

# LAKEVIEW AREA - PARTICULATE MATTER (PM<sub>2.5</sub>) ADVANCE ACTION PLAN

Submitted to: U.S. Environmental Protection Agency



By: Town of Lakeview, Lake County and  
the Oregon Department of Environmental Quality

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# Executive Summary

The Lake County and Lakeview Air Quality Advisory Committee, the Lake County Commissioners and Lakeview Town Council have collaborated with DEQ and the Governor's appointed Regional Solutions Team to develop an action plan to achieve emission reductions to help the Lakeview area remain in attainment with the 2006 daily PM<sub>2.5</sub> NAAQS as well as maintain the annual standard identified in the 2012 PM<sub>2.5</sub> NAAQS revision. PM<sub>2.5</sub> is a mixture of solid particles or liquid droplets found in the air and comes from residential wood burning, diesel engines, pile and forest burning and other sources. PM<sub>2.5</sub> can accumulate in the respiratory system and are associated with numerous health effects such as premature death in people with heart or lung disease, aggravated asthma, decreased lung function, and increased respiratory symptoms, such as difficulty breathing.

The action plan describes the proposed PM<sub>2.5</sub> reduction strategies, including what action will be taken, who will conduct the work, and when and how it will be done for the next five years up through 2019. It is a mixture of emission reduction strategies consisting of local ordinances, interagency and intergovernmental cooperation, and non-regulatory elements including incentives and education. Should the community fail to meet the standard EPA may decide to identify the Lakeview area as nonattainment. Nonattainment could mean additional requirements for new or expanding industry that could impact the economy of Lakeview.

The Lakeview area has one particulate (PM<sub>2.5</sub>) monitoring site with the sampler located on the corner of Center and M Street. DEQ has monitored at this site since 1991 for PM<sub>10</sub> and since 2007 for PM<sub>2.5</sub>. Most of the emissions of influence are generated within the urban growth boundary (UGB), which consists of the entire town of Lakeview as well as parts of Lake County.

A Lakeview area "base year" was created to estimate actual PM<sub>2.5</sub> emissions occurring in the airshed and the base-year is 2011. The base year EI serves as the foundation for future emissions forecasts (2019 being the target year) to help determine whether Lakeview will meet the standard. Sources of PM<sub>2.5</sub> in Lakeview include area sources (e.g., woodstoves), major industry, on-road mobile sources (e.g. car and truck exhaust, road dust), and non-road mobile sources (e.g., construction equipment). Most of the emissions in the area come from residential and commercial wood burning, which represent over 90% of distance-weighted emissions at the monitor.

The emission reduction measures identified in this plan include actions to address wood heating smoke and residential open burning. It includes existing strategies and some new strategies that are part of this plan and are being implemented or will be implemented immediately. The strategies include:

- Expanded public education and outreach
- Amending a 1995 ordinance to conduct a mandatory woodstove curtailment advisory in the UGB
- Consider expanding open burn requirements:
  - Existing Requirements (for reference): Within Lakeview Town Limits, open burning is prohibited November 1 through February 28;
  - New Potential Requirements: Within the Lakeview Urban Growth Boundary, open burning requirements would match those of the Town;
- Woodstove changeouts and weatherization of homes
- An ongoing effort to find funding for uncertified wood stove replacements
- A prescribed burn agreement with the USFS
- Consider requiring only the lowest emitting woodstoves to be allowed in new and existing houses.

In order to estimate the effect of different control strategies, DEQ used a "proportional rollback/rollforward approach with distance weighting of emissions. A rollback/roll forward model assumes a direct linear correlation between emissions and concentrations and that changes in emissions, such as reductions resulting from control strategies, will result in corresponding reductions in concentration. As a result, concentrations in a future year (2019) can be predicted based on reductions in emissions, and their corresponding ambient concentrations, from a

base year (2011). After applying the strategies identified above, if the area does not experience a prolonged stagnation event in the future, the area should meet the standard.

**Estimated concentrations of PM<sub>2.5</sub> for 2011 and 2019 based on emission reduction strategies.**

	2011 µg/m <sup>3</sup>	2019 µg/m <sup>3</sup>
Estimated Concentration of PM <sub>2.5</sub>	<b>47</b>	<b>32</b>

Other long term strategies were offered and will show additional reductions if they come to fruition, but cannot be quantified at this time.

The committee also agreed to have annual check-in meetings (June-July timeframe) to assess the monitored levels and Lakeview’s progress towards meeting the standard. These check-ins will help the Lakeview area identify whether it will meet the standard by 2019, and if not, the committee will reconvene, identify, and recommend additional strategies that could be implemented to ensure progress towards meeting the standard.

# 1. ACTION PLAN OVERVIEW

The Lake County and Lakeview Air Quality Advisory Committee, the Lake County Commissioners and Lakeview Town Council collaborated with DEQ and the Governor's appointed Regional Solutions Team to develop an action plan to achieve emission reductions to help the Lakeview area remain in attainment with the 2006 daily  $PM_{2.5}$  NAAQS as well as maintain the annual standard identified in the 2012  $PM_{2.5}$  NAAQS revision. The action plan describes the proposed  $PM_{2.5}$  reduction strategies, including what action will be taken, who will conduct the work, and when and how it will be done for the next five years up through 2019. It is a mixture of emission reduction strategies consisting of local ordinances, interagency and intergovernmental cooperation, and non-regulatory elements including incentives and education. Should the community fail to meet the standard EPA may decide to identify the Lakeview area as nonattainment. A designation of nonattainment will cause significant direct and indirect impacts to the local economy. Companies may defer or eliminate plans to expand because of additional requirements to install emissions control equipment. Other companies may decline or be unable to locate in the community. As a result, jobs and dollars spent in the community may be lost and impact may be felt regarding the viability of other services such as retail goods and services, healthcare, and schools.

## 1.1 BACKGROUND

### 1.1.1 What Is $PM_{2.5}$ ?

Particulate matter (PM) is the general term used for a mixture of solid particles or liquid droplets found in the air. 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.

Fine particulate matter, also known as  $PM_{2.5}$ , is referred to as "primary" if it is directly emitted into the air as a solid or liquid particle and its chemical form is stable.  $PM_{2.5}$  formed near its source by condensation processes in the atmosphere is also considered primary  $PM_{2.5}$ . Primary  $PM_{2.5}$  includes soot from diesel engines, and fuel combustion products from residential fireplaces and woodstoves, pile and forest burning.

$PM_{2.5}$  that is formed by chemical reactions of gases in the atmosphere is referred to as "secondary"  $PM_{2.5}$ , and includes most of the sulfate, nitrate, and organic carbon from emission sources impacting the Lakeview area. As such, sulfur dioxide ( $SO_2$ ), oxides of nitrogen ( $NO_x$ ), some VOC, and ammonia can be considered  $PM_{2.5}$  precursors. Most of the  $PM_{2.5}$  in the Lakeview area, however, is primary  $PM_{2.5}$ .

$PM_{2.5}$  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.

### 1.1.2 National Ambient Air Quality Standards for $PM_{2.5}$

In December 2012, the U.S. Environmental Protection Agency (EPA) strengthened the annual  $PM_{2.5}$  (fine particulate) standard by lowering the level from  $15 \text{ mg/m}^3$  to  $12 \text{ mg/m}^3$  and retained the daily (24-hr)  $PM_{2.5}$  standard of  $35 \text{ mg/m}^3$ . Areas in violation of the  $PM_{2.5}$  standard (based on the most recent three years of federal reference monitoring data) are designated as a "nonattainment area" by the EPA.



## 2. LAKEVIEW AREA DESCRIPTION

Lakeview is located in south 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 Lakeview urban growth boundary (UGB) population is estimated at 3,800 in 2010. Based on the long-range forecast, the Lakeview UGB population is expected to grow to approximately 3,925 by 2025. The town of Lakeview serves as an important commercial center for Lake County.

The recent 2008 recession has impacted Lake County and the area is slowly recovering. Current unemployment rates in Lake County (~10%) are still higher than the statewide average of 7%.<sup>1</sup> According to the U.S. Census data, the median family income in Lake County is around \$40,000 with roughly 17% of the population below the poverty level.<sup>2</sup>

Lakeview can experience very strong nighttime inversions that break up with daytime solar heating. In the wintertime, arctic air masses frequently move over the Lakeview area valley. Temperatures can remain well below freezing for several weeks at a time. Winter nights are commonly clear and cool in the valley. Under these conditions, inversions and air stagnation can occur and reoccur for many days in a row over Lakeview.

### 2.1 MONITORING

The Lakeview area has one particulate (PM<sub>2.5</sub>) monitoring site with the sampler located on the corner of Center and M Street. DEQ has monitored at this site since 1991 for PM<sub>10</sub> and since 2007 for PM<sub>2.5</sub>. The location represents one of the higher PM<sub>2.5</sub> concentration areas and is representative of areas where people live, work, and play. After quality assurance, data from the site is transferred to databases at DEQ and EPA. Data from the monitor was used as the basis for the action plan and for determining compliance with the standard. Speciated data is available in Appendix E.

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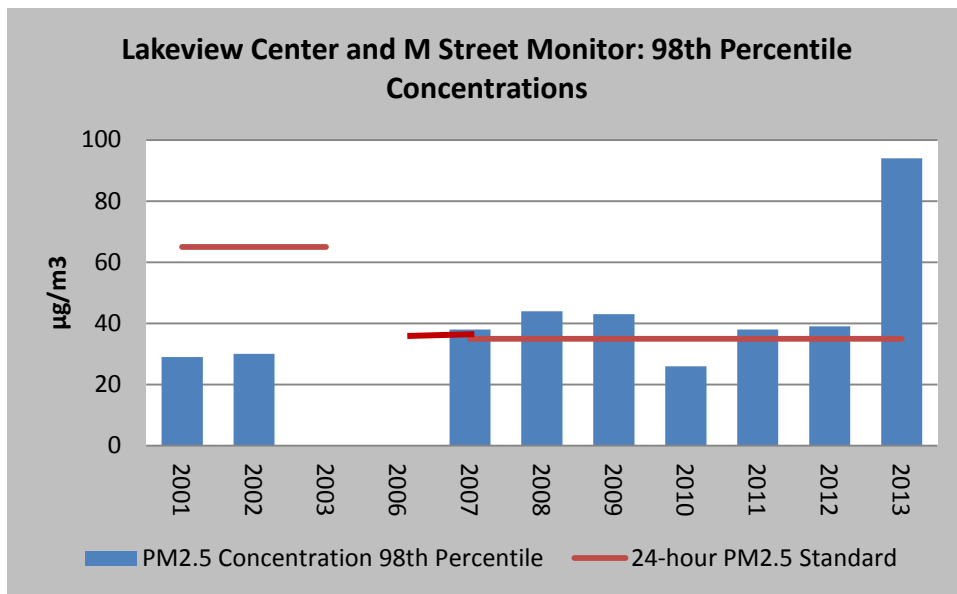
<sup>1</sup> The Oregonian, March 24, 2014, [http://www.oregonlive.com/money/index.ssf/2014/03/unemployment\\_rates\\_still\\_twice\\_as\\_high\\_in\\_some\\_oreg\\_on\\_counties\\_compared\\_to\\_others\\_interactive\\_map.html](http://www.oregonlive.com/money/index.ssf/2014/03/unemployment_rates_still_twice_as_high_in_some_oreg_on_counties_compared_to_others_interactive_map.html)

<sup>2</sup> <http://quickfacts.census.gov/qfd/states/41/41037.html>



**Figure 1: Smoke inversion in the Town of Lakeview. Inversion showing particulate matter on January 3, 2011**

Lakeview currently meets the revised annual PM<sub>2.5</sub> standard, but has been close to violating or has violated the daily standard in recent years. (Figure 2).



**Figure 2: 98th percentile concentrations measured at Center and M Street monitor, Lakeview, Oregon<sup>3,4</sup>**

The 24 hour standard for PM<sub>2.5</sub> 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/m<sup>3</sup>. While Lakeview has at times violated the standard, the area was not designated nonattainment for the 24-hour PM<sub>2.5</sub> NAAQS, because there was no monitoring information available at the time of designations. Figure 2 includes data through 2013. In January 2013 and again in December 2013, significant prolonged winter inversions occurred. This data shows that for 2013, the 98th percentile concentration is 94 µg/m<sup>3</sup>.

<sup>3</sup> In 2012, the Barry Point fire was excluded from the monitoring data.

<sup>4</sup> For 2013, the 98<sup>th</sup> percentile concentration is 94 µg/m<sup>3</sup>, and the 2011-2013 average was 56.0 µg/m<sup>3</sup>.

# 3. LAKEVIEW AREA 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 PM<sub>10</sub>, which consists of the Lakeview urban growth boundary. (Figures 3 & 4)

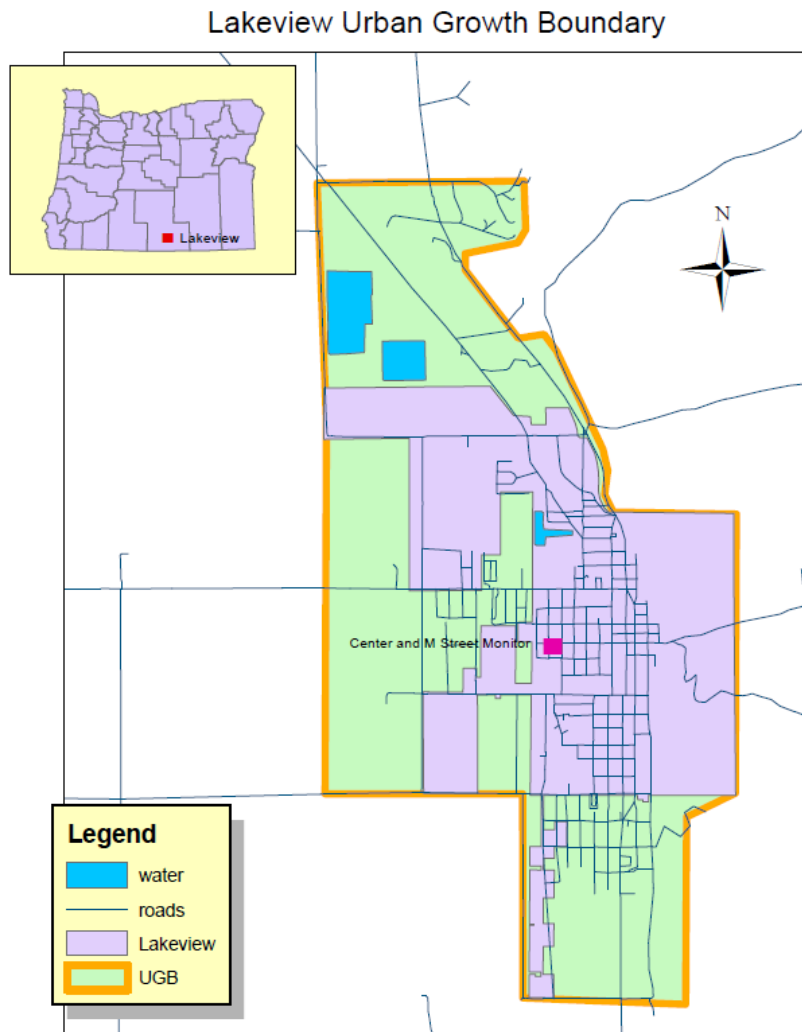


Figure 3: Lakeview Urban Growth Boundary

## Lakeview Urban Growth Boundary

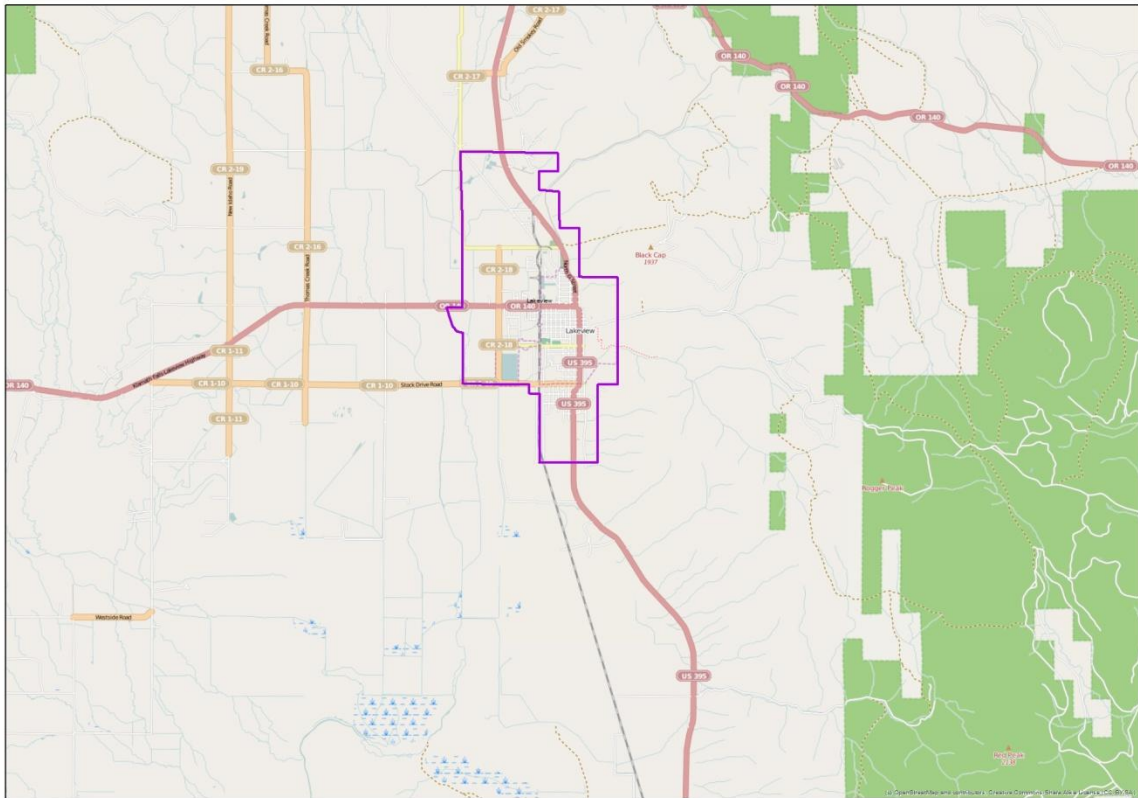


Figure 4: Lakeview Urban Growth Boundary

The urban growth boundary consists of the entire town of Lakeview as well as parts of Lake County. For this action plan the advisory committee identified the urban growth boundary (UGB) for strategy development.

