

2019 – 2020 Winter Wood Smoke Study

Darrington, WA



PUGET SOUND
Clean Air Agency



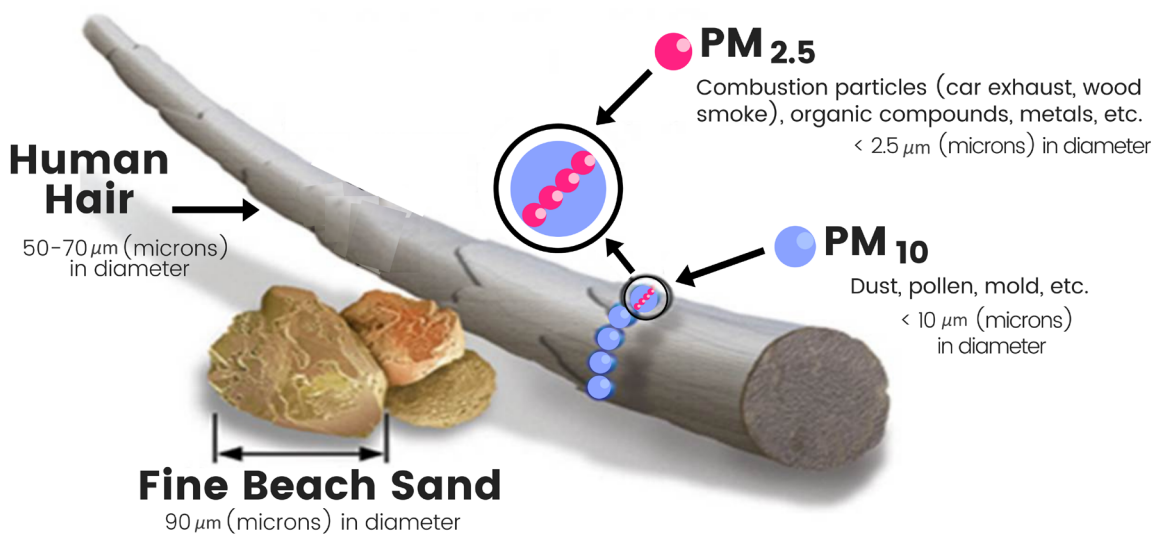


Overview

During the winter of 2019–2020, the Puget Sound Clean Air Agency conducted an air quality study in Darrington, Washington, to better understand the complex weather patterns and the spread of wood smoke in the valley. This study helps air quality scientists understand wood smoke build up and better forecast when air quality burn bans are needed. Under Washington State law, the Agency is required to issue air quality burn bans when wood smoke pollution is close to or higher than the health-based standard.

What's in wood smoke?

Wood smoke and transportation (cars and trucks) are the largest contributors to pollution in Washington state. Dust, dirt, soot, smoke – called particulate matter or fine particle pollution – cause health problems such as breathing trouble, heart and lung disease, stroke, and premature death. Children, older adults, and people with preexisting health conditions are especially at risk.



Why is Darrington more smoky than other areas?

Darrington has a mountainous geographic beauty. But its steep surroundings also contribute to keeping wood smoke in the valley, more so than other locations in Snohomish County. During the colder winter months, wood stove smoke can cause serious health issues for residents. This study is important for several reasons, but mainly because smoke levels in Darrington often hover near the federal health-based limit. The better the data, the better air scientists can determine if an air quality burn ban is necessary.

What did we learn?

There were several key findings from the study:

- Across town, wood smoke levels continue to be narrowly within the U.S. Environmental Protection Agency's (EPA) health-based standard. This means even a small increase in wood stove use during certain weather conditions could trigger the need for an air quality burn ban.
- Geography, and cool, calm weather conditions contribute to wood stove pollution being trapped in the valley.
- On calm winter nights and mornings, wood smoke is generally widespread across Darrington, but appears to be highest in the center of town. There are also additional sources of smoke south of town from homes along the Mountain Loop Highway.
- Some residents previously expressed concern whether the current air monitoring station (at the school) was a fair representation of air quality for the area. This study showed that the school is a good general estimate for smoke in the neighborhood while meeting strict EPA-siting requirements.
- Air monitors showed living next door to wood burning can mean higher smoke levels than the rest of the neighborhood.

