315	-122.171529	1799 7th St	Marysville	98270
Mesa-Pepiot Way	530210002	46.5754	-119.0021	200 Pepiot Rd	Mesa	99343
Moses Lake-Balsam St	530251002	47.1303	-119.2737	412 S Balsam St	Moses Lake	98837
Mt Rainier-Jackson Visitors Ctr	530530012	46.785857	-121.737107	52807 Paradise Rd E	Ashford	98304
Mt Vernon-S Second St	530570015	48.4102	-122.3376	1600 S 2nd Street	Mount Vernon	98273
Neah Bay-Makah Tribe	530090015	48.366058	-124.610045	1321 Bay View Avenue	Neah Bay	98357
North Bend-North Bend Way	530330017	47.49022	-121.77278	902 SE North Bend Way	North Bend	98045
Omak-Colville Tribe	530470013	48.39999	-119.51896	8th Ave E & Okanogan-Omak East Rd	Omak	98841
Pomeroy-Pataha St	530230001	46.474438	-117.614764	572 Pataha St	Pomeroy	99347
Port Angeles-E 5th St	530090017	48.115	-123.436434	102 E 5th St	Port Angeles	98362
Port Townsend-San Juan Ave	530310003	48.12919	-122.77897	3939 San Juan Avenue	Port Townsend	98368
Prosser-Highland Dr	530050004	46.20890	-119.75267	2001 Highland Dr	Prosser	99350
Pullman-Dexter SE	530750003	46.7244	-117.18014	240 SE Dexter St	Pullman	99163
Quincy-3rd Ave NE	530251003	47.24126	-119.84595	330 3rd Ave NE	Quincy	98848
Raymond-4 th St	530490003	46.688218	-123.731764	503 4 th St	Raymond	98577

Site Name	AQS ID	Latitude	Longitude	Street Address	City	Zip code
Ritzville-Alder St	530010003	47.128	-118.3819	109 W Alder Ave	Ritzville	99169
Rosalia-Josephine St	530750006	47.23136	-117.36856	906 S Josephine Ave	Rosalia	99170
Seattle-10th & Weller	530330030	47.597222	-122.319722	10th Ave S & S Weller St	Seattle	98104
Seattle-Beacon Hill	530330080	47.5682	-122.3086	4103 Beacon Ave S	Seattle	98108
Seattle-Duwamish	530330057	47.559975	-122.338265	4700 E Marginal Way S	Seattle	98134
Seattle-South Park	530331011	47.5297	-122.3203	8201 10th Ave S	Seattle	98108
Shelton-W Franklin	530450007	47.21355	-123.10081	122 W Franklin St	Shelton	98584
Soap Lake-4 th Ave SE	530250003	47.385564	-119.489855	19 4 th Ave SE	Soap Lake	98851
Spokane Valley-E Broadway Ave	530630017	47.663962	-117.25765	11016 E Broadway Ave	Spokane	99206
Spokane-E Sprague Ave	530630054	47.657087	-117.367795	2904 E Sprague Ave	Spokane	99202
Spokane-Greenbluff	530630046	47.827128	-117.27422	9814 Greenbluff Rd E	Colbert	99005
Spokane-Monroe St	530630047	47.69983	-117.42631	4601 N Monroe St	Spokane	99205
Sunnyside-S 16th St	530770005	46.32033	-119.9981	810 S 16th St	Sunnyside	98944
Tacoma-Alexander Ave	530530031	47.2656	-122.385	2301 Alexander Ave	Tacoma	98421
Tacoma-L Street	530530029	47.18631	-122.45154	7802 L St S	Tacoma	98444
Tacoma-S 36th St	530530024	47.22634	-122.46256	1802 S 36th St	Tacoma	98418
Taholah-Quinault Tribe	530270011	47.3442	-124.2879	600 Chitwhin Dr	Taholah	98587
Toppenish-Yakama Tribe	530770015	46.38024	-120.33266	141 Ward Rd	Toppenish	98948
Tukwila Allentown	530330069	47.498535	-122.278385	11675 44th Ave E	Tukwila	98178
Tulalip-Totem Beach Rd	530610021	48.065339	-122.285194	7520 Totem Beach Rd	Tulalip	98271
Twisp-S Lincoln St	530470009	48.36472	-120.12007	100 S Lincoln St	Twisp	98856
Vancouver NE 84th Ave	530110024	45.64336	-122.58737	2722 NE 84th Ave	Vancouver	98662
Vancouver-Blairmont Dr	530110011	45.6121	-122.5194	1500 SE Blairmont Dr	Vancouver	98683
Walla Walla-12th St	530710005	46.05881	-118.35147	200 S 12th Ave	Walla Walla	99362