## 4. EMISSION INVENTORY

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

The analysis of  $PM_{2.5}$  concentrations begins with an assessment of  $PM_{2.5}$  emissions in the Lakeview area. Emissions are estimated for a wide variety of sources, and are summarized into four major categories. These include permitted point sources (industrial facilities), on-road mobile sources (e.g. car and truck exhaust, brake and tire wear, and re-entrained road dust), non-road vehicles and equipment (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 many sources of information, including industrial permits, population, housing, employment information, surveys, and estimates of motor vehicle travel in the nonattainment area.

## 4.1 Precursors

In addition to direct (primary) emissions, particulate matter is formed in the atmosphere from precursors. Sulfur oxides (SOX), nitrogen oxides (NOX), volatile organic compounds (VOC), and ammonia (NH<sub>3</sub>) all contribute to the formation of particulate matter. DEQ evaluated whether PM<sub>2.5</sub> precursors should be addressed in the emission inventory. DEQ looked at filter samples and initial emissions inventory estimates and determined secondary formation is very small (less than 5%) compared to direct PM<sub>2.5</sub> emissions. Based on this analysis and the fact that any strategies to address precursor emissions would be negligible, DEQ decided not to evaluate any precursor emissions in this PM Advance Plan.

## 4.2 Base Year Emission Inventory (2011)

The base year emission inventory is used as the starting point and serves as the foundation for the future emissions forecast (2019) to determine whether Lakeview will meet the standard. This inventory includes all sources in the Lakeview area in the UGB. DEQ analyzed a number of factors to determine the appropriate year for the base emission inventory.

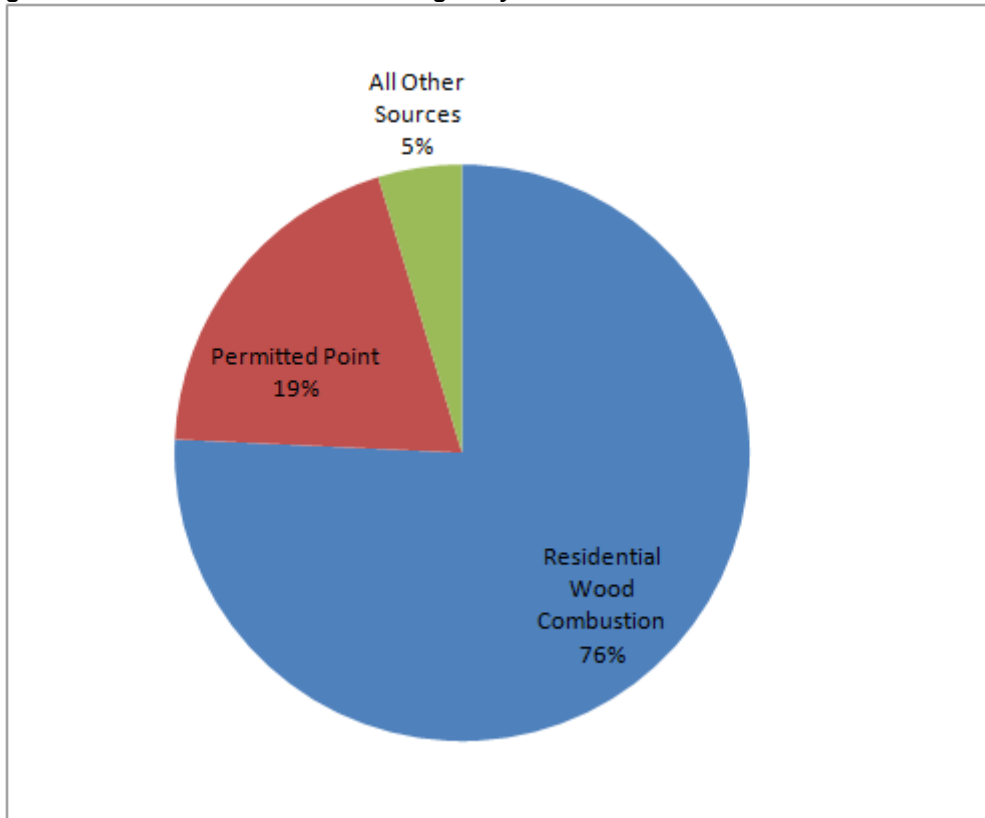
### 4.2.1 Determining the Base Year Emission Inventory

A “base year” emissions inventory (EI) was created to estimate actual PM<sub>2.5</sub> emissions occurring in the airshed. For the Lakeview area, the PM<sub>2.5</sub> base-year EI is 2011. The base year EI serves as the foundation for the 2017 interim year and 2019 future emissions forecast to help determine whether Lakeview will meet the standard. 2011 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. The complete emission inventory can be found in Appendix A.

### 4.2.2 Source Category Distribution of 2011 Emission Inventory

Sources of PM<sub>2.5</sub> in Lakeview include area sources (e.g., woodstoves), permitted industrial point sources, on-road mobile sources (e.g. car and truck exhaust, road dust), non-road mobile sources (e.g., construction equipment). The following sources and pie charts represent the main emission sources in the Lakeview area in 2011. (Figure 5)

**Figure 5: 2011 Emission Sources - Design Day**



#### **4.2.2.1 Residential Wood Combustion**

Wood combustion is a common way to heat homes in Oregon. To estimate emissions from wood burning, DEQ used a 2009 statewide woodheating survey and scaled regional results from the survey to the Lakeview UGB. The scaling was based on occupied housing unit and heating fuel data from the 2010 US Census.

#### **4.2.2.2 Mobile and Nonroad Sources**

Emissions of PM<sub>2.5</sub> from on-road and nonroad sources were estimated by scaling 2011 Lake County emissions estimates from the EPA 2011 NEI v.1 to Lakeview's UGB and the Goose Lake Basin. For on-road (exhaust, brake, tire, and re-entrained road dust) the scaling was based on roadway distance, determined through GIS mapping. Emissions for nonroad vehicles and equipment, such as construction and light industrial equipment, were scaled using zoning and employee data. Emissions from rail, aircraft, and recreational marine were estimated using EPA's NEI for Lake County and scaled the UGB based on active railway line, airport location, and boating use days for Goose Lake.

#### **4.2.2.3 Permitted 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 Urban Growth Boundary of Lakeview are included in the emissions inventory<sup>5</sup>.

<sup>5</sup> The emission inventory also includes data on the greater Lakeview area but the focus is on the Urban Growth Boundary. Industrial sources are only within the Urban Growth Boundary.

#### 4.2.2.4 Reporting and Results

Emission estimates are developed for both annual and seasonal PM<sub>2.5</sub> 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 occurred in winter (November through February) when historically the daily PM<sub>2.5</sub> standard is most frequently exceeded. For the base year, daily emissions were adjusted to reflect a typical season day and design day emissions. For future year emissions, the goal is to develop an emissions inventory that closely matches the conditions under which high monitored concentrations are likely to be measured. The DV is used to determine compliance with the standard, and methodology for calculating the DV is described in more detail in the section entitled “Technical Analysis to Meet the Standard”.

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

**Table 1: 2011 Design Day PM<sub>2.5</sub> Emissions for the Lakeview Analysis Areas**

	Design Day (lbs/day)
Residential Wood Combustion	704
Prescribed Burning and Wildfire	0
All Other Area Sources <sup>6</sup>	39
On-Road	2
Non-road Vehicles & Equipment	3
Permitted Industrial Sources	182
<i>Total, All Sources, lbs/day</i>	930

For a more complete emission inventory please refer to Appendix A.

### 4.3 Future Year Emission Forecast (2019)

The future year inventory is an estimation of emissions for the milestone year of 2019, the timeframe for which this action plan was developed. It includes projected emissions for the future year based growth rates for population, employment, or VMT (vehicle miles traveled) through 2019. DEQ also took credit for emissions reductions as a result of current strategies (or control measures) already being implemented but not accounted for in the 2011 emission inventory. A complete emission forecast can be found in the emission inventory in Appendix A.

#### 4.3.1 Determining the Attainment Year Emission Inventory

##### 4.3.1.1 Growth Rates

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<sup>6</sup> Including wood heating used for commercial or business spaces requiring heat.

Growth is expected to be low to decreasing for most source categories and increasing for one source category (industrial sources) in Lakeview through 2019. Oregon Executive Order 97-22 directs key state agencies such as DEQ and ODOT to use population and employment forecasts developed or approved by the Oregon Office of Economic Analysis (OEA). However, for the purposes of this Action Plan, DEQ estimated growth based on sources. No growth was allotted to dust, forest burning, or other sources, because these sources change from year to year, but are not expected to show a growing or declining trend into the future. Wood heating emissions were reduced based on the number of woodstoves removed or anticipated to be removed between 2011 and 2019. On-road and nonroad sources were assumed to decline similar to national declines. Industrial emissions were estimated using revised or anticipated permit limits, and are anticipated to increase 31% from 2011 to 2019.

#### 4.3.1.2 Source Category Distribution of the 2019 Emission Inventory

In order to demonstrate the area will meet the standard by 2019, future year anticipated ambient concentrations must be lower than the National Ambient Air Quality Standards. Future year concentrations are based on the 2019 emission inventory that was developed using 2011 emissions, expected growth or growth declining rates, and emission control measures that were or are being implemented between 2011 and 2019. As mentioned previously, DEQ applied these factors to the 2011 inventory to forecast likely emissions in 2019; more specific information on emission growth/declines for each source category are available in the emission inventory located in Appendix A. Similar to 2011, design day emissions were developed for 2019. The 2019 design day emissions from area, nonroad mobile and on-road mobile area are summarized in Table 2.

**Table 2: 2019 Estimated Design Day PM<sub>2.5</sub> Emissions for Area, On-Road, and Non-Road sources**

	Design Day (lbs/day)
Residential Wood Combustion	615
Prescribed Burning and Wildfire	0
All other Area Sources <sup>7</sup>	40
On-Road Sources	2
Nonroad Vehicles and Equipment	3
Permitted Industrial Sources	238
<b><i>Total, All Sources, lbs/day</i></b>	<b>898</b>

For permitted point sources, the design day inventory is estimated using one of the following scenarios: actual emissions estimated from source annual reports, potential emissions (PTE) using 100% of the source permitted daily operating capacity, or permitted plant site emission limits (PSEL). DEQ developed these multiple emission scenarios representing the range of possible future activity. The design day emissions for point sources are based on the permitted plant site emission limits.

#### 4.3.2 Comparison of 2011 to 2019 Emissions

The emission inventory shows an overall decrease in emissions in 2019 based on the effectiveness of the existing strategies<sup>8</sup>. There are several existing strategies and regulations which will reduce emissions by 2019.

<sup>7</sup> Including wood heating used for commercial or business spaces requiring heat



Adjustments were made to the future emission inventories to account for these strategies which are already in place, but the reductions have not been fully realized yet to affect the 2011 emission inventory. The full effects of the reductions are expected to be in place in the next few years. They include:

- Woodstove Changeout Program in Lakeview
- Heat Smart: Statewide Stove Removal upon Sale of Home

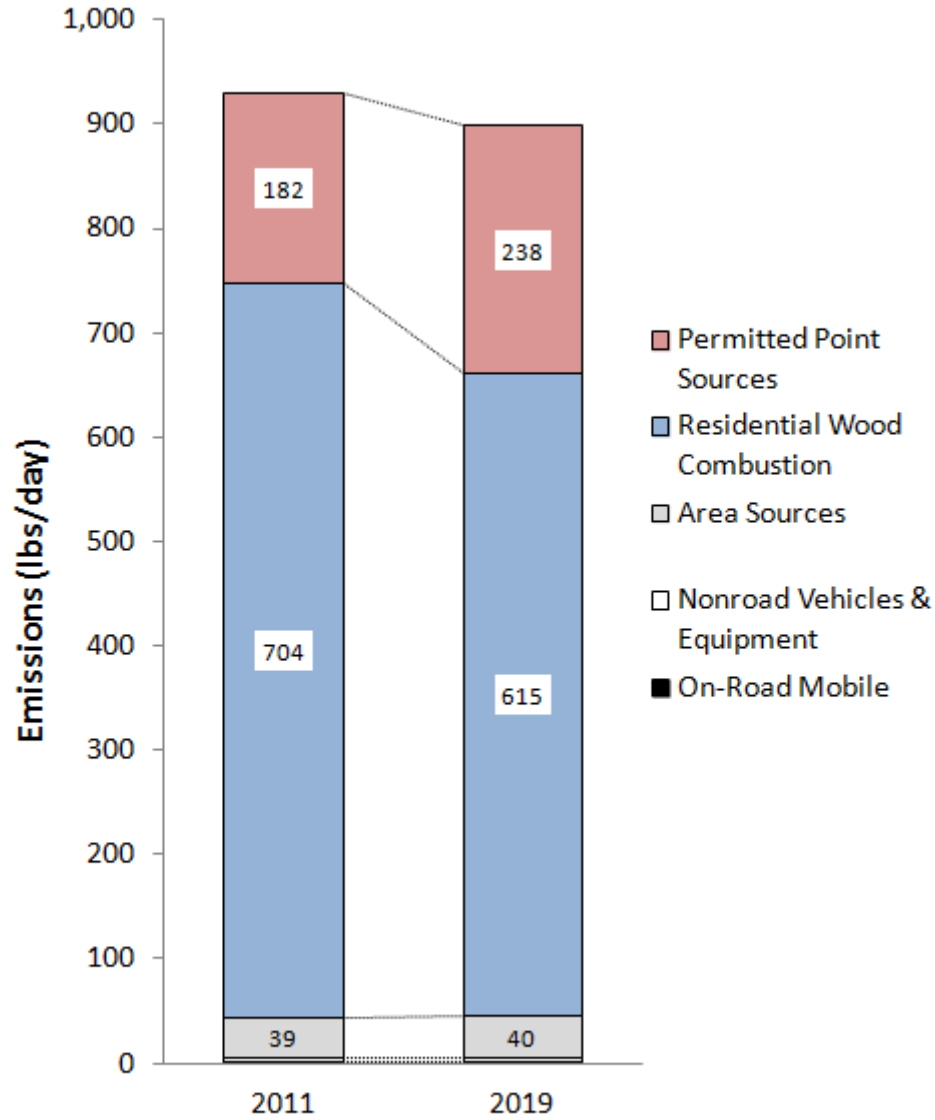
These existing control measures are discussed in more detail below.

The decrease in emissions for the design day is the most significant in wood combustion emissions. The ongoing implementation of existing strategies is expected to provide some reductions in concentrations from wood combustion. Figure 6 shows distribution of emission inventory for 2011 and for 2019 by source category.

Permitted industrial point source emissions increase between 2011 and 2019. 2011 levels are based on 2011 actual emissions and 2019 levels are based on updated permits and modifications that occurred for industrial sources in 2013 and 2014. However, point source emissions may decrease due to better technology and emissions reductions as the result of better control equipment or fuel use.

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<sup>8</sup> Strategies currently implemented and effective as of December 31, 2013.



Revised 4/24/14

**Figure 6: Comparison of 2011 Base Year and 2019 Forecast Year Design Day PM<sub>2.5</sub> Emissions**

(Note: Point Sources future year levels are a best-case scenario based on emission reductions from improved technology. Please see Appendix A, Table D-1.)

# 5. ACTION PLAN STRATEGIES – EMISSION REDUCTION MEASURES

Over the years Lakeview and DEQ have developed strategies to manage particulate matter air pollution concentrations in the Lakeview area, based in part on its history of dealing with particulate (PM<sub>10</sub>) pollution from the early-1990s. The emission reduction measures identified in this section include actions to address wood smoke, restrictions on residential open burning, and public education.

## 5.1 Lake County and Town of Lakeview Air Quality Advisory Committee Strategy Recommendations

In 2012-13, DEQ, the Town of Lakeview and Lake County convened an advisory committee, called the Lakeview and Lake County Air Quality Advisory Committee, to help develop strategies to be implemented as part of this Action Plan. The committee identified a number of strategies and decided to conduct a comprehensive community outreach and involvement effort to solicit additional strategy ideas from the community and identify which of these strategies the community would be willing to implement.

The committee held three community-wide stakeholder meetings from February – April 2014, and then reconvened and evaluated all the identified strategies. The committee and the Lakeview community recognized that strong strategies had to be identified by the community to ensure compliance with the standard by 2019. Based on issues and thoughts raised during the town hall meetings, the advisory committee chose a number of recommendations to decision makers as to which strategies should be implemented. It is anticipated these strategies will be implemented over the next year (2013-2014).

### 5.1.1. Recommended Strategies for Implementation

Table 3 highlights the identified strategies by the advisory committee and the town hall community meetings. It includes the current, new, and future planned strategies, as well as the anticipated timeframe for implementation. A description of each strategy is discussed in more detail below.

