



Lakeview Sustainment Area

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Introduction

DEQ proposes that EQC designate the Lakeview area as a sustainment area under OAR 340-204-0300 of the rules proposed for adoption in this package.

A proposal to designate a sustainment area must include the following elements:

- (a) Monitoring data showing that an area is exceeding or has the potential to exceed an ambient air quality standard;
- (b) A description of the affected area based on the monitoring data;
- (c) A discussion and identification of the priority sources contributing to the exceedance or potential exceedance of the ambient air quality standard; and
- (d) A discussion of the reasons for the proposed designation.

These elements are discussed and identified below:

What is a sustainment area?

Sustainment areas are proposed as areas that have ambient monitoring data indicating that the area is not meeting the ambient air quality standards or is very close to not meeting the AAQS, but the area has not been formally designated as a nonattainment area by EPA. DEQ is proposing the creation of the sustainment area designation to help prevent such an area from becoming formally designated as a nonattainment area. It should be noted that a sustainment area designation does not supersede or replace the federal area designation; rather, a sustainment area designation is overlaid on the federal area designation to provide permitting flexibility for intermediate sized industrial sources.

The areas where a sustainment area concept is most useful are areas where the primary air quality problem is due to emission sources other than industry, such as woodstoves. EPA and DEQ rules currently focus on industrial source restrictions to get an area back into attainment, which may not address the cause of the problem. DEQ wants to focus on the cause of the air quality problem rather than impose unnecessary restrictions on industry if industry is not causing or contributing significantly to the problem.

Often there is a lag time between when DEQ's monitoring data indicates an area is violating the AAQS to when EPA formally designates that area as nonattainment. During these lag times, industrial development in the area is largely impossible because new or expanding industrial sources cannot meet the rules for the attainment area, the current area designation. Communities in this situation would like more flexibility to attract new industry. Further, in DEQ's view, new industry can help to improve air quality by helping to replace older woodstoves as part of an emission offset program. In these cases, a sustainment area designation would be appropriate because it gives the community and DEQ the ability to start working on the problem rather than wait for EPA's formal nonattainment designation.

The permitting requirements for a sustainment area include some nonattainment area requirements without the elaborate State Implementation Plan related attainment/maintenance plan process. This partially removes the lag-time barrier to industrial development and allows a community to pursue economic development without the stigma of the federal nonattainment designation. The rules are also designed to provide incentives for new or modified industrial sources to reduce emissions in the same airshed by purchasing emission offsets from the sources that are considered to be significantly contributing to the air quality problems in the area, such as woodstoves. This would help protect public health by lowering the concentrations of emissions in neighborhoods where the air quality problem is caused by high woodstove emissions on inversion days in the winter.

On the surface it may seem that the amount of emissions from an industrial stack would equal the woodstove emissions, and that the overall emission impact would not change. However, the industrial stacks are taller with higher velocity for better emission dispersion. Industry emissions are also fairly constant year-round, not occurring just in the winter heating timeframe. In addition, industrial sources are often located away from residential neighborhoods where population density is higher and where ambient air quality monitors are located.

How does Lakeview qualify?

Air quality in Lakeview has exceeded the PM_{2.5} standard but the area has not been formally designated nonattainment because there was insufficient data at the time EPA made PM_{2.5} nonattainment area designations. Any intermediate size to large industry wishing to expand or establish in Lakeview is restricted from doing so because of the impossibility of meeting the modeling requirements as stated above. A sustainment area designation would provide a way for intermediate sized companies to establish or expand their operations while helping solve the real air quality problems. It will still be difficult for large companies to obtain permits because DEQ must continue to implement the more restrictive regulations that apply to the underlying federal area designation for these companies. Designating Lakeview as a sustainment area would provide flexibility for the community to pursue both economic development and improvements to air quality.

Background

What is PM?

Particulate matter (PM) is the general term used for a mixture of solid particles and liquid droplets found in the air. EPA characterizes PM into two size fractions: PM₁₀ – coarse particulate matter 10 microns and smaller, and PM_{2.5} – fine particulate matter 2.5 microns and smaller. Fine particulate matter (PM_{2.5}) in the atmosphere is composed of a complex mixture of particles: sulfate, nitrate, and ammonium; particle-bound water; elemental carbon; organic carbon representing a variety of organic compounds; and crustal material.

