

**LAKEVIEW SUSTAINMENT AREA**

## What is a sustainment area?

DEQ is proposing rules that will help prevent an area from becoming formally designated as a nonattainment area, identifying this type of area as a sustainment area. Sustainment areas would be areas that have ambient monitoring data indicating that an area is not meeting the NAAQS or is very close to not meeting the NAAQS, but the area has not been formally designated as a nonattainment area by EPA. The areas where a sustainment area concept is most useful are areas where the primary air quality problem is due to wood stoves or sources other than industry. EPA and DEQ rules currently focus on industrial source restrictions to get an area back into attainment rather than addressing the cause of the problem. DEQ wants to focus on the cause of the problem rather than unnecessary restrictions on industry. Often, there is a lag time between when DEQ’s monitoring data indicates an area is violating the standard to when EPA would formally designate that area as nonattainment. In these cases, a sustainment area classification 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 designation to deal with only industrial sources.

Currently, there are no emission offset provisions in DEQ’s New Source Review rules for those areas where air quality exceeds the ambient air quality standard and are not yet designated nonattainment by EPA. There is a real dilemma for new and expanding industries wishing to establish in these areas because a moderate sized or even large sized industrial source cannot model their emissions and meet the standard unless they have significant offsets to reduce the emissions from the entire area. Businesses modeling to show compliance with the ambient air quality standard must include their emissions along with background concentrations, which would include all sources of pollution, both industrial and residential. This poses a dilemma for any industrial source wishing to expand or establish in an area over the standard but not designated nonattainment. It makes it virtually impossible for a new or expanding industrial source to become established in an area like this because the background concentration by itself is already over the ambient air quality standard.

Permitting facilities in a sustainment area includes some nonattainment area concepts without the elaborate SIP related attainment/maintenance plan process. This allows a community to stay in attainment with the economic benefits of an attainment area, and without a stigma of the federal nonattainment designation. The rules are designed to provide incentives for new or modified industrial sources to reduce emissions in the same airshed by purchasing emission offsets from sources that are considered to be significantly contributing to the air quality problems in the area, such as woodstoves. Public health is improved overall 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.

Although on the surface it may seem that the amount of emissions from an industrial stack would equal the woodstove emissions, the industrial stacks have a higher stack height and velocity for better emission dispersion. Industry emissions are fairly constant year around; not occurring just in a winter heating timeframe. In addition, often industrial sources are located away from residential neighborhoods where monitors are located and individuals congregate. Industrial sources are regulated by permit and emissions from these new or expanding sources are required to be controlled.

## How does Lakeview qualify?

Since air quality in Lakeview has exceeded the PM2.5 standard but the area has not been formally designated nonattainment, any 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 provides 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 get permitted because DEQ must continue to implement federal regulations for these companies. DEQ’s classification of a sustainment area provides flexibility for Lakeview while ensuring the area is protective of air quality.

## Lakeview as a sustainment area

In Lakeview, woodstoves have been shown to be the major polluting source in the area and industry is a relatively small piece. By using incentives for industry to help solve the woodstove problem in Lakeview, DEQ is proposing a system that is better for public health and as a consequence removes obstacles from some economic development opportunities.

In an attainment area that does not meet the PM2.5 standard, such as Lakeview, new sources cannot become established and existing sources cannot expand because the area exceeds the PM2.5 standard already. As part of DEQ’s permitting rules, any new or expanding source has to conduct a Prevention of Significant Deterioration (PSD) analysis that assures the area will meet the standard. Unfortunately, since the background concentration is above the PM2.5 standard, it is not possible for the new or expanding source to model emissions below the PM2.5 standard. There is no possibility for obtaining emission offsets because there are no rules allowing for offsets in an attainment area.

A sustainment area designation on the other hand allows the possibility of offsets in Lakeview. Further, it allows the predominant source of pollution, woodstoves, to be offset. These rules provide the area with more economic flexibility, allowing moderate sized industry to build or expand by obtaining offsets and helping an area to meet the standard sooner. In particular, it would help solve the PM2.5 problem in Lakeview by providing funds to change out uncertified woodstoves. Woodstoves are the basis of Lakeview’s PM2.5 problem and therefore is the basis for the proposed sustainment area concept. These rules would allow for economic growth without compromising air quality. It also allows a community to help solve their air quality problem.

Declaring the Lakeview UGB area as a sustainment area would be beneficial because it supports needed economic development in the area while improving air quality at the same time. Being classified a sustainment area also serves as a useful tool regarding the area’s participation in EPA’s PM Advance program. The sustainment area rules could be included as a potential strategy in the PM Advance plan.