**Table 3: Path Forward Strategies for the Lakeview Area**

Strategy	Anticipated Implementation Timeframe
<b>Existing Strategies</b>	
Woodstove Changeout Program & Weatherization of Homes (ARRA funds, ODOE, OHA, SEP, RST funding)	2011-2013
Heat Smart Program, Woodstove Attrition	Ongoing
Open Burning Prohibitions within the Town Limits from	Ongoing

November 1 through February 28	
<b>Future Strategies</b>	
<p>Increased Public Education and Awareness</p> <ul style="list-style-type: none"> <li>• Red/Yellow flags in front of schools</li> <li>• General public education about clean burning</li> <li>• Changing the time of the curtailment call from 8 a.m. to noon</li> <li>• Conduct follow-up with households who have had a woodstove changeout</li> <li>• Ask citizens outside the UGB to voluntarily schedule their burning on green days</li> </ul>	Present – 2019+
<p>Amend a 1995 ordinance to conduct a mandatory woodstove curtailment advisory in the UGB that includes:</p> <ul style="list-style-type: none"> <li>• A low income exemption</li> <li>• A sole source exemption</li> <li>• A warning letter that includes funding opportunities for changeouts and weatherization</li> <li>• Lowering the curtailment call to 30 µg/m<sup>3</sup></li> </ul>	2014 – 2019+
<p>Woodstove Changeouts and Weatherization</p> <ul style="list-style-type: none"> <li>• Target renters and low income residents for changeouts</li> <li>• Continue woodstove changeouts – target near the monitor</li> <li>• Continue funding for wood stove replacements – replace with other energy sources besides wood</li> </ul>	2015-2016
Agreement with US Forest Service and Collins Pine Company Lumber Company to not burn on poor air quality days	2014 – 2019+
Open burning prohibitions within the UGB from November 1 through February 28	2014 – 2019+
Allow only the lowest emitting EPA-certified woodstoves to be installed in new and existing houses.	2014 – 2019+

### 5.1.1.1 Existing Strategies

The Town of Lakeview has been implementing emission reduction strategies that targeted wood stove emissions since 2007. These strategies are a continuum of past strategies developed over the years such as revisions to the air quality ordinance to address woodstoves and open burning and include more recent efforts such as conducting woodstove changeouts and public awareness.

#### 5.1.1.1.1 Woodstove Changeout Program & Weatherization of Homes

Lakeview has had a history of conducting woodstove changeouts by replacing old uncertified stoves with cleaner burning units. These include:

- A town block grant for residential improvements to be used to replace wood stoves when money has been paid back from the program. Funding has been loaned out for 8 changeouts within the past five years.
- From 2010-2011, stimulus funds from the federal American Recovery and Reinvestment Act (ARRA) changed out 99 uncertified stoves with cleaner burning certified woodstoves, pellet stoves, heat exchangers, or propane furnaces.
- In 2013, funds from a combination of Oregon Department of Energy, Oregon Health Authority, and Special Environmental Project monies replaced 40 stoves and assisted with a weatherization upgrade of at least 20 homes. The program was wrapping up at the end of 2013, with just a few additional stoves being replaced in the beginning of 2014.

#### 5.1.1.1.2 Heat Smart Program - Uncertified Stove Removal upon Sale of Home

Since 2008, in Lakeview and Lake County uncertified stoves are required to be removed when a home is sold (including stoves in garages and outbuildings). See

<http://www.deq.state.or.us/air/burning/woodstoves/heatSmart.htm>

#### 5.1.1.1.3 Open Burning Prohibitions

The Town of Lakeview and Lake County established a 2008 ordinance prohibiting outdoor open burning inside the Town limits between November 1 and February 28<sup>th</sup> of each year.

### 5.1.1.2 Future Strategies

As mentioned earlier, the Advisory Committee identified and recommended a number of strategies to be implemented now or within the next year. Some of these strategies are already implemented or will be implemented pending approval of town and county ordinances or DEQ rules.

#### 5.1.1.2.1 Public Education and Awareness

Lakeview and Lake County plans to continue and expand educational efforts regarding reducing PM<sub>2.5</sub> emissions from wood smoke. Education has had an impact on reducing wood smoke in the past, and the county intends to enhance current educational strategies. DEQ has provided funding to the County, through an interagency agreement, to assist in educating the Lakeview community about proper use of woodstoves and reducing wood smoke. Under the agreement, Lakeview will be required to provide programs that include hands-on demonstration of wood stove use, dissemination of information about the health effects of wood smoke, videos on public access to informational websites, and outreach to teach homeowners about selection of wood appropriate for burning.

The educational efforts include:

- 1) Changing the curtailment call times to noon to noon of the following day. Currently the advisory call is posted at 7:30 a.m.; changing the time would allow those people who rise earlier in the morning to better plan whether to burn in their stove.
- 2) Hanging red/yellow flags in front of schools. The flag program involves hanging a red, yellow, or green flag in front of the school to notify the public of the local advisory. This provides additional awareness of the curtailment advisory in addition to the regular notification through the website and phone.
- 3) General education on burning properly, wood storage, seasoned wood, and types of wood to burn
- 4) Use of social media to inform residents of curtailment calls, such as:
  - a. The Town's Facebook page
  - b. Coordinating with local newspaper to put information on their webpage
  - c. E-mail blasts to residents
- 5) Conducting follow up calls and visits to households who have had a woodstove changeout within the past year or two.
- 6) Public education in schools and service groups
- 7) Effects of PM<sub>2.5</sub> and why residents should care
- 8) Installation of reader board (in a high visibility spot) to inform residents of curtailment call
- 9) Encouraging the use of biobricks on red days

#### 5.1.1.2.2 Mandatory Woodstove Curtailment Program

Back in the 1990's, the Town of Lakeview and Lake County had an existing air quality ordinance requiring residents to curtail all their residential wood combustion on red days (high pollution, high health risk days) and curtail their uncertified woodstove use on yellow days (moderate pollution days). This ordinance was in effect because the area was violating the PM<sub>10</sub> standard, however the Lakeview area quickly came into compliance and the mandatory program reverted to a voluntary curtailment program. Now that Lakeview is struggling to meet the PM<sub>2.5</sub> standard, both the town and county have modified existing ordinances to implement the mandatory curtailment program again. The main provisions of the revised ordinance include:

- Woodstove Curtailment - During the winter, advisory calls are made on a daily basis to alert the public as to the level of pollution and whether burning must be curtailed;
- Exemptions - Low income and sole source homeowners are allowed to burn even on yellow and red days. Within the town, the sole source exemption would expire in 2019.

The existing residential woodburning advisory is calculated daily by assessing particulate concentrations and trends measured by the local nephelometer (located at the Lakeview monitoring site). Nephelometer data is used in combination with the local ventilation index and weather forecast to derive a predicted PM<sub>2.5</sub> value for the next 24 hours. Thresholds for the woodburning advisory are as follows:

Green day: Predicted PM<sub>2.5</sub> level less than 16 µg/m<sup>3</sup>  
 Yellow day: Predicted PM<sub>2.5</sub> level less than 30 µg/m<sup>3</sup>  
 Red day: Predicted PM<sub>2.5</sub> level greater than 30 µg/m<sup>3</sup>

The advisory is provided to the public every day during the wood heating season (November 1 – February 28). The Town of Lakeview has one part-time program staff person who is responsible for providing the advisory calls and conducting patrols to see if there is compliance with the advisory. Implementation and enforcement of the advisory would occur through letters and home visits. Specifically, for any offenders, a warning letter would be issued that also includes information about funding opportunities for changeouts (woodstove monies will be available in 2015) and weatherization. While the ordinance does have the potential to issue fines for continued offenders, the primary focus of enforcement would be through education and awareness.

#### 5.1.1.2.3 Woodstove Changeouts and Weatherization

In 2014, House Bill 5201, appropriated \$750,000 in funding for a regional solutions air quality project in Lake County. The regional solutions air quality project will:

- Replace wood stoves and provide weatherization in the Lakeview town and vicinity where NAAQS are in violation.
- Install, to the maximum extent possible, replacement heating systems that are non-wood heating systems that are affordable to run (such as ductless heat pumps); and
- Leverage the project funds with existing energy trust and ODOE incentives and tax credit programs. This leveraging will stretch those dollars at least half again and perhaps up to double.

This funding will be available starting March 2015 and allow for additional woodstove changeouts in the Lakeview area.

#### 5.1.1.2.4 Open Burning Prohibitions

As mentioned earlier, the Town of Lakeview and Lake County have an ordinance prohibiting outdoor open burning inside the Town limits between November 1 and February 28<sup>th</sup> of each year. The county is adopting an open burning ban that would extend to the urban growth boundary limits by the end of 2014.

#### 5.1.1.2.5 Prescribed Burning

The town of Lakeview and Lake County have entered into an agreement with the U.S. Forest Service to not burn within the Lakeview Forest Smoke Management Area (LFSMA), an area surrounding the Town of Lakeview, during poor air quality days. A copy of this agreement is available in Appendix B. The Collins Pine Company has also indicated an interest in a similar agreement. This would help eliminate smoke impacts from prescribed burning entering into Lakeview’s airshed.

#### 5.1.1.2.6 Low Emitting Woodstoves in New/Existing Houses

Lake County is considering amending its building codes to require minimum “standards” for any wood heating device being installed. This would set minimum standards for any wood heating device being installed through a county building permit.

#### 5.1.1.2.7 DEQ Sustainment Area Rules

DEQ plans to propose and finalize rules that identify areas not meeting the standard, but not formally designated as nonattainment by EPA, as a sustainment area. For an area such as Lakeview, new sources cannot become established and existing sources cannot expand because the area exceeds the PM<sub>2.5</sub> standard already. 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. 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.

#### 5.1.1.3 Potential Future Strategies Considered but Not Addressed At This Time

During the advisory committee meetings and community town hall meetings, additional strategies were identified as potential options for future implementation within the Urban Growth Boundary. These strategies, identified below, were not incorporated for immediate action because they lack current funding, may not be able to be implemented in the next five years, or need additional community approval to implement.

##### 5.1.1.3.1 Woodstove Changeouts

The Town of Lakeview and Lake County hope to conduct additional woodstove changeouts in the area beyond current and future efforts underway. Much of this depends on future funding, but the community is actively involved in working with the Oregon Regional Solutions Team and the Oregon Department of Energy to identify additional sources of funding and resources. If successful, the area would develop woodstove changeouts programs for the approaches such as the following:

- 1) Focusing on renters and lower income residents for future woodstove changeouts. (approximately 30% of the housing in Lakeview is comprised of this population.)
- 2) Total replacement of woodstoves with other heating sources besides wood. Future changeouts would involve replacing an uncertified stove with either a natural gas, electric (i.e. ductless heat pumps), or other non-wood heating system..
- 3) Require all change-outs be replaced with non-wood burning devices relative to their proximity to the monitor.
- 4) Continuing to conduct woodstove changeouts to replace uncertified stoves with a certified stove, pellet stove, or heat pump within the greater Lakeview area.

##### 5.1.1.3.2 Local & County Ordinances to Reduce Emissions from Woodstove Use

The town or county will consider options to further reduce woodstove use in the area. This may include local changes to the existing ordinances to reduce the use of woodstoves in the area. These changes will help reduce the amount of wood smoke that can be emitted into the airshed.

- An example may be potential building code changes to reduce the use of woodstoves such as installing only the very lowest emitting stoves in homes or restrictions on type of stove installation.

##### 5.1.1.3.3 Open Burning

The town or county may consider creating a regional composting facility to provide options for residents to bring their yard debris to the facility instead of conducting open burning. Other options include creating or holding a community clean up day for residents to bring their yard debris to the dump.

##### 5.1.1.3.4 Tax Incentives

Another strategy the town and county hope to investigate and explore includes providing a property tax incentive to replace woodstoves. This could include providing a rebate or tax abatement to any resident who replaces an uncertified stove with an alternative heat source. In order to pursue this strategy, legislative authority would be

needed to provide the tax abatement. The town and county will look into working with local legislators to get a bill introduced in a future legislative session.

#### 5.1.1.3.5 Weatherization Efforts

The committee also identified continued weatherization efforts as future strategies to help reduce woodsmoke. These include a mix of additional tax incentives, amending of building codes, and home sale requirements. The strategies are listed below:

- 1) Increase weatherization and energy efficiency to minimize the time wood is burned.
- 2) Provide tax and/or local incentives for installation of alternative heat/energy systems (geothermal, solar, gas)
- 3) Amend development codes to encourage alternative energy use and discourage wood use
- 4) Building code restrictions on new or remodel over a certain cost
- 5) Local ordinance to require weatherization and insulation measures upon sale of a home.

#### 5.1.1.3.6 Geothermal

Establish a geothermal heating district and use proceeds for incentives for low income connections. Lakeview is blessed with a geothermal resource. Currently the local prison is heated exclusively with geothermal water. There has been serious discussion about developing a geothermal service district. Lakeview received a grant through the ARRA stimulus money program to fund drilling wells and providing geothermal heat to some schools and the hospital. There has been discussion about taking the return water from the geothermal to heat individual homes as a start to the geothermal heating district. Unfortunately, the startup costs are very expensive and the initial installation to the homes is expensive. However, it would pay for itself in the long run and wouldn't emit pollution.

Alternatively, the area could tap into geothermal resources to produce energy that could be stockpiled. The money from the energy produced could be used to purchase heat pumps for any woodstove replacement and also to help subsidize costs for homeowners looking to replace their uncertified devices.

#### 5.1.1.3.7 Natural Gas

Install a natural gas pipeline and establish a company to distribute the natural gas. The Ruby pipeline is approximately five miles south of Lakeview. It has a stub off of the pipeline for further development. Should a company be interested, a natural gas distribution company may want to distribute natural gas to residents of Lakeview. Unfortunately, the utilities that normally distribute natural gas view Lakeview as too small a market. Other alternatives are being explored like partnering with a local industrial source that would like to expand and use natural gas to be the distributor as well. Should natural gas come to Lakeview, it would provide an excellent alternative to wood.

#### 5.1.1.3.8 Additional Suggestions to Help Facilitate Strategies

##### 5.1.1.3.8.1 Woodstove Survey

Complete a survey to better quantify the number of certified and uncertified wood-burning devices. This could include an inventory to identify the different types of devices in the homes and whether they are a sole-source or secondary source of heat.

##### 5.1.1.3.8.2 Wind Turbine Feasibility Study

Consider identifying funding sources to conduct a feasibility study regarding the installation of wind turbines and machines in various locations throughout the Lakeview area.



### 5.1.2 Continued Community Involvement and Strategy Evaluation

The advisory committee will continue to conduct public outreach by keeping community members informed of air quality conditions and educating the community regarding the implementation of any new strategies. The committee also agreed to hold annual meetings to assess the effectiveness of this PM Advance Plan, and determine if additional strategies should be implemented in the event the Lakeview area fails to meet the standard. These check-ins will help the Lakeview area identify whether it will meet the standard by 2019, and if not, the committee will reconvene, identify, and recommend additional strategies that could be implemented to ensure progress towards meeting the standard. Additionally, DEQ in conjunction with the town and county will prepare an annual status report for the local leaders and EPA.

## 6. TECHNICAL ANALYSIS TO SEE IF LAKEVIEW MEETS THE STANDARD

### 6.1 Technical Analysis to Meet the Standard

Technical analysis shows how the Lakeview area will meet the PM<sub>2.5</sub> standard by 2019 through implementation of strategies listed above (provided the stronger strategies are developed and implemented with the broader community outreach component). DEQ used a “proportional rollback/rollforward approach and distance weighting” to conduct the analysis. The analysis shows that future concentrations meet the federal daily standard for PM<sub>2.5</sub> at the monitor.

#### 6.1.1 Determination of Baseline Design Value

Technical analysis started with estimating the baseline concentration, or baseline design value, for PM<sub>2.5</sub>. A design value is the mathematically determined pollutant concentration that describes the air quality status of a given area relative to the level of the National Ambient Air Quality Standards (NAAQS). The design value is based on data from the DEQ Center and M Street monitor at which the PM<sub>2.5</sub> federal reference monitor (FRM – the monitor used to determine attainment with the standard) is located. The base year for the analysis is 2011, and the base monitoring period for constructing the design value includes the years 2009 – 2013. The calculated 2011 baseline design value is 47 µg/m<sup>3</sup> expressed as a 5 year average of the 98% of the data for each year. The calculations on which these results are based summarized in Table 5, below.

Table 4: PM<sub>2.5</sub> values used to calculate baseline design value

Year	PM <sub>2.5</sub> (µg/m <sup>3</sup> )
2009	43
2010	26
2011	36
2012	36
2013	94

Design Value (2011)	47
------------------------	----

In 2013, a significant prolonged winter inversion occurred. During this time period, the estimated 98<sup>th</sup> percentile is 94 ug/m<sup>3</sup> for PM<sub>2.5</sub> and the overall design value is 47 ug/m<sup>3</sup>.

## 6.2 Rollback Model

A rollback/roll forward model assumes a direct linear correlation between emissions and concentrations and that changes in emissions, such as reductions resulting from control strategies, will, in turn, result in corresponding reductions in concentration. As a result, concentrations in a future year (2019) can be predicted based on reductions in emissions, and their corresponding ambient concentrations, from a base year (2011). Rollback is a relatively simple model but depending on the characteristics of the modeling domain and emissions categories it may be just as appropriate as a complex regional grid model. A rollback model analysis is available in Appendix C.