PM_{2.5} can accumulate in the respiratory system and is associated with numerous health effects. These health effects are linked to premature death, especially related to heart disease; cardiovascular effects, such as heart attacks and strokes; reduced lung development; and chronic respiratory diseases such as asthma. Sensitive groups that are at greatest risk include the elderly, individuals with cardiopulmonary disease such as asthma, and children.

History of PM in Lakeview

Lakeview has a long history of addressing PM issues in the community. In 1987, Lakeview was designated nonattainment for PM₁₀. By the mid-1990s, Lakeview developed a PM₁₀ attainment plan to bring the area back into compliance, and the area met the standard by the late 1990s. A maintenance plan was subsequently developed showing how the area would continue to meet the standard. These plans

were so successful that when EPA revised the PM standard in 1997, the community was able to meet the new PM_{2.5} standard due in large part to the existing strategies in the plans.

In 2006, EPA again revised the PM_{2.5} standard, lowering the 24-hour standard from 65 ug/m³ to 35 ug/m³. The 24-hour standard for PM_{2.5} is met whenever the three year average of the annual 98th percentile of values at monitoring sites is less than or equal to 35 ug/m³. While Lakeview has violated the standard at times, the area was not designated nonattainment for the 24-hour PM_{2.5} AAQS, because there was insufficient monitoring information available at the time of designations.

Monitoring

The Lakeview area has one particulate (PM_{2.5}) monitoring site with the sampler located on the corner of Center and M Street. DEQ has monitored at this site since 1991 for PM₁₀ and since 2007 for PM_{2.5}. Lakeview currently meets the revised annual PM_{2.5} standard, but has been close to violating or has violated the 24-hour standard in recent years (Figure 1).

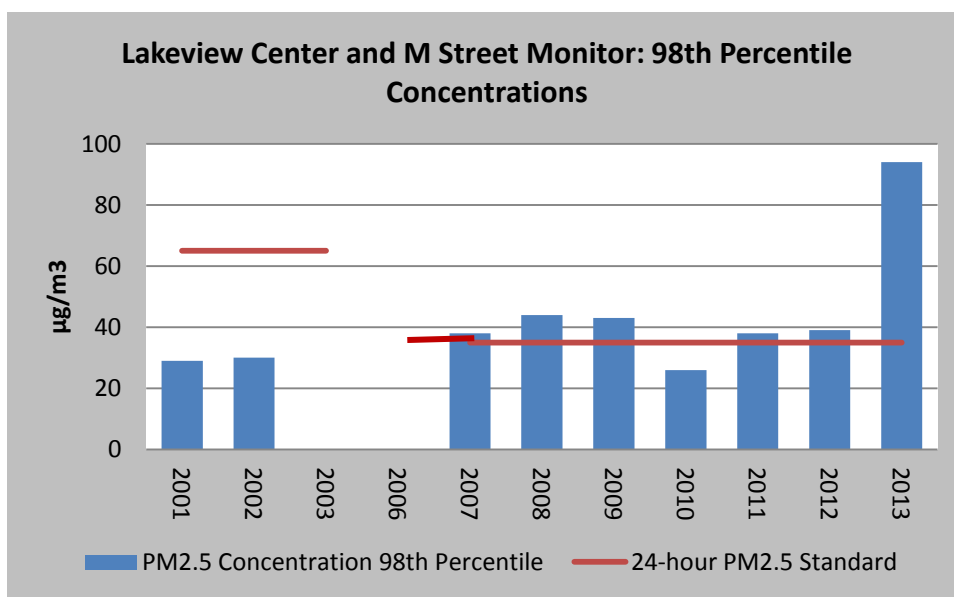


Figure 1: 98th percentile concentrations measured at Center and M Street monitor, Lakeview, Oregon.