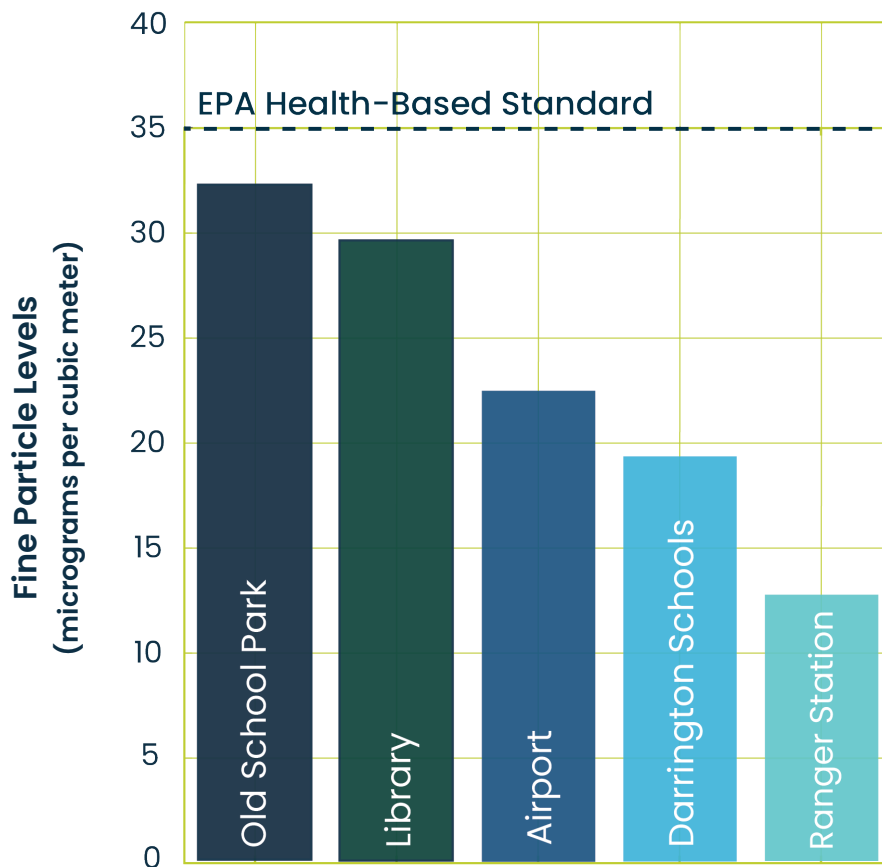
This map shows where monitors measuring air pollution and wind were located for the study. The green circles represent temporary air sensor locations. The light blue triangles represent wind sensors measuring speed and direction. And the dark blue star represents the location of our permanent air monitoring station.



How high did wood smoke levels get?

All of the sites used in the study remained below federal air quality standards. The Old School Park site in the middle of town was the highest, likely because it is adjacent to many homes that burn wood for heat. This site would not meet typical EPA neighborhood-scale siting requirements as it is too close to wood stoves to represent the larger neighborhood.

Estimated 8th-highest 24-hr fine particle levels across Darrington, Winter of 2019-20



Since the winter of 2016-17, no air-quality burn bans have been called and the average level of fine particles has been going down, showing a very encouraging trend thanks to warm winters, but also community members transitioning to cleaner wood burning methods.

What is the Agency offering to help reduce wood smoke in Darrington?

KNOW WOOD-BURNING BASICS

- www.pscleanair.gov/WoodHeating or call 206-343-8800
- www.epa.gov/burnwise

CHECK IF THERE IS AN AIR QUALITY BURN BAN WHERE YOU LIVE

- www.pscleanair.gov/BurnBan or call 1-800-595-4341

SIGN UP FOR AIR QUALITY BURN BAN ALERTS

- www.pscleanair.gov/SignUp

GET HELP SCRAPPING OR REPLACING YOUR OLD WOOD STOVE

- www.pscleanair.gov/Woodstove or call 206-343-8800

EXPLORE REBATES FOR HOME HEATING & WEATHERIZATION ASSISTANCE

- www.pscleanair.gov/UtilityRebates
- www.pscleanair.gov/HomeHeatingResources

Acknowledgements

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- Library: Asheley Bryson and Airport: Jim Hale

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PLEASE CONTACT US

**for questions, concerns,
and suggestions.**

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