### 6.2.1 Rollback Source Categories

Multiple source categories were used in the model reflecting those source types considered to be significant in the analysis. Because wood heating is the largest PM<sub>2.5</sub> emissions source, based on its percentage of emissions from all sources, and because proposed controls of wood combustion could be selectively applied by type of wood heating appliance, wood heating emissions are defined by specific appliance. Details of wood combustion, the type of heating device used, and the methodologies for estimating their emissions are described in the Emissions Inventory (Appendix A). Modeling for industrial point sources was also conducted and the results are available in Appendix D.

## 6.3 Compliance with the PM<sub>2.5</sub> Standard

### 6.3.1 Applying the Rollback Model

The rollback as used for Lakeview, can predict multiple future year design values based on different modeling scenarios, including changes in the 2011 emissions estimates, and variations in future year emissions as a result of different control reductions and operating scenarios. Table 6 shows the estimated emission reductions from strategies identified by the advisory committee and factoring in emissions from industrial facilities operating at maximum permitted levels (PSELs). The estimated 2019 future year design value is 32 ug/m<sup>3</sup> at the monitor (Table 7).

**Table 5: Design Value for 2019, Utilizing Strategies**

<u>Strategies</u>	Concentration Reduction as a result of Emission Reduction ( $\mu\text{g}/\text{m}^3$ )
<i>Existing Strategies - Ongoing</i>	
Woodstove Changeout Programs (2011-2013)	Included in reduction to 2019
Normal reductions including attrition, new woodstoves, Heat Smart and Wood Stove Changeouts	Assumed in reductions to 2019
<i>New Strategies</i>	
Increased Public Education and Awareness (6%)	4.0
Amend former ordinances - mandatory woodstove curtailment in UGB <sup>9</sup>	10.7
Weatherization of homes	0.4
Prohibiting Open Burning in the UGB during winter heating season	0.5
Prescribed burning agreement with USFS	No credit taken

**Table 6: Design Value for 2011 and 2019 based on Strategies**

	2011 $\mu\text{g}/\text{m}^3$	2019 $\mu\text{g}/\text{m}^3$
Design Value (DV)	<b>47</b>	<b>32</b>

Since the future year 24-hour average concentration levels meet the NAAQS ( $35 \mu\text{g}/\text{m}^3$ ) at the monitor, the attainment of the standard is demonstrated at this location with the application of the current and proposed quantifiable strategies. As mentioned earlier, any high monitored events in the future where the community exceeds the daily standard could put the Lakeview area at risk of not meeting the standard. The 2013 exceedences demonstrate this risk.

<sup>9</sup> Includes changing the advisory threshold for red days to  $30 \mu\text{g}/\text{m}^3$

# 7. PUBLIC INVOLVEMENT

## 7.1 Public Involvement

Development of the Lakeview PM<sub>2.5</sub> Action Plan included a citizen advisory committee, an economic development task force, and three large community (town hall-style) meetings with the community. During the community meetings, the committee solicited input to help identify and select strategies that could be implemented by the community to ensure future compliance with the standard. It also served as a useful tool to for public outreach and involvement to further air quality education and facilitate implementation of any additional strategies.

### 7.1.1 Lakeview and Lake County Air Quality Advisory Committee

DEQ, in collaboration with Town of Lakeview, convened the Lakeview and Lake County Air Quality Advisory Committee to help develop and recommend strategies to keep the Lakeview area from becoming nonattainment for the 24-hour PM<sub>2.5</sub> standard. The committee met in June 2013 and continued to meet for the next year to review data, community values, and pollution reduction strategies with the highest chance of success in meeting the PM<sub>2.5</sub> standard. The committee provided recommendations to the Town of Lakeview and the Lake County Commissioners to include emission reduction measures in ordinances and to DEQ to produce this Action Plan.



The Committee membership includes:

Janine Cannon	Co-Chair
Ken Kestner	Co-Chair
Mike Patrick	Mayor
Ray Simms	Town Manager
Christy Sarina-Prenevost	Town Staff
Jess Brown	Collins Pine Company
Tom Burkholder	New Pine Creek RFPD
Marv Crocker	Citizen at Large
Craig Foster	Lakeview RFPD
Audrey Henry	SCOEDD
Darwin Johnson	Lake County Planner
Tom Rasmussen	BLM
Rob Thornton	Citizen at Large
Mary Wilke	Public Health

# 8. RECOGNITION AND ACKNOWLEDGMENTS

## 8.1 Acknowledgments

The Lakeview community has rallied behind this Action Plan and numerous individuals have made this Action Plan possible. Special appreciation goes to:

- Lakeview and Lake County Air Quality Advisory Committee;
- Lake County Task Force through the Governor’s Regional Solutions Team - In a separate action, DEQ early on, in collaboration with Lake County and the Town, convened the Lakeview Air Quality Task Force, a separate committee that focused on economic issues, to help develop and recommend economic-related strategies to improve Air Quality in Lakeview and the surrounding area. The Task Force met in November 2012 and continued to meet until June 2013 to examine community values, and pollution reduction strategies also. The Task Force identified funding sources, strategies and expertise to improve air quality, weatherization, and educational resources. This information was provided to the Lakeview and Lake County Air Quality Advisory Committee.
- Ray Simms, Mike Patrick, Ken Kestner and staff at the Town of Lakeview and Lake County.

## 8.2 Principal Authors

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## 8.3 Principal Contributors

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Chris Swab	Air Quality Technical Services
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Greg Svelund	Office of Communications, Eastern Region

Lakeview and Lake County Air Quality Advisory Committee

## 8.4 Town of Lakeview Town Council

Mike Patrick, Mayor

Sandra Wenzel, President



Sharon Faulkner  
Mike Warren  
Michael Hughes

Council Member  
Council Member  
Council Member

## 8.5 Lake County Commissioners

Ken Kestner

Dan Shoun

Brad Winters



## 9. Representatives

This plan is acknowledged as a living document and may be changed from time to time but becomes effective on the last date written below:

  
\_\_\_\_\_  
Ken Kestner, County Commissioner  
Lake County

  
\_\_\_\_\_  
Date

  
\_\_\_\_\_  
Mike Patrick, Town Mayor  
Town of Lakeview

  
\_\_\_\_\_  
Date

# Appendix A – Emission Inventory

Emission Inventory Document available upon request

## State of Oregon Base Year & Future Year PM Advance Emission Inventory For Particulate Matter 2.5 Microns and Smaller (PM<sub>2.5</sub>)

### Lakeview Area

Contact:

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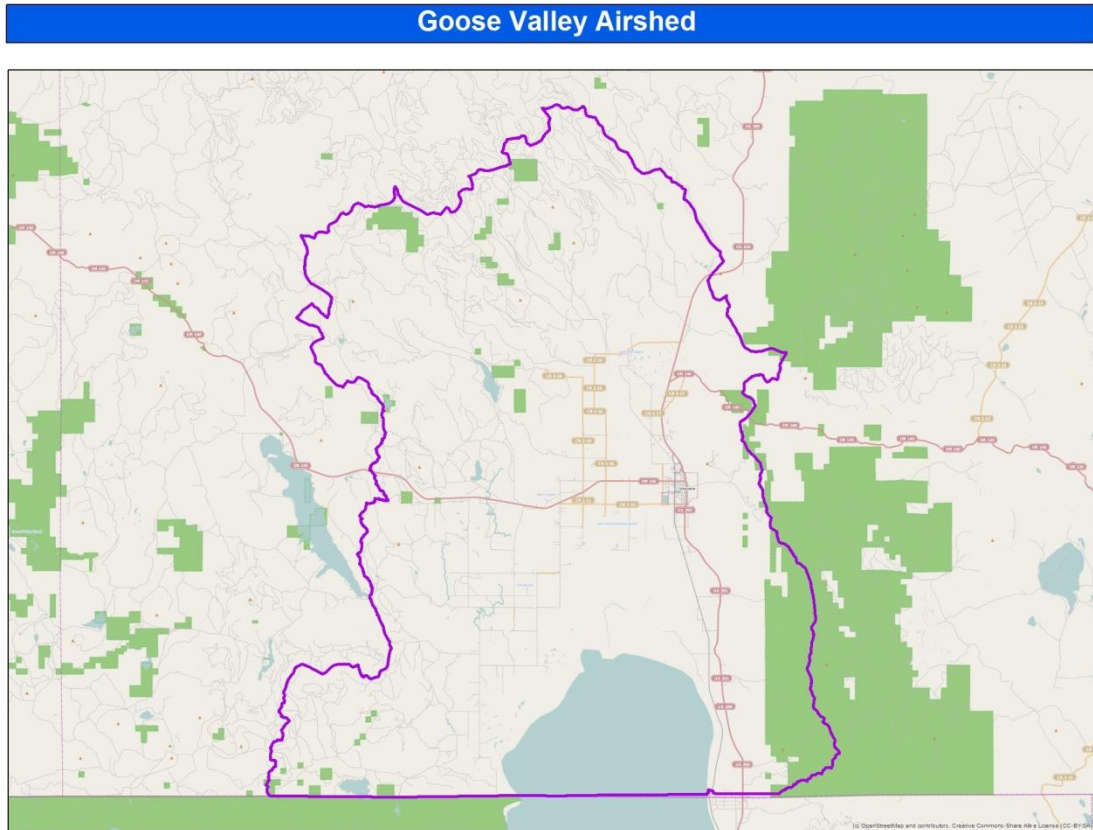
Email: [sakata.rachel@deq.state.or.us](mailto:sakata.rachel@deq.state.or.us)

Phone: 503-229-5659



# Appendix B – Forestry Agreements

The forest Agreements for both the USFS and Collins are included in this Appendix address the area depicted as the Goose Valley Airshed in the map below:





FS Agreement No. 14-MU-11060200-004  
Cooperator Agreement No. \_\_\_\_\_

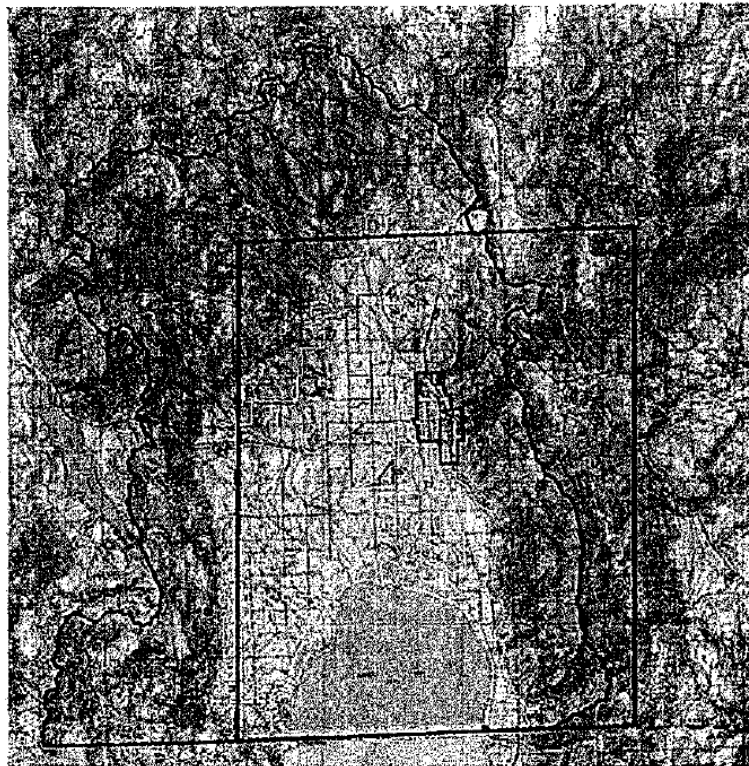
**MEMORANDUM OF UNDERSTANDING**  
**Between The**  
**OREGON Department of Environmental Quality (DEQ),**  
**Lake County,**  
**Town of Lakeview**  
**And The**  
**USDA, FOREST SERVICE**  
**FREMONT-WINEMA NATIONAL FOREST**

This MEMORANDUM OF UNDERSTANDING (MOU) is hereby made and entered into by and between the Oregon Department of Environmental Quality (DEQ), Lake County, and the Town of Lakeview, hereinafter referred to as "Cooperators," and the USDA, Forest Service, Fremont-Winema National Forest, hereinafter referred to as the "U.S. Forest Service."

Objective: The objective of this MOU is to protect the air quality in Lakeview, which is currently in jeopardy of violating the 24-hour National Ambient Air Quality Standard (NAAQS) for fine particulate matter or PM2.5. This MOU is intended to avoid or minimize any smoke impacts in the Lakeview Forest Smoke Management Area (LFSMA) caused by burning on federal lands during the time period of November 1 thru February 28.

Title: Lakeview Smoke Management MOU

- I. **PURPOSE:** The purpose of this MOU is to document the cooperation between the parties to avoid or minimize any smoke impacts in the Lakeview Forest Smoke Management Area (LFSMA) caused by burning on federal lands, in accordance with the following provisions.
- II. **MAP:** The following MAP shows the LFSMA from Thomas Creek to the crest of the Warners also known as the PM Advance Project Area or the Goose Valley Airshed Boundary.



Proposed Lake County  
PMA Advance Project Area

Legend

- Columbia River
- County/State/ANMNS Boundary
- Lake County/Forest Service Boundary
- DOF Special Use/Neighborhood Use
- Lakeview Border



### III. STATEMENT OF MUTUAL BENEFIT AND INTERESTS:

The benefit and interest of the U.S. Forest Service is to continue to reduce fuel on forest land by using prescribed fire to improve forest landscapes by reducing the buildup of fuels that can contribute to high intensity and high severity fires. The Forest will do its part to reduce smoke into the LFSMA.

The memorandum benefit and interest for the Town of Lakeview helps protect individuals health in Lakeview by avoiding additional smoke resulting from prescribed fire from entering Lakeview. Locals are attempting to control emissions from their wood burning appliances and federal land managers are also doing their part to preserve clean air in Lakeview.

The memorandum interest and benefit for Lake County helps protect Lake County citizens that live near the Town of Lakeview by avoiding additional smoke resulting from prescribed fire from entering Lakeview. Like the Town, individuals near Lakeview are also attempting to control emissions from wood burning appliances and they know federal land managers are doing their part to preserve clean air in their locality.

This memorandum helps DEQ achieve the goal of clean air throughout Oregon and especially in near nonattainment areas such as Lakeview. It assists DEQ efforts to



protect public health in Lakeview and to support a renewed public perception that the federal government is responding to the need of clean air in Lakeview. The federal land managers are partners in this endeavor.

By all parties working together, The U.S. Forest Service can still achieve fuels reductions on forest land, while working with the Cooperators to make sure burning is conducted on days that will not affect citizens within the LFSMA. In effect, the DEQ's goal of improving air quality in Lakeview will not be compromised by federal land managers reducing air quality conditions during this designated timeframe. The mutual benefits of clean air in and around Lakeview improve the quality of health for people and improve opportunities for business in Lakeview and Lake County.

In consideration of the above premises, the parties agree as follows:

**IV. TOWN OF LAKEVIEW IN COORDINATION WITH LAKE COUNTY SHALL:**

- A. Provide a daily woodstove and open burning advisory between November 1 and February 28 of each year for the primary purpose of curtailing woodstoves and open burning on poor ventilation days. The advisory will also inform forest, agricultural and Federal burners of the best times to burn during the advisory issuing periods. Town of Lakeview shall provide the advisory information via web <http://www.lakevieworegon.org/airquality.html> and phone 541-947-2029.
- B. Town of Lakeview will work in coordination with federal fire managers on interpreting the advisory and forecasts when there may be burning on federal lands.

**V. OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY SHALL:**

- A. Monitor the air quality in Lakeview and provide the data through their website at <http://www.deq.state.or.us/aqi/index.aspx> and hourly data at <http://www.deq.state.or.us/lab/aqm/rt/rtHourlyConc.aspx>.
- B. Facilitate planning and the actions associated with pollution prevention in Lakeview.
- C. Coordinate with the County and the Federal Land Managers when necessary to help implement this agreement.

**VI. THE U.S. FOREST SERVICE SHALL:**

- A. Conduct burning within and near the LFSMA in accordance with the requirements set forth in the Oregon Smoke Management Plan.



- B. Check the website of the Town of Lakeview to obtain the Green, Yellow, or Red woodstove advisory for that day during the timeframe of November 1 thru February 28.
- C. Monitor each burn, and curtail or extinguish any burn causing smoke impact near the LFSMA, or if a smoke impact is likely based on observation of smoke drift or weather conditions that are likely to result in smoke transport into Lakeview. The decision to curtail or extinguish burning shall be made on a case-by-case basis, taking into account the severity of the smoke impact or expected smoke impact, the ability to effectively control, limit, or extinguish the fire in a manner that does not endanger fire personnel, and the availability of any needed additional resources and personnel. In the event of a smoke impact, the federal land manager shall notify the Town of Lakeview at 541-947-2029 so that appropriate precautions can be made for the general public.
- D. Within the LFSMA: No burning is allowed on Red Woodstove Advisory Days issued by the Town of Lakeview. Burning should be avoided on Yellow Woodstove Advisory Days, however, based on the U.S. Forest Service assessment that no measureable smoke impact will occur within the LFSMA and concurrence from ODF Smoke Management, federal managers may decide to ignite on a Yellow Woodstove Advisory Day. Burning is allowed on Green Woodstove Advisory Days, but also requires an assessment by the U.S. Forest Service that no measureable smoke impact will occur within the LFSMA.
- E. Other LFSMA requirements: On yellow and green days, no pile burning will be conducted if expect the piles will produce significant smoke after the third day. Landowners are responsible for intermittent monitoring for at least three days following ignition to ensure the smoke is not causing an impact to Lakeview. The USFS can waive this provision if it believes that monitoring is unnecessary on a specific burn unit. Any potential mop-up requirements shall be included as an element of the burn plan for units within the LFSMA.