Lakeview Geographic Boundary

Lakeview is located in south central Oregon about 96 miles east of Klamath Falls at an elevation of about 4,800 feet. The area is typified by semi-arid climate where annual rainfall is 13 inches. The town of Lakeview serves as an important commercial center for Lake County. The Lakeview urban growth boundary (UGB) is shown in Figure 2.

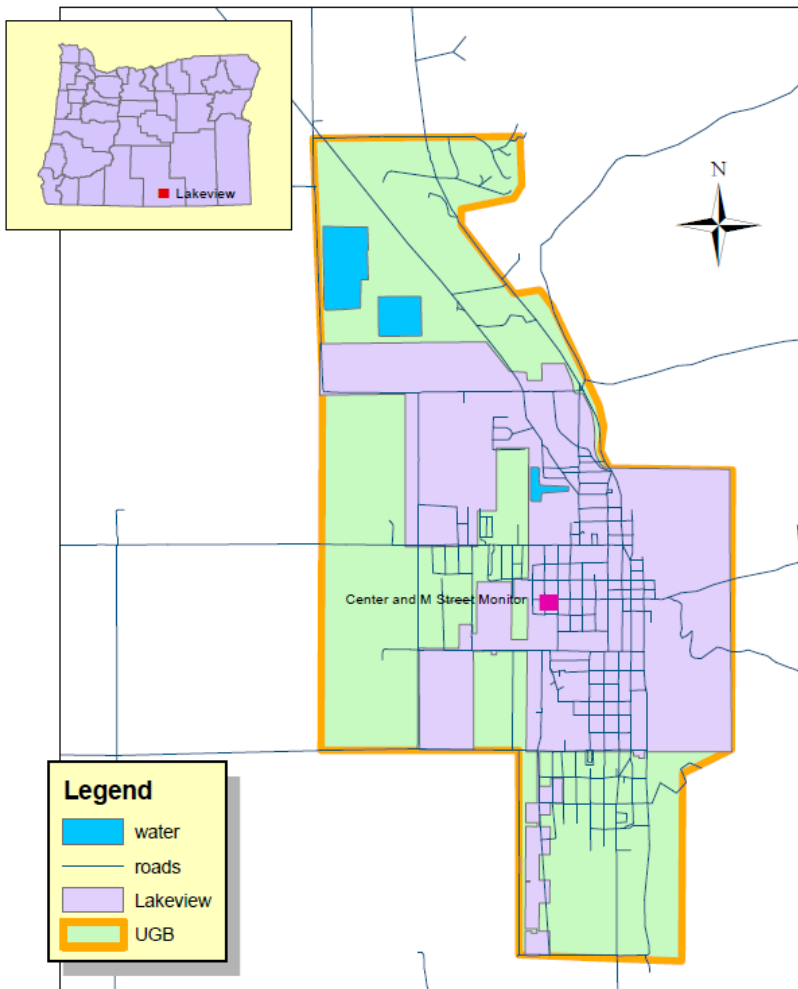


Figure 2: Lakeview Urban Growth Boundary

The urban growth boundary consists of the entire town of Lakeview as well as parts of Lake County. Most of the sources that influence air quality are located within the UGB. All existing industrial sources are located within the UGB, and new industrial sources would most likely locate within the UGB.

Lakeview has a current air quality boundary for the PM₁₀ maintenance area, which consists of the Lakeview UGB. DEQ and Lakeview propose that the Lakeview UGB also be the geographic boundary of the proposed PM_{2.5} sustainment area.

Emission Inventory

An emission inventory consists of emission estimates from all sources that emit PM_{2.5} in an area. Emissions inventory data is essential for identification of the sources contributing to air quality problems, as well as the development of emission reduction strategies.

The emission inventory began with an assessment of PM_{2.5} emission sources in Lakeview. Emission sources are summarized into four major categories: point sources (i.e., industrial facilities); on-road mobile sources (i.e., car and truck exhaust, road dust); non-road mobile sources (e.g., construction equipment, recreational off road vehicles, lawn and garden equipment); and area sources (e.g., fugitive dust sources, outdoor burning, woodstoves). PM_{2.5} emissions are estimated using information from industrial permits, population, housing, employment information, and estimates of motor vehicle travel in the area.

