

What is fine particle pollution?

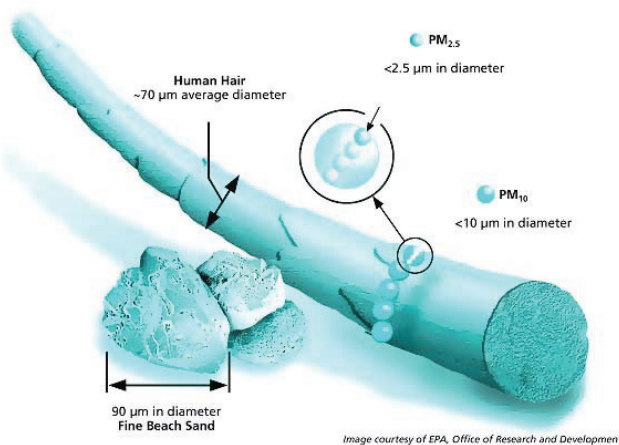
Dust, soot, smoke – in air quality lingo, these are all considered “particulate matter,” and one of the six criteria air pollutants monitored and regulated by the Clean Air Agency under the Clean Air Act. Easily inhaled into our lungs, fine particulate matter poses a host of serious health effects, and represents the most important criteria air pollutant challenge facing the Tacoma/Pierce County area.

What is fine particle pollution?

Fine particle pollution refers to any solid or liquid matter (or a mixture of both) in the air. There are many different sizes of particles in the air, but those measuring 2.5 micrometers in diameter or smaller can much more easily enter the lungs and be absorbed by the body. This size range of particulate matter is called “fine particle pollution” or $PM_{2.5}$, and is the pollutant of primary concern in the Puget Sound region.

What are the impacts of fine particle pollution?

Both long- and short-term exposure to fine particle pollution can pose a range of serious health effects. Fine particles are microscopic, a fraction the diameter of a single human hair (see diagram below). Dozens of them could fit on the period at the end of this sentence. Their tiny size allows them to easily enter human airways, where they travel deeply into the lungs and circulatory system, affecting the heart.



Exposure to fine particle pollution is linked with respiratory disease, decreased heart and lung function, asthma attacks, heart attacks, strokes, and premature death. Children, older adults and people with respiratory and cardiac illnesses are especially at risk and should avoid outdoor exertion if fine particle pollution levels are high. Breathing fine particle pollution can cause coughing, wheezing, and decreased lung function even in otherwise healthy children and adults. Certain types of particulate matter are considered air toxics. For example, both diesel exhaust and wood smoke contain chemicals known to cause cancer.

Each year millions of dollars are spent treating illnesses and health conditions that stem from fine particle pollution – and are entirely preventable.

In addition to health effects, fine particle pollution can limit visibility, reducing our ability to enjoy our scenic mountain panoramas and share them with visitors and tourists. Fine particle pollution can also deposit in our lakes, rivers and the Puget Sound, affecting ecosystems and organisms.

What are the main sources of fine particulate?

Fine particle pollution comes primarily from combustion (burning) of fuels, such as wood and fossil fuels. This includes exhaust from motor vehicles (trucks, buses, ships, etc.) and smoke from burning in fireplaces and wood stoves, as well as land-clearing burning and backyard burning of yard waste. Industrial operations also contribute a small portion of fine particle pollution.

How much fine particulate is in our air?

The Clean Air Agency measures and evaluates fine particle pollution levels through a network of monitors located throughout its four-county jurisdiction. The federal limit for fine particle pollution is 35 micrograms per cubic meter over any 24-hour period. To provide perspective, breathing air with 35 micrograms per cubic meter of particle pollution over the course of a day would expose an individual to 200 million to 2 trillion particles, each containing a range of toxic chemicals. The Clean Air Agency takes daily readings of air monitoring data to assess overall air quality and design programs to reduce pollution.

The map below depicts the locations of air monitoring stations in King, Kitsap, Pierce and Snohomish Counties. These monitors are typically located in populated, residential areas, or in some instances industrial areas. Each color represents the concentration of fine particle pollution, and each concentration represents 3 years of pollution data. Three years of sampling are averaged because weather impacts air quality, and weather can change from year to year. The Tacoma South L Street site, in a residential neighborhood, is the only site in Puget Sound currently over the federal limit of 35 micrograms per cubic meter.

Air Monitoring Stations In King, Kitsap, Pierce And Snohomish Counties