**VII. IT IS MUTUALLY UNDERSTOOD AND AGREED BY AND BETWEEN THE PARTIES THAT:**

- A. PRINCIPAL CONTACTS. Individuals listed below are authorized to act in their respective areas for matters related to this agreement

**Principal Cooperator Contacts:**

<b>Cooperator Program Contact</b>	<b>Cooperator Administrative Contact</b>
Mark W. Bailey ODEQ Air Quality 475 NE Bellevue, Suite 110 Bend, OR 97701 Telephone: 541-633-2006 FAX: 541-388-8283 Email: <a href="mailto:bailey.mark@deg.state.or.us">bailey.mark@deg.state.or.us</a>	Larry Calkins ODEQ AQ Specialist 700 SE Emigrant Ave Suite 330 Pendleton, OR 97801 Telephone: 541-278-4612 FAX: 541-278-0168 Email: <a href="mailto:calkins.larry@deg.state.or.us">calkins.larry@deg.state.or.us</a>

<b>Cooperator Program Contact</b>	<b>Cooperator Administrative Contact</b>
Ken Kestner Lake County Commissioner Chairperson 513 Center Street Lakeview, OR 97630 Telephone: 541-947-6004 FAX: 541-947-5775 Email: <a href="mailto:kkestner@co.lake.or.us">kkestner@co.lake.or.us</a>	Denise Thorsted, Administrative Assistant 513 Center Street : Lakeview, OR 97630 Telephone: 541-947-6003 FAX: 541-947-5775 Email: <a href="mailto:dthorsted@co.lake.or.us">dthorsted@co.lake.or.us</a>

<b>Cooperator Program Contact</b>	<b>Cooperator Administrative Contact</b>
Mike Patrick Town of Lakeview Mayor Address: 525 N. First Street City, State, Zip: Lakeview, OR 97630 Telephone: 541-947-2029 Email: <a href="mailto:lakeviewmayor@yahoo.com">lakeviewmayor@yahoo.com</a>	Ray Simms Lakeview Town Manager Address: 525 N. First Street City, State, Zip: Lakeview, OR 97630 Telephone: 541-947-2029 Email: <a href="mailto:lakeviewtownmanager@yahoo.com">lakeviewtownmanager@yahoo.com</a>

**Principal U.S. Forest Service Contacts:**

<b>U.S. Forest Service Administrative Contact</b>	<b>U.S. Forest Service Program Manager Contact</b>
Nina Hardin 1301 South G Street Lakeview, OR. 97630 Telephone: 541-947-6286 FAX: 541-947-6151 Email: <a href="mailto:nshardin@fs.fed.us">nshardin@fs.fed.us</a>	Barry Shullanberger 1301 South G Street Lakeview, OR. 97630 Telephone: 541-947-6269 FAX: 541-947-6151 Email: <a href="mailto:bshullanberger@fs.fed.us">bshullanberger@fs.fed.us</a>
<b>U.S. Forest Service Administrative Contact</b> Anne Doolin, Grants Management Specialist 63095 Deschutes Market Road Bend, OR. 97701 Telephone: 541-383-5545 FAX: 541-383-5544 Email: <a href="mailto:adoolin@fs.fed.us">adoolin@fs.fed.us</a>	



- B. **NOTICES.** Any communications affecting the operations covered by this agreement given by the U.S. Forest Service or Cooperators is sufficient only if in writing and delivered in person, mailed, or transmitted electronically by e-mail or fax, as follows:

To the U.S. Forest Service Program Manager, at the address specified in the MOU.

To Cooperator, at Cooperator's address shown in the MOU or such other address designated within the MOU.

Notices are effective when delivered in accordance with this provision, or on the effective date of the notice, whichever is later.

- C. **PARTICIPATION IN SIMILAR ACTIVITIES.** This MOU in no way restricts the U.S. Forest Service or Cooperator from participating in similar activities with other public or private agencies, organizations, and individuals.
- D. **ENDORSEMENT.** Any of Town of Lakeview, Oregon Department of Environmental Quality, Lake County's contributions made under this MOU do not by direct reference or implication convey U.S. Forest Service endorsement of Cooperators's products or activities.
- E. **NONBINDING AGREEMENT.** This MOU creates no right, benefit, or trust responsibility, substantive or procedural, enforceable by law or equity. The parties shall manage their respective resources and activities in a separate, coordinated and mutually beneficial manner to meet the purpose(s) of this MOU. Nothing in this MOU authorizes any of the parties to obligate or transfer anything of value.

Specific, prospective projects or activities that involve the transfer of funds, services, property, and/or anything of value to a party requires the execution of separate agreements and are contingent upon numerous factors, including, as applicable, but not limited to: agency availability of appropriated funds and other resources; cooperator availability of funds and other resources; agency and cooperator administrative and legal requirements (including agency authorization by statute); etc. This MOU neither provides, nor meets these criteria. If the parties elect to enter into an obligation agreement that involves the transfer of funds, services, property, and/or anything of value to a party, then the applicable criteria must be met. Additionally, under a prospective agreement, each party operates under its own laws, regulations, and/or policies, and any Forest Service obligation is subject to the availability of appropriated funds and other resources. The negotiation, execution, and administration of these prospective agreements must comply with all applicable law



Nothing in this MOU is intended to alter, limit, or expand the agencies' statutory and regulatory authority.

- F. USE OF U.S. FOREST SERVICE INSIGNIA. In order for Cooperators to use the U.S. Forest Service insignia on any published media, such as a Web page, printed publication, or audiovisual production, permission must be granted from the U.S. Forest Service's Office of Communications. A written request must be submitted and approval granted in writing by the Office of Communications (Washington Office) prior to use of the insignia.
- G. MEMBERS OF U.S. CONGRESS. Pursuant to 41 U.S.C. 22, no U.S. member of, or U.S. delegate to, Congress shall be admitted to any share or part of this agreement, or benefits that may arise therefrom, either directly or indirectly.
- H. FREEDOM OF INFORMATION ACT (FOIA). Public access to MOU or agreement records must not be limited, except when such records must be kept confidential and would have been exempted from disclosure pursuant to Freedom of Information regulations (5 U.S.C. 552).
- I. TEXT MESSAGING WHILE DRIVING. In accordance with Executive Order (EO) 13513, "Federal Leadership on Reducing Text Messaging While Driving," any and all text messaging by Federal employees is banned: a) while driving a Government owned vehicle (GOV) or driving a privately owned vehicle (POV) while on official Government business; or b) using any electronic equipment supplied by the Government when driving any vehicle at any time. All cooperators, their employees, volunteers, and contractors are encouraged to adopt and enforce policies that ban text messaging when driving company owned, leased or rented vehicles, POVs or GOVs when driving while on official Government business or when performing any work for or on behalf of the Government.
- J. U.S. FOREST SERVICE ACKNOWLEDGED IN PUBLICATIONS, AUDIOVISUALS AND ELECTRONIC MEDIA. Cooperators shall acknowledge U.S. Forest Service support in any publications, audiovisuals, and electronic media developed as a result of this MOU.
- K. NONDISCRIMINATION STATEMENT – PRINTED, ELECTRONIC, OR AUDIOVISUAL MATERIAL. Cooperators shall include the following statement, in full, in any printed, audiovisual material, or electronic media for public distribution developed or printed with any Federal funding.

*In accordance with Federal law and U.S. Department of Agriculture policy, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, or disability. (Not all prohibited bases apply to all programs.)*





To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

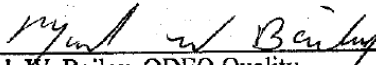
If the material is too small to permit the full statement to be included, the material must, at minimum, include the following statement, in print size no smaller than the text:

*"This institution is an equal opportunity provider."*


- L. TERMINATION. Any of the parties, in writing, may terminate this MOU in whole, or in part, at any time before the date of expiration.
- M. DEBARMENT AND SUSPENSION. Town of Lakeview, Oregon Department of Environmental Quality, Lake County shall immediately inform the U.S. Forest Service if they or any of their principals are presently excluded, debarred, or suspended from entering into covered transactions with the federal government according to the terms of 2 CFR Part 180. Additionally, should Town of Lakeview, Oregon Department of Environmental Quality, Lake County or any of their principals receive a transmittal letter or other official Federal notice of debarment or suspension, then they shall notify the U.S. Forest Service without undue delay. This applies whether the exclusion, debarment, or suspension is voluntary or involuntary.
- N. MODIFICATIONS. Modifications within the scope of this MOU must be made by mutual consent of the parties, by the issuance of a written modification signed and dated by all properly authorized, signatory officials, prior to any changes being performed. Requests for modification should be made, in writing, at least 30 days prior to implementation of the requested change.
- O. COMMENCEMENT/EXPIRATION DATE. This MOU is executed as of the date of the last signature and is effective through 12/31/2018 at which time it will expire, unless extended by an executed modification, signed and dated by all properly authorized, signatory officials.



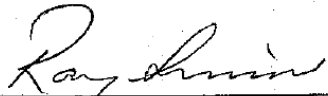
P. **AUTHORIZED REPRESENTATIVES.** By signature below, each party certifies that the individuals listed in this document as representatives of the individual parties are authorized to act in their respective areas for matters related to this MOU. In witness whereof, the parties hereto have executed this MOU as of the last date written below.

  
\_\_\_\_\_  
Mark W. Bailey, ODEQ Quality  
Oregon Department of Environmental Quality

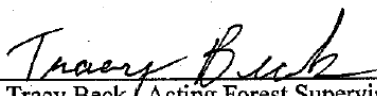
12/17/13  
Date

  
\_\_\_\_\_  
Ken Kestner County Commissioner,  
Lake County

18 Dec. '13  
Date

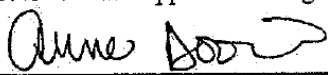
  
\_\_\_\_\_  
Ray Simms, Town Manager  
Town of Lakeview

12/23/13  
Date

  
\_\_\_\_\_  
Tracy Beck, Acting Forest Supervisor  
U.S. Forest Service, Fremont-Winema

1/6/14  
Date

The authority and format of this agreement (14-MU-11060200-004) have been reviewed and approved for signature.

  
\_\_\_\_\_  
ANNE DOOLIN  
U.S. Forest Service Grants Management Specialist

12/12/13  
Date

**Burden Statement**

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0217. The time required to complete this information collection is estimated to average 3 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can contact USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice). USDA is an equal opportunity provider and employer.

Agreement # \_\_\_\_\_

**MEMORANDUM OF UNDERSTANDING  
BETWEEN**

**Oregon Department of Environmental Quality,**

**Lake County,**

**Town of Lakeview,**

**Oregon Department of Forestry**

**And**

**Collins Timber Company, LLC**

**COPY**

This Memorandum of Understanding (MOU) is between the Oregon Department of Environmental Quality (DEQ), Oregon Department of Forestry (ODF), Lake County, Town of Lakeview, and Collins Timber Company, LLC (Collins) herein referred to as "Cooperators".

**Introduction**

Collins is concerned with the air quality in the Goose Lake Basin and is willing to work with the Cooperators to protect and improve air quality. To that end, Collins already complies with the Voluntary Woodstove burn advisory administered by the Town of Lakeview as well as the Oregon Smoke Management Plan as administered by the ODF. This MOU is to memorialize the fact that Collins has implemented these strategies since the 1990's and is willing to continue these same practices acknowledging that prescribed fire, albeit a contributor to fine particulate (PM<sub>2.5</sub>) emissions, currently constitutes approximately only 10 percent of the current estimated Oregon Department of Forestry's Lakeview Special Protection Zone (SPZ) and Urban Growth Boundary's (UGB) PM<sub>2.5</sub> emissions.

**Purpose and Objectives**

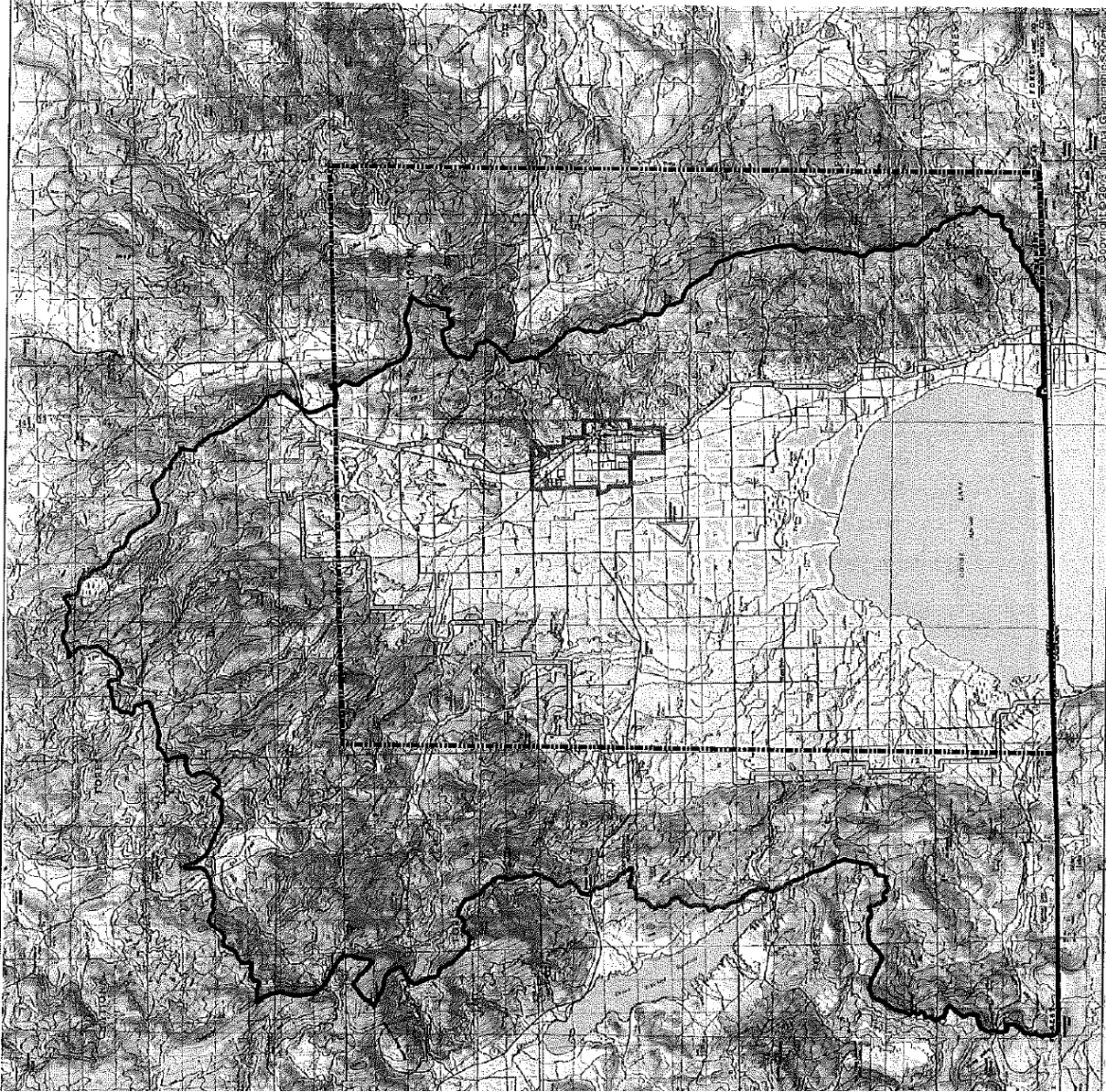
The purpose and objectives of this MOU are to protect the air quality in Lakeview. PM<sub>2.5</sub> concentrations in the Lakeview area have exceeded the 24-hour National Ambient Air Quality Standard for PM<sub>2.5</sub> and the Lakeview area is at risk of being designated by the US Environmental Protection Agency (US EPA) as a US Clean Air Act non-attainment area. This MOU is intended to minimize ground-level smoke impacts into Lakeview caused by prescribed fire on Goose Valley Airshed forest lands during the time period of November 1 thru February 28.

**Lakeview Forest Smoke Management Agreement**

- I. PURPOSE:** The purpose of this MOU is to document the cooperation between the parties to avoid or minimize any significant smoke impacts to Lakeview caused by prescribed fire on forest lands managed by Collins in accordance with the following provisions.
  
- II. MAP:** The following map shows the Lakeview Forest Smoke Management Area (LFSMA) from Thomas Creek to the crest of the Warner Mountains also known as the Goose Valley Airshed Boundary. This boundary is a voluntarily recognized area that encompasses part of the officially recognized SPZ.

# Proposed Lake County PM Advance Project Area

- Legend
- Lakeview JGB, 2011
  - Goose Valley At-Risk Boundary
  - ODF Forestland Classification Boundary
  - ODF Special Protection Zone
  - Lakeview Monitor



The Clatsop  
Union College  
Central Data System  
DATE: 08/20/11  
BY: J. B. BROWN  
PROJECT: PM ADVANCE PROJECT AREA  
SCALE: 1:25,000  
SHEET: 1 OF 1

**III. STATEMENT OF MUTUAL BENEFIT AND INTERESTS:** The benefit and interest of the memorandum for Collins is to provide opportunities to continue to use prescribed fire as a forest management tool while at the same time maintaining air quality. Collins does its part to reduce smoke into Lakeview that Collins has direct control over at ground level.

The benefit and interest of the memorandum for the Town of Lakeview is that it helps protect individuals' health in Lakeview by avoiding additional smoke resulting from slash/pile prescribed fires from entering Lakeview. Residents of Lakeview are attempting to control emissions from their wood burning appliances and forest land managers are also doing their part to preserve clean air in Lakeview.