For the Lakeview area, the PM_{2.5} EI year is 2011. This year was selected because it is a year for which DEQ completed the National Emission Inventory (NEI) for Lake County. In some cases where current data wasn't available, DEQ used 2008 data. The Lake County inventory was scaled to obtain an estimate of PM_{2.5} emissions within Lakeview's UGB.

Source Category Distribution of Emission Inventory

The following sources represent the main PM_{2.5} emission sources in Lakeview:

Residential Wood Combustion

Residential wood combustion is a common way to heat homes in Oregon. To estimate emissions from wood burning, DEQ used the estimated Lake County and SE Oregon residential wood heating surveys and scaled it to the Lakeview area based on 2010 census population and number of households.

Mobile and Nonroad Sources

Road dust and tailpipe emissions of PM_{2.5} from motor vehicles were calculated by applying emission factors from the Lake County 2011 NEI for EPA and scaling the estimate to Lakeview's UGB and the Goose Lake Basin based on 2010 census population and number of households. Emissions from rail, aircraft, construction and other nonroad sources are estimated using EPA's NEI for Lake County and scaling the emissions based on area served.

Industrial Point Sources

DEQ maintains data on industrial point source emissions for all sources emitting 10 or more tons of criteria pollutants per year. Emissions information is compiled from each source's operating permit issued by DEQ. All permitted point sources within the Lakeview UGB are included in the emissions inventory.

Emission estimates are developed for both annual and daily PM_{2.5} emissions. Annual emissions are reported as tons per year (tpy), whereas typical season and design day emissions are reported as pounds per day (lbs/day). For 2011, the design day emissions were emissions during the wood heating season that occurred on days when the highest monitored concentrations were measured. For Lakeview, the typical season and design days occur in winter (November through February) when the daily PM_{2.5} standard is most frequently exceeded.

The design day emissions for area, on-road, non-road and industrial sources are shown in Table 1 and Figure 3 for the total UGB.

	Design Day (lbs/day)
Residential Wood Combustion	704
Prescribed Burning and Wildfire	0
All Other Area Sources ¹	39
On-Road	2
Nonroad Vehicles & Equipment	3
Permitted Industrial Sources	182
<i>Total, All Sources, lbs/day</i>	930

Table 1: 2011 Design Day PM_{2.5} Emissions for the Lakeview Analysis Area.

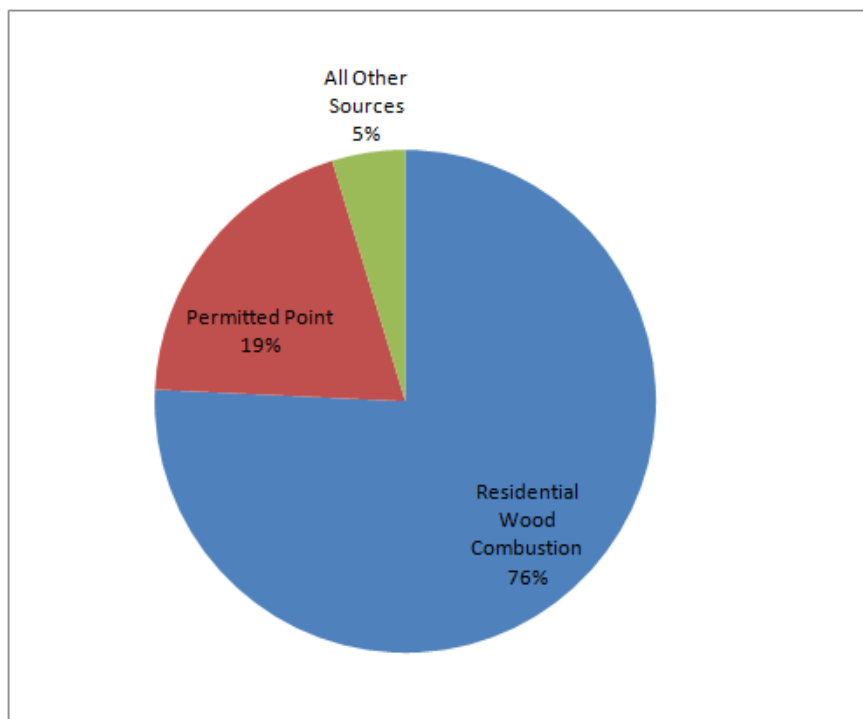


Figure 3: PM_{2.5} Emissions by Source Category as a Percentage (Design Day)