# BACKGROUND

## What is PM?

Particulate matter (PM) is the general term used for a mixture of solid particles or liquid droplets found in the air. EPA characterizes PM into two size fractions: PM10 – coarse particulate 10 microns and smaller and PM2.5 – fine particulate 2.5 microns and smaller. Fine particulate matter (PM2.5) 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.

PM2.5 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 had a long history of addressing PM issues in the community. Areas in violation of the national ambient air quality standard (NAAQS) for PM2.5 (based on the most recent three years of federal reference monitoring data) are designated as a “nonattainment area” by the EPA. In 1987, Lakeview was designated nonattainment for PM10. By the mid-1990s, Lakeview put together 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 PM2.5 standard due in large part to the existing strategies in the plans.

In 2006, EPA again revised the PM2.5 standard, lowering it from 65 ug/m3 to 35 ug/m3. At the time of required designations, Lakeview did not have three full years of data to make a determination. Since then, Lakeview has violated the standard but has not been formally designated as nonattainment.

## MONITORING

The Lakeview area has one particulate (PM2.5) 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 PM2.5. Lakeview currently meets the revised annual PM2.5 standard, but has been close to violating or has violated the daily standard in recent years (Figure 1).

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

The 24 hour standard for PM2.5 is met whenever the three year average of the annual 98th percentile of values at monitoring sites is less than or equal to 35 µg/m3. While Lakeview has at times violated the standard, the area was not designated nonattainment for the 24-hour PM2.5 NAAQS, because there was no monitoring information available at the time of designations.

# 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. Lakeview has a current air quality boundary for PM10, which consists of the Lakeview urban growth boundary (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 of influence are generated within the urban growth boundary (UGB). Most industrial sources have and will locate in the UGB that influences the monitor.

# EMISSION INVENTORY

An emission inventory consists of emission estimates from all sources that emit PM2.5 in the Lakeview area. Emissions inventory data is essential for identification of the sources contributing to air quality problems, and the development of emission reduction strategies.

The analysis of PM2.5 concentrations began with an assessment of PM2.5 emissions in Lakeview. Emission sources are summarized into four major categories. These include major point sources (industrial facilities), on-road mobile sources (e.g., 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). PM2.5 emissions are estimated using many sources of information, including industrial permits, population, housing, employment information, and estimates of motor vehicle travel in the nonattainment area.

## Emission Inventory

An emissions inventory (EI) was created to estimate actual PM2.5 emissions occurring in the air shed. For the Lakeview area, the PM2.5 EI 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 Lakeview’s UGB.

### Source Category Distribution of Emission Inventory

Sources of PM2.5 in Lakeview include area sources (e.g., woodstoves), major industry, on-road mobile sources (e.g., car and truck exhaust, road dust), non-road mobile sources (e.g., construction equipment). The following sources represent the main 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 households.

#### Mobile and Nonroad Sources

Road dust and tailpipe emissions of PM2.5 from motor vehicles were calculated by applying emission factors from the Lake County 2011 NEI for EPA and scaled the estimate to Lakeview’s UGB and the Goose Lake Basin based on 2010 census population and households and for non-road vehicles by area served. Emissions from rail, aircraft, construction and other non-road sources are estimated using EPA’s NEI for Lake County and scaled 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 Goose Lake Basin are included in the emissions inventory.

Emission estimates are developed for both annual and daily PM2.5 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 or design value (DV) concentrations were measured. For Lakeview, the typical season and design days occur in winter (November through February) when the daily PM2.5 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.

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|  | UGB Design Day (lbs/day) |
| Stationary Area Sources |   |
| All Res Wood Combustion(1) | 704 |
| Wildfire/Prescribed Burning | 0 |
| All Other Stationary Area Sources | 39 |
| On-Road | 2 |
| Non-road Vehicles & Equipment | 3 |
| Industrial Sources | 118 |
|  |   |
| ***Total, All Sources, lbs/day*** | **866** |

Table : 2011 Design Day PM2.5 Emissions for the Lakeview Analysis Area.

Figure 3: PM2.5 Emissions by Source Category as a Percentage (Design Day)

Most of the PM2.5 emissions are from residential wood combustion. However, to get a 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, the residential wood combustion concentrations are roughly 90% of the PM2.5 concentration at the filter sample and industrial emissions are roughly 1% of the PM2.5 concentration at the filter. Residential wood heating is the primary source of air pollution in the Lakeview area, and efforts to reduce PM2.5 pollution should focus on this source category.

# 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 its 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 PM2.5 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), 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 PM2.5 standard.

A sustainment area rule and designation for Lakeview will improve the plan by including these rules. The rules will allow new or expanding industrial sources to purchase woodstove emission offsets to become established 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.