The benefit and interest of the memorandum for Lake County is that it helps protect Lake County citizens that live near Lakeview by avoiding additional smoke resulting from slash/pile prescribed fires from entering Lakeview. Like the Town, individuals near Lakeview are also attempting to control emissions from wood burning appliances and they know forest land managers are doing their part to preserve clean air in their locality.

This memorandum helps DEQ achieve the goal of clean air throughout Oregon and in areas such as Lakeview where PM<sub>2.5</sub> concentrations have periodically affected air quality. It assists DEQ's efforts to protect public health in Lakeview and to support public perception that Collins is responding to the need of clean air in Lakeview. Collins along with the other Cooperators is a partner in this endeavor.

By all parties working together, Collins can still achieve fuels reductions on their forest land, while working with other Cooperators to make sure prescribed fire within the LFSMA is conducted on days that will avoid or eliminate impacts on Lakeview's air quality. In effect, the DEQ's goal of improving air quality in Lakeview will not be compromised by Collins reducing air quality conditions during this designated timeframe. The mutual benefits of clean air in and around Lakeview improve the quality of health.

**IV. TOWN OF LAKEVIEW IN COORDINATION WITH LAKE COUNTY SHALL:**

- A. Provide daily a timely woodstove and prescribed fire advisories between November 1 and February 28 of each year for the primary purpose of curtailing woodstove use and prescribed fire on poor ventilation days. The advisory will also inform forest, agricultural and others who might use prescribed fire as a tool of the best times to burn during the advisory issuing periods. Town of Lakeview shall provide the advisory information via the Internet at:

<http://www.lakevieworegon.org/airquality.html> and phone 541-947-2029.

- a. Town of Lakeview will coordinate with forest land managers by sharing how Green, Yellow, or Red Woodstove Advisory Days and forecasts have been made.

**V. DEQ SHALL:**

- A. Monitor the air quality in Lakeview and provide the data through their website at <http://www.deq.state.or.us/aqi/index.aspx> and hourly data at <http://www.deq.state.or.us/lab/aqm/rt/rtHourlyConc.aspx>
- B. Facilitate planning and the actions associated with pollution prevention in Lakeview.
- C. Coordinate with the Cooperators when necessary to help implement this agreement.

**VI. COLLINS SHALL:**

- A. Conduct prescribed fire within the LFSMA in accordance with the requirements set forth in the Oregon Smoke Management Plan during the timeframe of November 1 through February 28.
- B. Prior to initiating prescribed fires in the LFSMA, Collins will call or check the website of the Town of Lakeview to obtain the woodstove advisory for that day during the timeframe of November 1 thru February 28.
- C. Monitor each burn within the LFSMA. Burns will be curtailed or extinguished if they are causing or may likely cause a ground level intrusion into Lakeview based on observation of smoke drift or weather conditions that are likely to result in smoke transport into Lakeview. The decision to curtail or extinguish prescribed fire shall be made on a case-by-case basis, taking into account the severity of the smoke impact or expected smoke impact, the ability to effectively control, limit or extinguish the prescribed fire in a manner that does not endanger Collins' field personnel, and the availability of any needed additional resources and personnel.
- D. In the event of a smoke impact to Lakeview, Collins shall notify the Town of Lakeview at 541-947-2029 so that appropriate precautions can be made for the general public.
- E. No new prescribed fire ignitions will be allowed within the LFSMA on Red Woodstove Advisory Days issued by the Town of Lakeview. Prescribed fire ignitions should be avoided on Yellow Woodstove Advisory Days, however, based on Collins assessment that no significant smoke impact will occur to Lakeview and concurrence from ODF Smoke Management, Collins may decide to burn on a Yellow Woodstove Advisory Day within the LFSMA. Prescribed fires may be conducted on Green Woodstove Advisory Days.
- F. On Yellow and Green Woodstove Advisory Days, no prescribed fires will be conducted within the LFSMA if it is expected that the burn will produce significant ground level smoke in Lakeview after the third day. Collins will conduct intermittent monitoring for at least three days following ignition to ensure the smoke is not causing an impact to



Lakeview. ODF can waive this provision if it believes that monitoring is unnecessary on a specific burn unit.

IT IS MUTUALLY UNDERSTOOD AND AGREED BY AND BETWEEN THE PARTIES THAT:

NOTICES. Any communications affecting the operations covered by this agreement given by Collins or Cooperators is sufficient only if in writing and delivered in person, mailed, or transmitted electronically by e-mail or fax, as follows:

- o To Collins, at the address specified in the MOU.
- o To Cooperators, at Cooperators' address shown in the MOU or such other address designated within the MOU.
  
- o Notices are effective when delivered in accordance with this provision, or on the effective date of the notice, whichever is later.

PARTICIPATION IN SIMILAR ACTIVITIES. This MOU in no way restricts Collins or Cooperators from participating in similar activities with other public or private agencies, organizations, and individuals.

ENDORSEMENT. Any of the Town of Lakeview, DEQ, and Lake County's contributions made under this MOU do not by direct reference or implication convey Collins endorsement of Cooperators' products or activities.

NONBINDING AGREEMENT. This MOU creates no right, benefit, or trust responsibility, substantive or procedural, enforceable by law or equity.

The parties shall manage their respective resources and activities in a separate, coordinated and mutually beneficial manner to meet the purpose(s) of this MOU. Nothing in this MOU authorizes any of the parties to obligate or transfer anything of value.

Specific, prospective projects or activities that involve the transfer of funds, services, property, and or anything of value to a party requires the execution of separate agreements and are contingent upon numerous factors, including, as applicable, but not limited to: availability of funds and other resources; administrative and legal requirements (including agency authorization by statute). This MOU neither provides, nor meets these criteria. If the parties elect to enter into an obligation agreement that involves the transfer of funds, services, property, and or anything of value to a party, then the applicable criteria must be met. The negotiation, execution, and administration of these prospective agreements must comply with all applicable law.

TERMINATION. Any of the parties, in writing, may terminate this MOU in whole, or in part, at any time before the date of expiration.

MODIFICATIONS. Modifications within the scope of this MOU must be made by mutual consent of the parties, by the issuance of a written modification signed and dated by all properly authorized, signatory officials, prior to any changes being performed. Requests for modification should be made, in writing, at least 30 days prior to implementation of the requested change.

COMMENCEMENT/EXPIRATION DATE. This MOU is executed as of the date of the last signature and is effective through *12/31/2018* at which time it will expire, unless extended by an executed modification, signed and dated by all properly authorized, signatory officials.

---

**PRINCIPAL CONTACTS.** Individuals listed below are authorized to act in their respective areas for matters related to this agreement.

**Principal Cooperators' Contacts:**

<b>Cooperators' Program Contact</b>	<b>Cooperators' Administrative Contact</b>
Mark W. Bailey, DEQ Eastern Region Air Quality Program Administrator 475 NE Bellevue, Suite 110 Bend, OR 97701 541-633-2006 FAX: 541-388-8283 <a href="mailto:bailey.mark@deq.state.or.us">bailey.mark@deq.state.or.us</a>	Larry Calkins, DEQ Air Quality Specialist 700 SE Emigrant Ave Suite 330 Pendleton, OR 97801 541-278-4612 FAX: 541-278-0168 <a href="mailto:calkins.larry@deq.state.or.us">calkins.larry@deq.state.or.us</a>

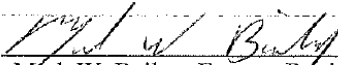
<b>Cooperators' Program Contact</b>	<b>Cooperators' Administrative Contact</b>
Ken Kestner, Lake County Commissioner Chairperson 513 Center Street Lakeview, OR 97630 541-947-6004 FAX: 541-947-5775 <a href="mailto:kkestner@co.lake.or.us">kkestner@co.lake.or.us</a>	Denise Thorsted, Administrative Assistant 513 Center Street Lakeview, OR 97630 541-947-6003 FAX: 541-947-5775 <a href="mailto:dthorsted@co.lake.or.us">dthorsted@co.lake.or.us</a>

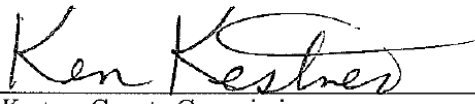
<b>Cooperators' Program Contact</b>	<b>Cooperators' Administrative Contact</b>
Mike Patrick, Town of Lakeview Mayor 525 N. First Street Lakeview, OR 97630 541-947-2029 <a href="mailto:lakeviewmayor@yahoo.com">lakeviewmayor@yahoo.com</a>	Ray Simms, Lakeview Town Manager 525 N. First Street Lakeview, OR 97630 541-947-2029 <a href="mailto:lakeviewtownmanager@yahoo.com">lakeviewtownmanager@yahoo.com</a>


<b>Cooperators' Program Contact</b>	<b>Cooperators' Administrative Contact</b>
Greg Pittman, District Forester ODF 2290 North 4 <sup>th</sup> Street Lakeview, OR 97360 541-947-3311 541-947-3078 <a href="mailto:gpittman@opd.state.or.us">gpittman@opd.state.or.us</a>	Dustin Gustaveson, Unit Forester ODF 2290 North 4 <sup>th</sup> Street Lakeview, OR 97360 541-947-3311 541-947-3078 <a href="mailto:dgustaveson@odf.state.or.us">dgustaveson@odf.state.or.us</a>

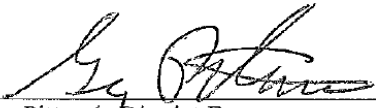
<b>Cooperators' Program Contact</b>	<b>Cooperators' Administrative Contact</b>
Lee Fledderjohann, Resource Manager Collins Timber Company, LLC P.O. Box 1340 Lakeview, OR 97630 541-947-947-2018 ext 27 FAX: 541-947-2832 <a href="mailto:lfledderjohann@collinsco.com">lfledderjohann@collinsco.com</a>	Jess Brown, Environmental Manager Collins Timber Company, LLC 1618 SW First Ave, Suite 500 Portland, Oregon 97201 503-471-2250 FAX: 503-227-5349 <a href="mailto:jbrown@collinsco.com">jbrown@collinsco.com</a>

**AUTHORIZED REPRESENTATIVES:** By signatures below, each party certifies that the individuals represented in this document as representatives of individual parties are authorized to act in their respective areas for matters relating to this MOU. In witness thereof, the parties hereto have executed this MOU as the last date written below:

  
\_\_\_\_\_  
Mark W. Bailey, Eastern Region Air Quality  
Program Administrator, DEQ  
7/25/14  
Date

  
\_\_\_\_\_  
Ken Kestner County Commissioner,  
Lake County  
2 July '14  
Date

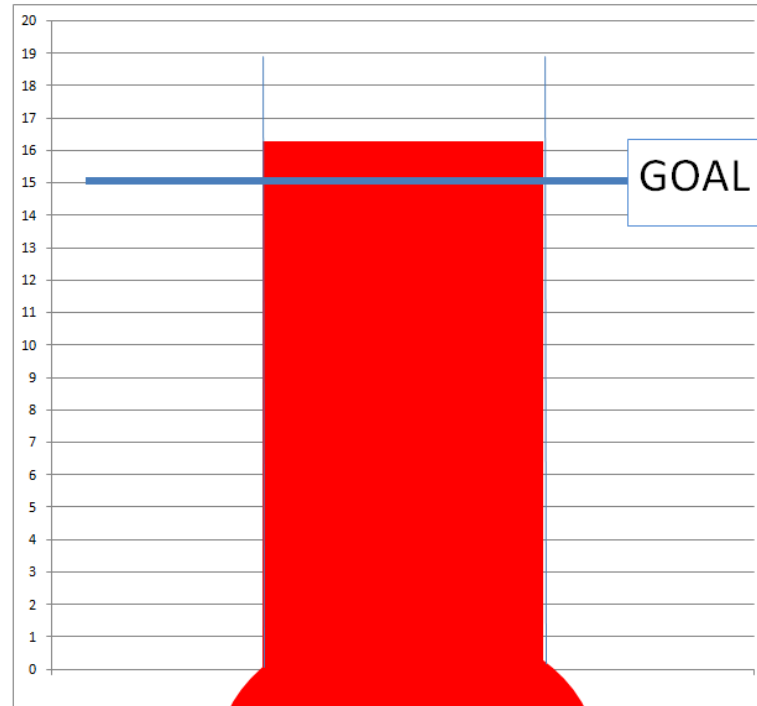
  
\_\_\_\_\_  
Mike Patrick, Town Mayor  
Town of Lakeview  
6-24-14  
Date

  
\_\_\_\_\_  
Greg Pittman, District Forester  
ODF  
7-9-14  
Date

  
\_\_\_\_\_  
Lee Fledderjohann, Resource Manager  
Collins  
7-24-14  
Date

# Appendix C – Rollback Model

#	Strategy	Emission Reduction (ug/m3)	Length of Time (years)	Strategies Used
1	No scenario, no enhanced public education	1	1	1
2	Weatherization of 20 homes	0.3	1	0.3
3	8 woodstove changeouts in 2013	0.2	1	0.2
4	USFS - Collins Agreement	0.1	1	0.1
5	Enhanced Public Education	3.2	1	3.2
6	Mandatory Wood Stove Advisory in UGB	9.9	1	9.9
7	Make County part of UGB same as Town AQ requirements (open burning)	0.5	1	0.5
8	Fall Community Cleanup Event	0.1	1	0.1
9	Minimum Standards for wood heating device installed in County	0.2	1	0
10	Request conformance on open burning outside UGB	0.1	1	0.1
11	Ban uncertified woodstoves except low-income wood as primary	12.4	1	0
12	Lower wood stove curtailment calls to 30 ug/m3 for red days	0.7	1	0.7
13	Ban use of fireplaces in winter heating season	2.1	1	0
14	No fireplaces or woodstoves allowed in new construction	0.1	1	0
15	Only allow lowest emitting woodstoves to be installed in new/existing housing	0.2	1	0.2
16	Incentive program to allow people to have chimney cleanings	0.1	1-5+	0
17	Incentive program for appliance maintenance	0.1	1-5+	0
18	Request Feds to quit issuing Firewood Permits	0.1	1-5+	0
19	Target low income renters for changeouts to alternative heat source	0.1	1-5+	0
20	Target changeouts to alternative source of heat near monitor	0.1	1-5+	0
21	Woodstove replacements with alternative source of heat	0.1	1-5+	0
22	Replace all wood stoves with distillate fuel oil	34.2	1-5+	0
23	Replace all noncertified wood stoves with certified wood stoves	5.3	1-5+	0
24	Replace all noncertified wood stoves with electric	14.6	1-5+	0
25	Replace noncertified stoves for certified wood stoves for renters	0.7	1-5+	0
26	Eliminate all woodstoves and inserts for low-income housing units	12	1-5+	0
27	Building Code changes to reduce wood stove use	0.1	3-5+	0
28	Regional Composting Facility	0.1	3-5+	0
29	Property Tax Incentives - replace stoves with alternative source of heat	0.1	3-5+	0
30	Tax or other incentives - solar, geothermal, gas	0.1	3-5+	0
31	Incentives for heat pump installations	0.1	3-5+	0
32	Industrial Source - Sustainment Area Concept	0.1	3-5+	0
33	Eliminate woodstoves and inserts for renters	11.1	4-5+	0
34	County Ordinance to ban woodstoves installation after 5 years	0.1	5+	0
35	Establish Geothermal District with proceeds for low income	34.6	5+	0
36	Natural Gas pipeline with all homes changed out to Natural Gas	34.6	5+	0
	Replace uncertified stoves with pellet stoves	5.4+		
	Regional Solutions Project woodstove changeouts in UGB (beginning 2015)			
	<b>Total</b>			<b>16.3</b>



- Yellow = Planned activities already implemented
- Red = Planned activities based on ordinance revisions or proposed activity
- Green = Proposed or potential future activities
- Uncolored = Ideas considered but not recommended at this time