Site Name	AQS ID	Latitude	Longitude	Street Address	City	Zip code
Wellpinit-Spokane Tribe	530650002	47.88528	-117.98865	6208 Wellpinit-Westend Rd	Wellpinit	99040
Wenatchee-Fifth St	530070011	47.43061	-120.34195	1300 Fifth St	Wenatchee	98801
Yacolt-Yacolt Rd	530110022	45.86639	-122.40889	406 W Yacolt Rd	Yacolt	98675
Yakima-4th Ave	530770009	46.59495	-120.51228	402 S 4th Ave	Yakima	98902

Appendix E. Interstate Memorandum of Understanding

Memorandum of Understanding
Between
Oregon Department of Environmental Quality
And
Washington Department of Ecology

I. PURPOSE

This Memorandum of Understanding (MOU) is entered into by and between the Oregon Department of Environmental Quality Air Quality Program, hereinafter referred to as ODEQ, and the Washington Department of Ecology Air Quality Program, hereinafter referred to as WDOE.

The purpose of this MOU is to agree in principle to cooperate with shared resources to collectively meet the United States Environmental Protection Agency (US EPA) minimum monitoring requirements for criteria air pollutants in the Portland-Vancouver-Hillsboro, OR-WA Metropolitan Statistical Area (MSA).

II. STATEMENT OF MUTUAL BENEFITS AND INTEREST

The Portland-Vancouver-Hillsboro, OR-WA MSA consists of Clackamas, Columbia, Multnomah, Washington, and Yamhill Counties in Oregon and Clark and Skamania Counties in Washington. The network design criteria for ambient air quality monitoring described in 40 C.F.R. § 58 Appendix D require that in areas where metropolitan statistical areas (MSAs) cross jurisdictional boundaries, “full monitoring requirements apply separately to each affected State or local agency in the absence of an agreement between the affected agencies and the EPA Regional Administrator.” This MOU establishes an agreement that ODEQ and WDOE cooperatively meet the minimum monitoring requirements in the Portland-Vancouver-Hillsboro, OR-WA MSA.

The Portland-Vancouver-Hillsboro, OR-WA MSA had an estimated population of 2,508,050 as of July 1, 2023. Based on 40 C.F.R. § 58 Appendix D, the following minimum monitoring requirements for criteria pollutants apply to an MSA of this population size:

Pollutant	Minimum Number of Required Monitors
Ozone (O ₃)	2
Carbon Monoxide (CO)	1
Nitrogen Dioxide (NO ₂)	3
Sulfur Dioxide (SO ₂)	1
Particulate Matter ≤10µm (PM ₁₀)	2
Fine Particulate Matter (PM _{2.5})	3

As of January 1, 2024, the minimum monitoring requirements were met or exceeded in the Portland-Vancouver-Hillsboro, OR-WA MSA for each of the criteria pollutants listed above with the exception of Nitrogen Dioxide (NO₂). ODEQ is currently working with EPA Region 10 to

identify a suitable location and secure funding for the installation of a second near-road NO₂ monitoring site in the Portland area.

III. GENERAL ROLES

ODEQ and WDOE formally agree to collectively provide adequate criteria pollutant monitoring as required by 40 C.F.R. § 58 Appendix D. Each agency shall inform the other agency at its earliest convenience via telephone or email of any monitoring changes within the Portland-Vancouver-Hillsboro, OR-WA MSA that impact the minimum monitoring requirements. In the event that new minimum monitoring requirements are imposed after the execution of this MOU, ODEQ and WDOE agree to consult and jointly determine how to meet the new requirements.

