

Understanding Pierce County's Air Quality Challenge

Most of Pierce County was designated a nonattainment area for fine particle pollution in 2009, becoming one of 32 nonattainment areas in the country and the only nonattainment area in the state. This means that fine particle pollution levels too frequently exceeded the national limit, posing public health risks. The worst pollution levels in Pierce County were recorded at the air monitor located at South L Street in the South End neighborhood of Tacoma. Most episodes of elevated pollution levels occur on winter nights.

What caused Tacoma-Pierce County to be designated a nonattainment area?

The nonattainment designation is a result of two factors: 1) a stronger air pollution limit set by the U.S. Environmental Protection Agency (EPA) in 2006; and 2) spikes in fine particle pollution levels during the winter that violate the limit.

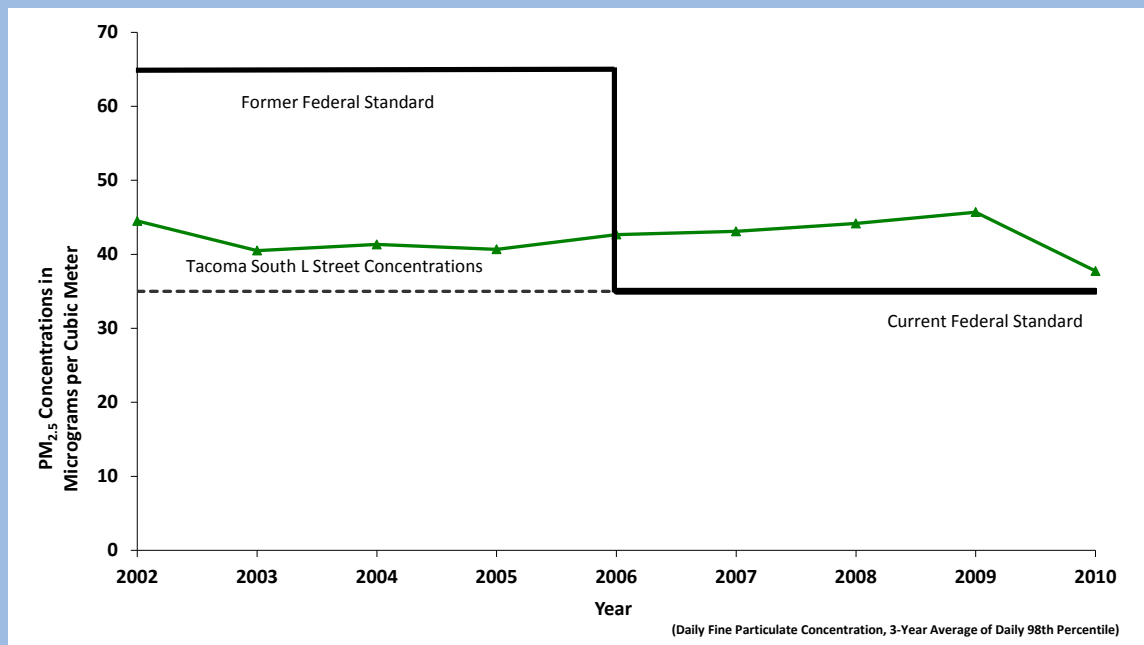
Why did the EPA strengthen the air pollution limit?

The EPA strengthened the federal limit for fine particle pollution in 2006. This action came in response to numerous scientific studies that concluded that exposure to fine particle pollution had serious health effects at concentrations lower than previously understood. Previously it was thought that particles only contributed to short-term breathing problems. A rapidly growing body of research, however, found that fine particles can enter the body and cause a wide range of serious health problems including heart attacks, reduced lung function, increased cancer risk, and shorter lifespan. Based on this evidence, the EPA tightened the federal daily standard from 65 micrograms per cubic meter to 35 micrograms per cubic meter to better protect public health and the environment.

What does the new pollution standard mean for Tacoma-Pierce County?

Under the new standard, Pierce County's air quality is considered unhealthy. The diagram below shows how over the past decade fine particle pollution levels in the Tacoma South End have remained somewhat stable. These levels were below the former pollution standard, but violate the current, more protective standard.

Fine Particle Pollution in Tacoma, Compared with the Federal Standard



What causes spikes in fine particle pollution levels in the winter?

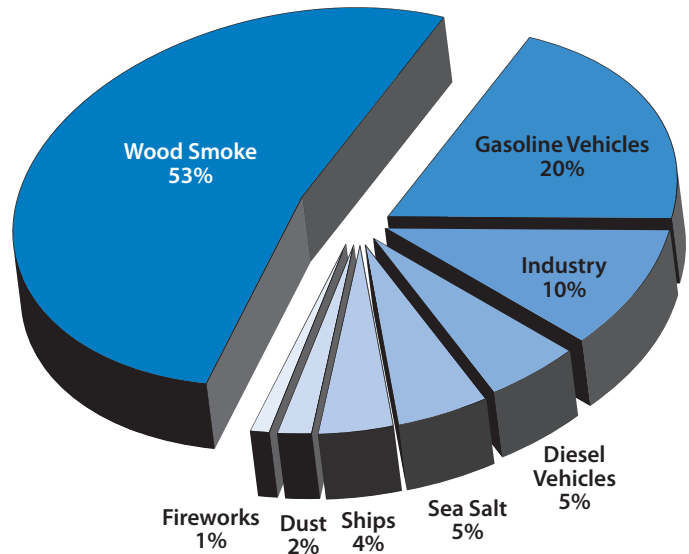
An important factor contributing to Pierce County's air quality challenge is its pattern of pollution spikes during the winter.

In the Pierce County nonattainment area, fine particle pollution comes primarily from smoke from burning in fireplaces and wood stoves and exhaust from motor vehicles (trucks, buses, ships, etc.) Industrial operations also contribute a small portion of fine particle pollution. The chart at right shows the breakdown of pollution sources recorded at the South L monitor in Tacoma.

The mix of fine particle pollution changes with the season. During the summer, fine particle pollution levels are lower overall, and motor vehicles typically contribute more than other sources. During colder, winter months, a greater portion of fine particle pollution comes from smoke from woodstoves and fireplaces. The higher pollution levels are also due to stagnant weather conditions at night that trap the smoke from these fires and cause neighborhood air pollution to build up rapidly.

This pattern is particularly apparent in densely populated neighborhoods of Tacoma, where monitoring data collected from 2000 to 2010 clearly show increased particle pollution during winter months, as shown in the figure below. During January, February, November and December, pollution levels violated the strengthened federal air quality standard and posed increased public health risk.

Sources of wintertime fine particle pollution in South End Tacoma/Pierce County



When Does Air Pollution Violate the Federal Standard?