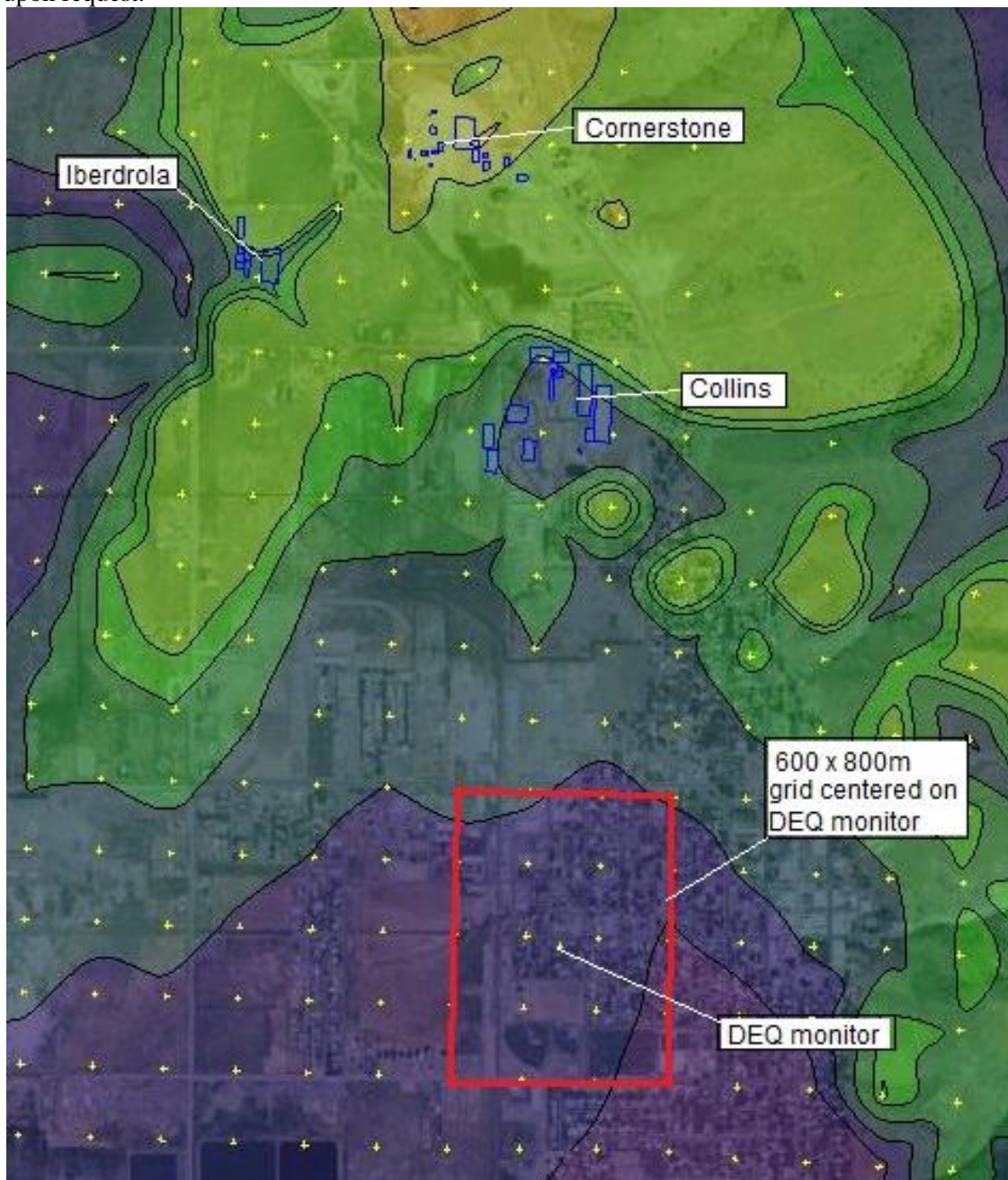
2019 Effective Concentrations																				
Table D Scenarios																				
DEQ		19	20	21	22	23	24	25	26	27	28a	28b	29	30	30a	31	32	33	34	35
ID	Source Category	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3
1	Waste Disposal: Open Burning	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.14	0.66	0.66	0.66	0.66	0.66	0.66	0.14
2	Small Stationary Fossil Fuel Combustion	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09
3	Residential Wood Heating-Primary	18.14	17.05	14.42	9.83	12.15	17.04	16.95	16.01	10.96	0.01	0.18	17.05	11.60	16.73	11.11	16.69	16.94	16.88	16.88
4	Residential Wood Heating-Secondary	18.95	17.81	15.05	10.26	12.69	17.79	17.70	16.72	11.44	0.01	0.18	17.81	12.11	17.47	11.60	17.43	17.69	17.63	17.63
5	Other Burning/Cooking	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
6	Fugitive Dust (road agg piles, sanding, dust)	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
7	Nonroad: vehicles and equipment	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
8	Aircraft	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Rail	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
10	Marine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	On-road Mobile	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	Prescribed Burns-Aermod modeled impacts	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19	1.19
	S1_Permitted: Collins (no boil)+Cornerstone+Iber	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
	S2_Permitted: Collins+Cornerstone	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
	S3_Permitted: Collins (w/ boil)+Cornerstone+Iber	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
	<b>S1 Total</b>	<b>39.8</b>	<b>37.5</b>	<b>32.1</b>	<b>22.8</b>	<b>27.5</b>	<b>37.5</b>	<b>37.3</b>	<b>35.4</b>	<b>25.1</b>	<b>2.7</b>	<b>3.0</b>	<b>37.0</b>	<b>26.4</b>	<b>36.9</b>	<b>25.4</b>	<b>36.8</b>	<b>37.3</b>	<b>37.2</b>	<b>36.7</b>
	Background	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
	<b>Total + Background</b>	<b>44.8</b>	<b>42.5</b>	<b>37.1</b>	<b>27.8</b>	<b>32.5</b>	<b>42.5</b>	<b>42.3</b>	<b>40.4</b>	<b>30.1</b>	<b>7.7</b>	<b>8.0</b>	<b>42.0</b>	<b>31.4</b>	<b>41.9</b>	<b>30.4</b>	<b>41.8</b>	<b>42.3</b>	<b>42.2</b>	<b>41.7</b>
	Net reduction from Strategy	2.2	4.5	9.9	19.2	14.5	4.5	4.7	6.6	16.9	39.3	39.0	5.0	15.6	5.1	16.6	5.2	4.7	4.8	5.3
	Net reduction from Strategy no 6%	2.2	<b>4.5</b>	5.4	14.8	<b>10.0</b>	0.0	0.2	2.1	12.5	34.9	34.5	<b>0.5</b>	11.2	0.7	12.1	<b>0.7</b>	0.2	<b>0.4</b>	<b>0.9</b>
	Reduction as % of DV	4.8%	9.6%	#####	#####	#####	0.1%	0.5%	4.6%	#####	74.2%	73.4%	1.1%	#####	1.4%	#####	1.6%	0.5%	0.8%	1.9%
	<b>S2 Total</b>	<b>40.2</b>	<b>38.0</b>	<b>32.6</b>	<b>23.2</b>	<b>28.0</b>	<b>37.9</b>	<b>37.8</b>	<b>35.8</b>	<b>25.5</b>	<b>3.1</b>	<b>3.5</b>	<b>37.5</b>	<b>26.8</b>	<b>37.3</b>	<b>25.8</b>	<b>37.2</b>	<b>37.7</b>	<b>37.6</b>	<b>37.1</b>
	Background	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

	Total + Background	45.2	43.0	37.6	28.2	33.0	42.9	42.8	40.8	30.5	8.1	8.5	42.5	31.8	42.3	30.8	42.2	42.7	42.6	42.1
	Net reduction from Strategy	1.8	4.0	9.4	18.8	14.0	4.1	4.2	6.2	16.5	38.9	38.5	4.5	15.2	4.7	16.2	4.8	4.3	4.4	4.9
	Net reduction from Strategy no 6%	1.8	4.0	5.4	14.8	10.0	0.0	0.2	2.1	12.5	34.9	34.5	0.5	11.2	0.7	12.1	0.7	0.2	0.4	0.9
	Reduction as % of DV	3.8%	8.5%	#####	#####	#####	0.1%	0.5%	4.6%	#####	74.2%	73.4%	1.1%	#####	1.4%	#####	1.6%	0.5%	0.8%	1.9%

Assumed Reductions in 2019 (ug/m3)						
	Increased Public Education	Mandatory WS Curtailment + 30ug/m3 trigger		Weatherization of Homes	No Open Burning in UGB during Heating Season	
		D23	+D32		D35	- D34
Rollback Scenarios:	D20	D23	+D32	D34	D35	- D34
Component Reductions	4.0	10.0	0.7	0.4	0.9	0.4
<b>Total Reductions</b>	<b>4.0</b>	<b>10.7</b>		<b>0.4</b>	<b>0.5</b>	

# Appendix D – Lakeview Industrial Source Modeling

This figure represents the distribution of modeled impacts from industrial sources in Lakeview. As to be expected, the higher concentrations are located near the facilities about 1 mile to the north of the monitor. Lower concentrations of about 1 ug/m<sup>3</sup> or less, depending on industrial source operations, are estimated for the location of the monitor where the rollback calculation is based. More detailed information on the model can be provided upon request.



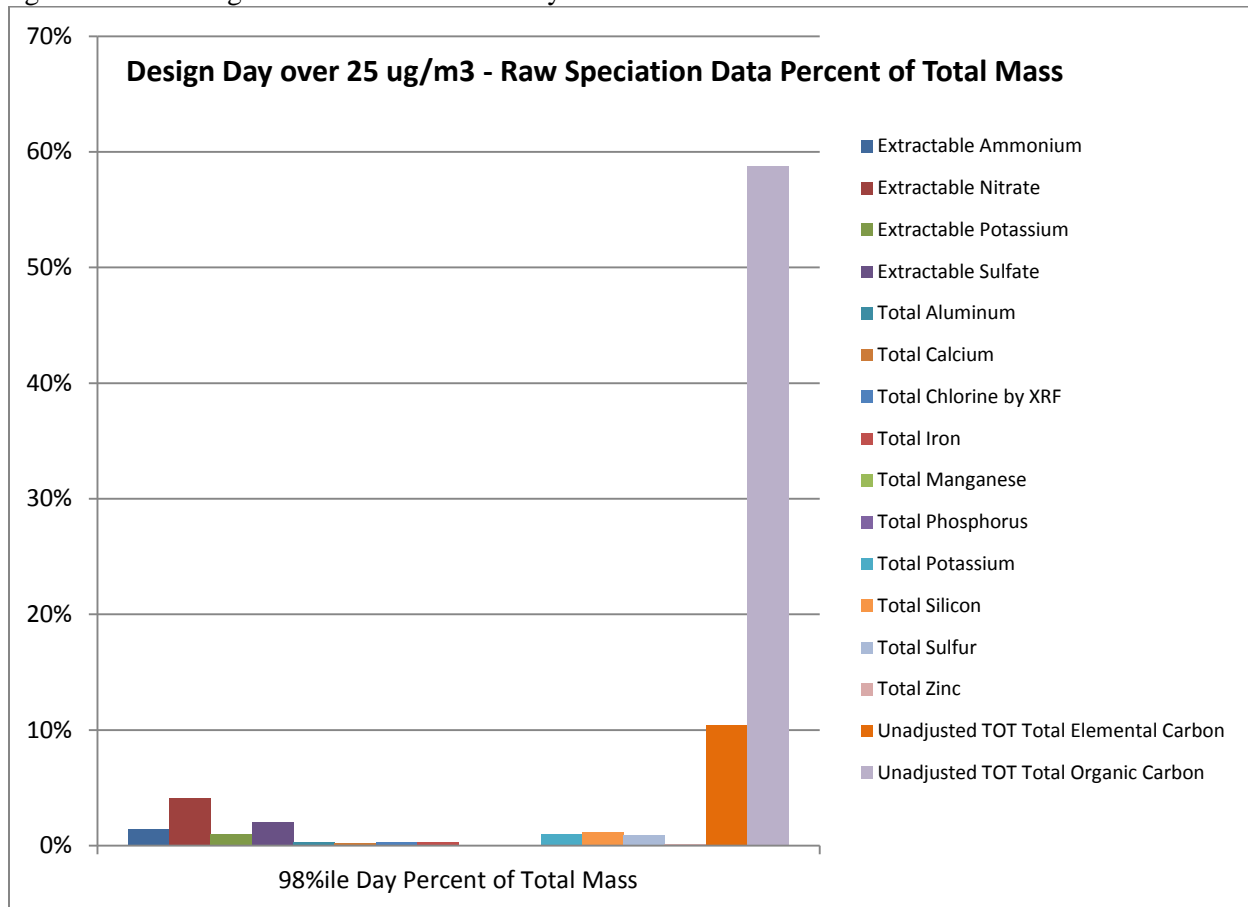


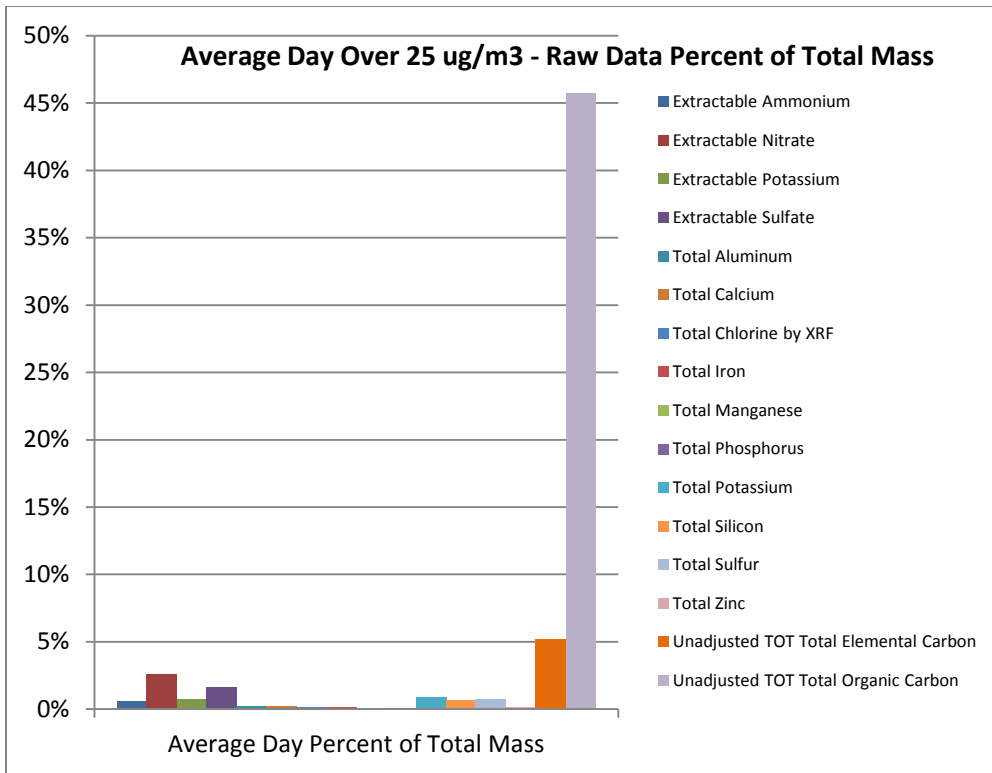
# Appendix E: Speciation Data

Speciation of Data in Lakeview Oregon:

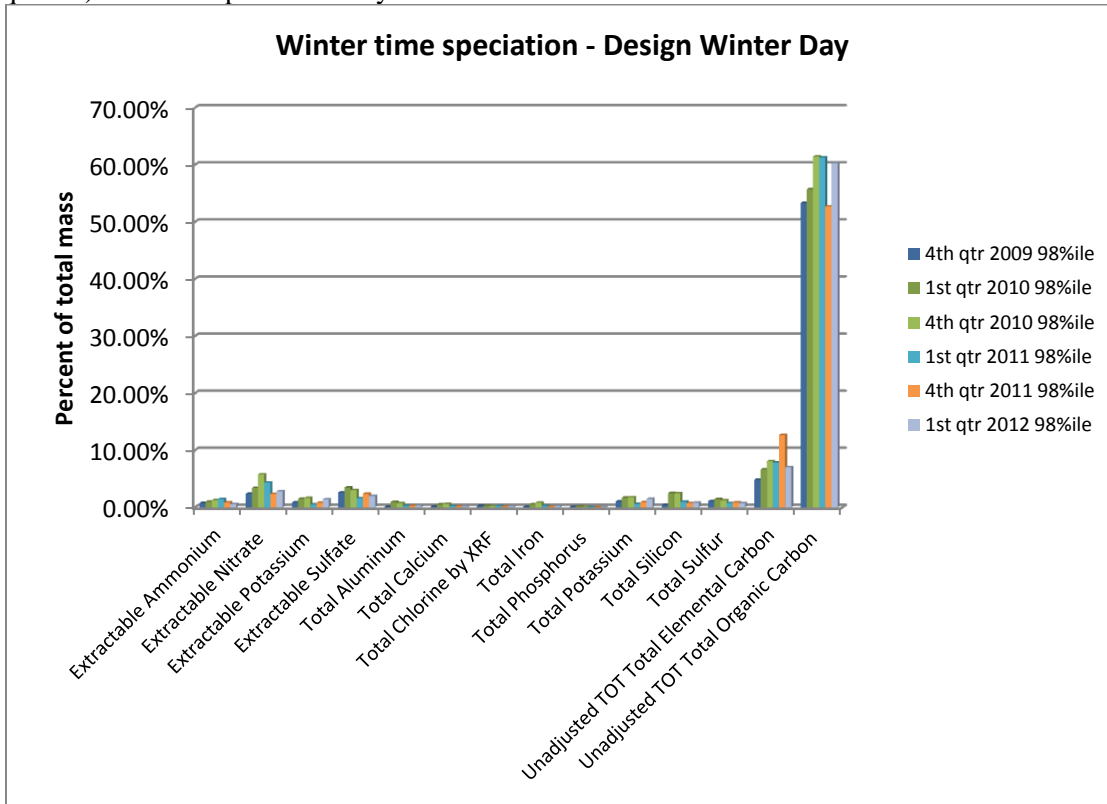
## 1. Raw Data:

Below are charts showing the raw data in percent of total mass of the filter sample by chemical species. DEQ selected all data with mass over 25 micrograms per cubic meter that could represent an exceedance day or a day of potential exceedance to determine the percent of each chemical species that is consistent with a strong smoke signature for the higher mass concentration days.





Also, included is speciation percent by all data in the winter quarter (Jan-March = 1<sup>st</sup> quarter) and Oct – Dec = 4<sup>th</sup> quarter) at the 98<sup>th</sup> percentile day.



2. SANDWICH Methodology:

EPA suggests using the SANDWICH Distribution Method of the data to distribute speciated data to better reflect actual emission results. SANDWICH is an acronym for **S**ulfate, **A**ddjusted **N**itrate, **D**erived **W**ater, **I**nferrred **C**arbonaceous material balance **A**pproach. It is used to estimate PM 2.5 mass composition as if it was measured

by the PM 2.5 FRM (Federal Reference Method). Unfortunately, DEQ did not have available resources to conduct a SANDWICH method.

### 3. Source Apportionment:

However, EPA conducted a source apportionment method on the speciation data and determined that a large contribution was related to wood smoke. Based on the Annual Average PM2.5, EPA found that the Positive Matrix Factorization (PMF) apportionment for the annual average data in Lakeview was as follows.