IV. IT IS MUTUALLY AGREED AND UNDERSTOOD BY AND BETWEEN THE SAID PARTIES THAT:

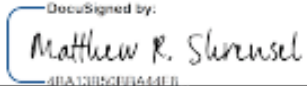
- A. This instrument is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement or contribution of funds between the parties to this instrument will be handled in accordance with applicable laws, regulations, and procedures, including those for government procurement and printing. Such endeavors will be outlined in separate agreements that shall be made in writing by representatives of the parties, and shall be independently authorized by appropriate statutory authority. This instrument does not provide such authority.
- B. This instrument in no way restricts ODEQ or WDOE from participating in similar activities with other public or private agencies, organizations, and individuals.
- C. Pursuant to Section 22, Title 41, United States Code, no Member of, or Delegate to, Congress shall be admitted to any share or part of this instrument, or any benefits that may arise therefrom.
- D. Nothing in this MOU shall be construed as obligating either party to expend funds or to make any contract or other obligation for the future payment of money in excess of appropriations authorized by law and administratively allocated for this purpose.
- E. Modifications within the scope of this instrument shall be made by mutual consent of the parties, by the issuance of a written modification, signed and dated by both parties.
- F. Either party(s), in writing, may terminate the MOU in whole, or in part, at any time before the date of expiration provided that written notice is sent to the other party at least 120 calendar days prior to the termination date.
- G. This MOU shall be effective upon execution by both parties and shall remain in effect for a period of 5 years unless otherwise modified. This agreement can be extended if mutually agreed to by both parties.

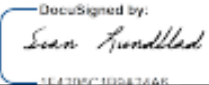
H. The principal contacts for this instrument are:

Oregon Department of Environmental Quality
Anthony Barnack, Ambient Monitoring Coordinator
7202 NE Evergreen Parkway, Suite 150
Hillsboro, OR 97124-6166
(971) 806-2223

Washington Department of Ecology
Jill Schulte, Air Monitoring Coordinator
PO Box 47600
Olympia, WA 98504-7600
(360) 790-6538