Most of the design day PM_{2.5} emissions are from residential wood combustion. However, to get an estimate of what sources are directly influencing the monitor, DEQ looked into effective emissions. Effective emissions are defined as those emission rates that correlate with measured concentrations at the monitor. In considering the effective emissions, residential wood combustion contributes roughly 90% of the PM_{2.5} concentration at the monitor, and industrial emissions contribute roughly 1% of the PM_{2.5} concentration at the monitor. Residential wood heating is the primary source of PM_{2.5} air pollution in the

¹ Including wood heating used for commercial or business spaces requiring heat.

Lakeview area, and efforts to reduce PM_{2.5} pollution should focus on this source category. DEQ therefore proposes to designate woodstoves as the priority sources in the proposed Lakeview sustainment area.

PM Advance Program

In 2013, EPA announced the development of a voluntary program that communities could participate in to reduce emissions of PM. This program, called PM Advance, was modeled after EPA's existing Ozone Advance program. Under the program, any area that has not officially been designated nonattainment can voluntarily sign up to participate in PM Advance, develop a plan showing how the area will reduce emissions in 5 years, and potentially avoid a nonattainment designation in the future. Development of the plan is based on community involvement and input to identify and implement emission reduction strategies. These strategies can be changed or modified as needed to accomplish the objective of meeting the PM_{2.5} standard.

Lakeview's PM Advance Plan

DEQ, in coordination with the Town of Lakeview and Lake County formed an advisory committee to develop a plan to achieve emission reductions by 2019. From June 2013 through June 2014, the advisory committee has been meeting to discuss issues, identify the sources of PM in Lakeview, and to brainstorm and recommend strategies that the community would implement over the next five years. The committee plans to put forward a suite of options to implement over the next few years. This may include enhanced education and outreach, continued implementation of the voluntary woodstove curtailment call, current and future woodstove changeouts, an agreement with the USFS to not burn on poor air quality days, and the potential expansion of open burning restrictions to incorporate the UGB (current law only applies to the town). The town also hopes to pursue future strategies including additional woodstove changeouts, long-term efforts to find alternate sources of heat other than wood (such as geothermal or natural gas), and additional town and county ordinances to restrict use of woodstoves. Sustainment area rules will help the community change out uncertified woodstoves, the primary source of emissions that cause the exceedances of the PM_{2.5} standard.

A sustainment area designation for Lakeview will improve the PM Advance plan by allowing and encouraging new or expanding industrial sources to purchase woodstove emission offsets to become established or expand in Lakeview. These reductions in woodstove emissions will reduce overall ambient conditions during critical wintertime days and contribute to better overall air quality in Lakeview.

Conclusion

DEQ proposes to designate the Lakeview area as a sustainment area for PM_{2.5}, under OAR 340-204-0030, with woodstoves the priority sources.

Monitoring data has been presented showing that the Lakeview area is exceeding or has the potential to exceed the PM_{2.5} ambient air quality standard.

A description of the affected area based on the monitoring data has been presented. The boundary of the proposed Lakeview sustainment area is the Lakeview urban growth boundary.

A discussion and identification of the priority sources contributing to the exceedance or potential exceedance of the ambient air quality standard has been presented. DEQ has determined that woodstoves are the main contributors to PM_{2.5} air quality problems. Therefore, DEQ proposes to designate woodstoves as the priority sources in the Lakeview sustainment area.

In summary, designating Lakeview as a sustainment area will allow Lakeview to pursue intermediate-size industrial economic development. It will encourage new or expanding industry to obtain emission offsets from woodstove changeouts and thereby help address the main contributors to Lakeview's air quality problems. In addition, a sustainment designation along with Lakeview's PM Advance efforts will help to bring Lakeview into compliance with the PM_{2.5} AAQS.