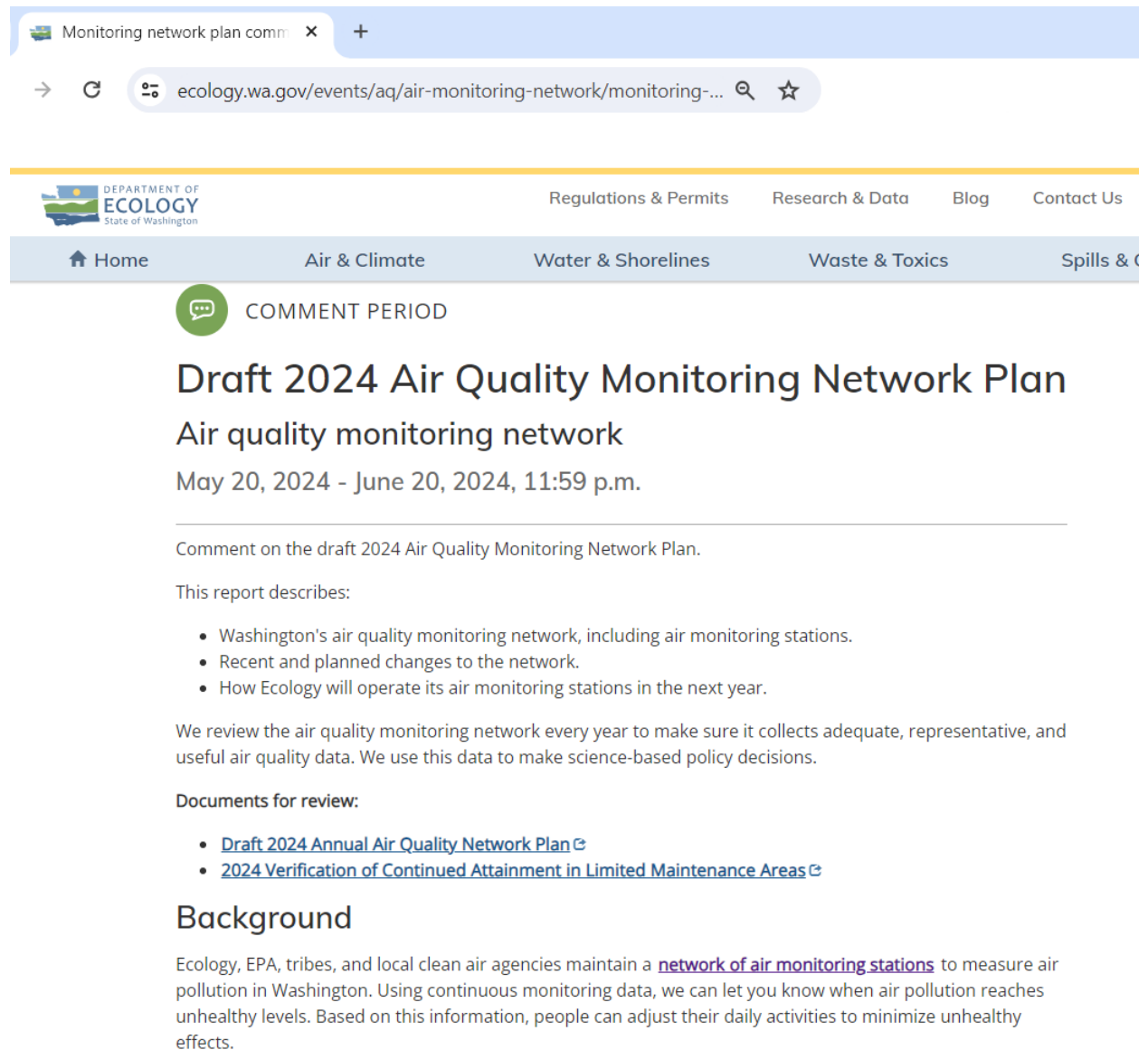
In Witness whereof, the parties hereto have executed this MOU as of the last date written below:

4/5/2024 
Date Matthew Shrensel
Interim Air Quality Monitoring Manager
Oregon Department of Environmental Quality

4/5/2024 
Date Sean Lundblad
Technical Services Section Manager, Air Quality Program
Washington Department of Ecology

Appendix F. Public Comment Period

The draft 2024 Ambient Air Monitoring Network Plan was posted for public comment from May 20 through June 20, 2024, on Ecology's webpage. No comments were received.



The screenshot shows a web browser window with the address bar displaying "ecology.wa.gov/events/aq/air-monitoring-network/monitoring-...". The website header includes the Department of Ecology logo and navigation links for "Regulations & Permits", "Research & Data", "Blog", and "Contact Us". A secondary navigation bar lists "Home", "Air & Climate", "Water & Shorelines", "Waste & Toxics", and "Spills & C". A green speech bubble icon with the text "COMMENT PERIOD" is prominently displayed. The main heading is "Draft 2024 Air Quality Monitoring Network Plan" with the subtitle "Air quality monitoring network" and the dates "May 20, 2024 - June 20, 2024, 11:59 p.m.". Below this, the text reads "Comment on the draft 2024 Air Quality Monitoring Network Plan." and "This report describes:" followed by a bulleted list: "Washington's air quality monitoring network, including air monitoring stations.", "Recent and planned changes to the network.", and "How Ecology will operate its air monitoring stations in the next year." A paragraph follows: "We review the air quality monitoring network every year to make sure it collects adequate, representative, and useful air quality data. We use this data to make science-based policy decisions." Under "Documents for review:", there are two links: "Draft 2024 Annual Air Quality Network Plan" and "2024 Verification of Continued Attainment in Limited Maintenance Areas". The section "Background" begins with the text: "Ecology, EPA, tribes, and local clean air agencies maintain a network of air monitoring stations to measure air pollution in Washington. Using continuous monitoring data, we can let you know when air pollution reaches unhealthy levels. Based on this information, people can adjust their daily activities to minimize unhealthy effects."

Figure 45. Draft 2024 Ambient Air Monitoring Network Plan public comment period