Annual average PM2.5 (mg m<sup>-3</sup>) and source apportionment results for PMF factors found at Chemical Speciation Network (CSN) monitoring sites Oregon.<sup>10</sup>

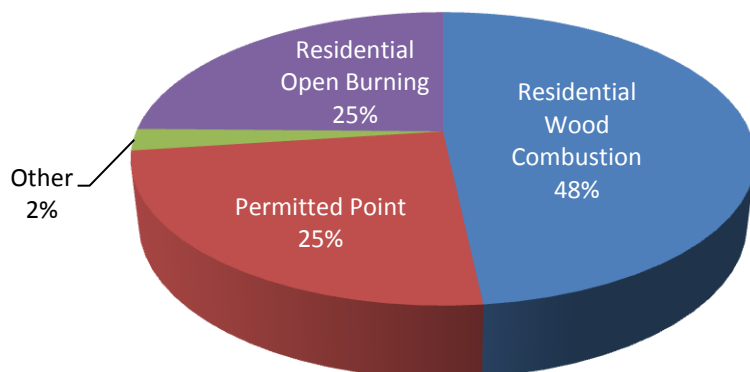
Site name	Number of factors found	Measured average PM2.5	Nitrate rich	Organic pyrolysis (OP) rich	Potassium rich	Soil	Sulfur rich	Urban unidentified	Wood smoke
Lakeview	7	8.5	0.7	1.4	0.6	0.9	0.4	0.5	4.2

### 4. Emission Inventory:

Comparing the various methods to an emission inventory, DEQ found the following results:

Annual Emissions in the Urban Growth Boundary (UGB) for the base year (See map in Action Plan – Figure 3)

## Annual tons/year

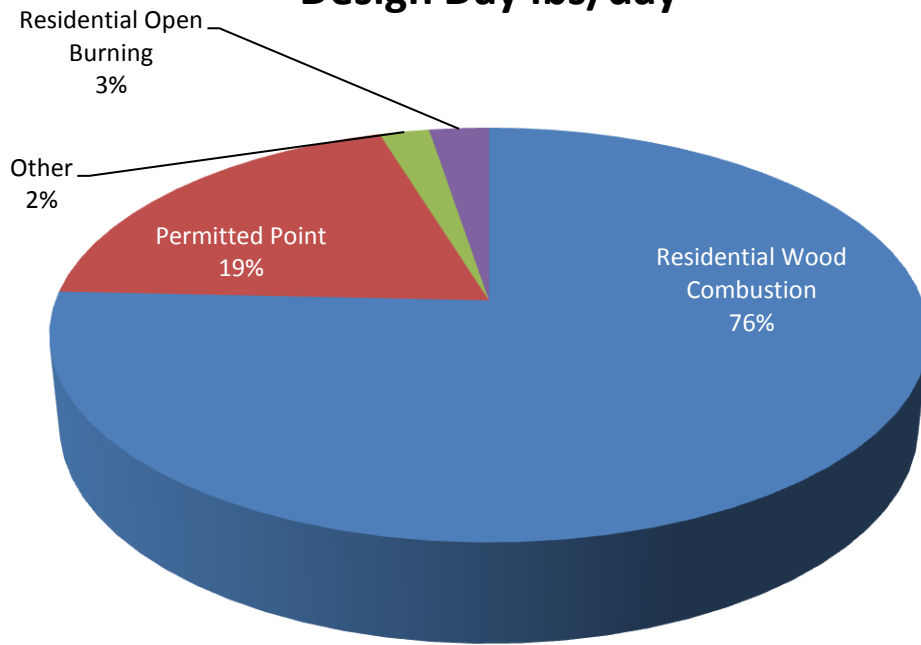


The Design Day that represents the 98%ile day is weighted toward a winter day when it is likely to have poor ventilation and poor air quality.

The Design Day UGB emissions for the base year are as follows:

<sup>10</sup> Robert A. Kotchenruther, 2012, Table 3 – Atmospheric Environment, journal homepage: [www.elsevier.com/locate/atmosenv](http://www.elsevier.com/locate/atmosenv), 68 (2013) 103e111, A regional assessment of marine vessel PM2.5 impacts in the U.S. Pacific Northwest using a receptor-based source apportionment method. (Kotchenruther, U.S. Environmental Protection Agency Region 10, Office of Environmental Assessment, 1200 Sixth Avenue, Suite 900, OEA-095, Seattle, WA 98101, USA).

## Design Day lbs/day



# Appendix F: Ordinance Revisions

Lakeview Oregon:

Placeholder for Open Burn Ordinance and Woodstove Curtailment Ordinance within City Limits

**Resolutions and Ordinances for Lake County Oregon:**

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BEFORE THE BOARD OF COMMISSIONERS  
FOR THE COUNTY OF LAKE

In the Matter of a Resolution )  
To Repeal Ordinance No. 29 ) Resolution No. 14-09-03A  
Prohibiting the Use of Solid Fuel Burning )  
Devices; Providing certain Exemptions )  
and Establishing Enforcement Controls )

WHEREAS, the Lake County Board of Commissioners feel that given that Ordinance No. 29 will be superseded by new Ordinance #105, the Board hereby ordains that Ordinance No. 29 is repealed.

DATED this 2 day of Sept., 2014.

  
\_\_\_\_\_  
Dan Shoun, Chair

  
\_\_\_\_\_  
Bradley J. Winters, Vice-Chair

  
\_\_\_\_\_  
Ken Kestner, Commissioner

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BEFORE THE BOARD OF COMMISSIONERS  
FOR THE COUNTY OF LAKE

In the Matter of a Resolution )  
To Repeal Ordinance No. 30 ) Resolution No. 14-09-03B  
Prohibiting the Burning of Waste and )  
Restricting Open Burning )

WHEREAS, the Lake County Board of Commissioners feel that given Ordinance No. 30 will be superseded by new Ordinance #106, the Board hereby ordains that Ordinance No. 30 is repealed.

DATED this 2 day of Sept., 2014.

  
\_\_\_\_\_  
Dan Shoun, Chair

  
\_\_\_\_\_  
Bradley J. Winters, Vice-Chair

  
\_\_\_\_\_  
Ken Kestner, Commissioner





(g) Yellow Day: An Air Quality Advisory provided by the Town of Lakeview which forecasts increased PM2.5 concentrations over the following 24 hour period. A Yellow Day forecast signifies that average PM2.5 concentrations are expected to reach levels of health concern, but which are not expected to approach 30 µg/m3.

(h) Red Day: An Air Quality Advisory provided by the Town of Lakeview which forecasts average PM2.5 concentrations at levels which are at risk of reaching and/or exceeding 30 µg/m3.

SECTION 3. BURNING OF WASTE: The burning of waste at any time, whether by open burning or in a solid fuel burning device, as defined herein, is prohibited within the Urban Growth Boundary of the Town of Lakeview.

SECTION 4. RESTRICTIONS ON OPEN BURNING: All open burning is absolutely prohibited within the Urban Growth Boundary of the Town of Lakeview from and including November 1<sup>st</sup> through the end of February of the following year. Open burning which is not prohibited by the terms of this ordinance, may be permitted if a permit for the same has been obtained by the Lakeview Fire Department within the Urban Growth Boundary of the Town of Lakeview (see Section 5).

SECTION 5. OPEN BURNING PERMITS: An open burning permit shall only be issued for a Green Advisory Day. A permit shall only be used on the day that it is issued and all open burning shall be completed prior to 5:00 p.m. The Fire Chief of the Town of Lakeview or his designee is hereby authorized to issue such permits to residents of the Town of Lakeview and the surrounding Urban Growth Boundary subject to such reasonable terms and conditions as the Fire Chief or designee, in their sole discretion, shall deem advisable for the protection of the residents of the Town of Lakeview and surrounding Urban Growth Boundary. The terms and conditions of all open burning permits issued shall be subject to those burning conditions as set forth in Section 6 below. The issuance of a permit imposes no liability on the Town of Lakeview for any damage caused by open burning and the sole risk thereof lies with the person obtaining the permit.

SECTION 6. CONDITIONS OF OPEN BURNING PERMIT: Any open burning permit issued pursuant to Section 5 above, whether such permit is issued orally or in written form, shall be subject to the following conditions:

- (a) Waste may not be burned.
- (b) Open burning piles shall not exceed 6 feet in diameter and 4 feet in height, shall have a 6 foot clearance around the pile and shall not be closer than 20 feet from any combustible material.
- (c) Permits will be issued on green days only.
- (d) Open burning must be continuously attended by an adult 18 years of age or older who has immediate access to a pressurized hose.
- (e) All open burning must be commenced and completed between the hours of 8:00 a.m. and 5:00 p.m. on the date the permit is issued.

SECTION 7. ABATEMENT, ENFORCEMENT, AND PENALTIES: Any violation of this ordinance or non-compliance with any of the provisions hereof shall be subject to legal proceedings to abate or enjoin such violation for non-compliance.

In addition to or in lieu of abatement or injunctive proceedings, any violation of this ordinance may be commenced by the issuance of a citation and shall be prosecuted in the Lake County Circuit Court as a Class B Violation pursuant to the provisions of ORS 153.008, ORS 153.012 and ORS 153.018 as now in effect or as may be amended from time to time.

The Town of Lakeview Fire Chief, or his designee, will have primary responsibility for the enforcement of the regulations as contained in this ordinance.

SECTION 8. SEVERABILITY: If any section, subsection, sentence or clause, or any portion of this ordinance is for any reason, held invalid or unconstitutional by a court of competent jurisdiction, such portion shall be deemed a separate, distinct and independent provision and shall not affect the validity of the remaining portion thereof.

SECTION 9. EMERGENCY AND EFFECTIVE DATE: This ordinance and its purposes being necessary for the preservation of public peace, health and safety of Lake County and its inhabitants, an emergency is hereby declared to exist and this ordinance shall be in full force and effect after its passage by the Board of Commissioners for Lake County.

Dated this 2 day of Sept., 2014



Dan Shoun, Chairman



Bradley J. Winters, Vice-Chair



Ken Kestner, Commissioner

BEFORE THE BOARD OF COUNTY COMMISSIONERS  
FOR LAKE COUNTY, OREGON

In the Matter of Prohibiting the Use of Solid Fuel     )  
Burning devices; Providing Certain Exemptions     )     ORDINANCE  
And Establishing Enforcement Controls             )     NO. 105  
Therefore   )

WHEREAS, the health, safety and welfare of the citizens of the Lake County are adversely affected by the deterioration air quality within the Urban Growth Boundary of the Town of Lakeview; and

WHEREAS, wood combustion for space heating produces particulate matter and other pollutants which are injurious to the public health, and are a primary cause of deteriorated air quality within the Urban Growth Boundary of the Town of Lakeview; and

WHEREAS, a mandatory wood burning curtailment ordinance is essential to comply with the provisions of the federal Clean Air Act and assure healthful air quality; now, therefore,

LAKE COUNTY ORDAINS AS FOLLOWS:

SECTION 1. DEFINITIONS:

As used in this ordinance, the following words, except where the context clearly indicates otherwise, mean:

- (a) Air Pollution Alert: a 24-hour period commencing at noon by the Town of Lakeview of a Yellow Day or Red Day Air Quality Advisory.
- (b) Air Quality Advisory: A public announcement to inform Lakeview Urban Growth Boundary residents of forecasted air quality.
- (c) Alternative Heat Source: A heat source other than a Solid Fuel Burning Device, with such heat source being capable of heating a residence in accordance with Oregon Building Code standards.
- (d) Green Day: An Air Quality Advisory provided by the Town of Lakeview which forecasts acceptable air quality for the following 24-hour period.
- (e) Yellow Day: An Air Quality Advisory provided by the Town of Lakeview which forecasts increased PM2.5 concentrations over the following 24 hour period. A Yellow Day forecast signifies that average PM2.5 concentrations are expected to reach levels of health concern, but which are not expected to approach  $30 \mu\text{g}/\text{m}^3$ .
- (f) Red Day: An Air Quality Advisory provided by the Town of Lakeview which forecasts average PM2.5 concentrations at levels which are a risk of reaching and/or exceeding  $30 \mu\text{g}/\text{m}^3$ .
- (g) Person: Any individual, partnership, corporation, company or other association.
- (h) Oregon Certified Wood Stove; A Solid Fuel Burning Device certified by the United States Environmental Protection Agency or the Oregon Department of Environmental Quality as meeting emission performance standards specified in Oregon Administrative Rules, 340, division 262, now in effect or which may be amended from time to time.

- (i) Residence: A building used as a home, dwelling or place of abode.
- (j) Sole Source of Heat: One or more Solid Fuel Burning Devices, which constitutes the only source of heat in a Residence. A Sole Heat Source is one which provides heat to the main living space of the Residence but does not include ancillary heating units in bed and bathroom areas.
- (k) Solid Fuel Burning Device: A device designed for solid fuel combustion so that useable heat is derived for the interior of a Residence and includes, without limitation, solid fuel burning stoves, fireplaces or woodstoves of any nature, combination fuel furnaces or boilers used for space heating which can burn solid fuel. Solid Fuel Burning Devices do not include barbeque devices, natural gas fire and artificial fireplace logs or pellet stoves.
- (l) Warning: An official notification that a person has been found by the Town of Lakeview or Lake County to be burning on a non-authorized day.

## SECTION 2: OPERATION OF SOLID FUEL BURNING DEVICE PROHIBITION:

- (a) The operation of a Solid Fuel Burning Device within the Urban Growth Boundary of the Town of Lakeview during an Air Pollution Alert Period shall be prohibited unless an exemption has been granted by the Town of Lakeview pursuant to Section 3 below. A rebuttal presumption of a violation for which a warning or citation shall be issued shall arise if smoke is being discharged through a flue or chimney at any time during an Air Pollution Alert Period. Any person residing in the premises who is over the age of 18 shall be presumed to be the violator unless rebutted by contrary evidence.
- (b) Visible smoke emissions created during a ten (10) minute start-up period.
- (c) On or after two years from the effective date of this ordinance, no property owner shall rent or lease a Residence unless the same is equipped with an Alternative Heat Source. If the owner violates this subsection, the tenant shall not be charged with a violation thereof.

## SECTION 3. EXEMPTIONS FROM PROHIBITION:

It shall be permissible for a Residence to operate a Solid Fuel Burning Device during a Red or Yellow Day when the head of that household has previously obtained from the Town of Lakeview Air Quality office an annually issued exemption to operate the same. Exemptions are issued with conditions of operation by the Town of Lakeview authorities for those residing in the Urban Growth Boundary. Operating conditions for the burning in these devices may include but not be limited to the type of fuel used in the device, limitations for timing or hours of use, and device operating requirements to limit emissions. Exemption availability shall be limited to the following conditions:

- (a) Sole Source: An exemption may be issued to the heads of households who sign a sworn statement declaring their reliance on a Solid Fuel Burning Device as the sole device providing heat for the main living space of their Residence. As a condition of the exemption, the head of the household shall allow a representative of Lakeview to verify that there is no other viable heat source other than a solid fuel burning device by granting access to the residence. The availability of this exemption shall expire annually on October 1.
- (b) Economic Need: An exemption for economic need to operate a Solid Fuel Burning Device may be granted to heads of households who otherwise qualify under the Sole Source exemption if the head of household can show that the total family income is less than 80% of the median income level for the Town of Lakeview as established by the Federal Department of Housing and Urban Development (<http://www.huduser.org/portal/datasets/il.html> or updated website).

(c) Oregon Certified Wood Stoves: An exemption may be issued to the heads of households for the operation of an Oregon Certified Wood Stove in a Residence during a Yellow Day Air Quality Advisory. However, the availability of this exemption is strictly contingent upon the Oregon Certified Wood Stove producing no visible smoke. The operation of an Oregon Certified Wood Stove shall be prohibited during a Red Day Air Quality Advisory, unless some other applicable exemption has been granted.

#### SECTION 4. INSTALLATION OF FIREPLACES AND WOODSTOVES:

For the installation of solid fuel burning device in new construction requires an alternative heat source within the Lakeview Urban Growth Boundary. In addition, any solid fuel burning device installed into an existing commercial facility or dwelling or in newly constructed facilities or dwellings, the device must be certified and meet certain emission requirements within the Lakeview Urban Growth Boundary.

(a) For newly constructed single family dwellings or multiple family dwellings, an additional alternative heat source, sufficient for home heating, is required should a solid fuel burning device be installed in the same dwelling. The home heating system must be fueled by propane, diesel, or other similar fuel, geothermal, or electric device with enough capacity to heat the dwelling from minus ten degrees Fahrenheit at ambient temperature to 68 degrees Fahrenheit; and

(b) A solid fuel burning device being installed in any single family dwelling, commercial facility or multiple family dwelling must meet certain emission requirements. Wood stoves must be certified and meet a 2.0 grams per hour emission limitation or current federal EPA NSPS standards for wood stoves whichever is less. Any newly constructed fireplaces must comply with fireplace ASTM standards. Any retrofitted fireplace must meet fireplace ASTM standards. Fireplaces must use the ASTM international standard test method E2558, and meet 5.1 grams per kilogram specifications.

#### SECTION 5. ENFORCEMENT AND PENALTIES:

Any violation of this Ordinance or non-compliance with any of the provisions hereof shall be subject to legal proceedings to abate or enjoin such violation for non-compliance.

In addition to or in lieu of abatement or injunctive proceedings, any violation of this Ordinance may be commenced by the issuance of a citation and shall be prosecuted in the Lake County Circuit Court as a Class B Violation pursuant to the provisions of ORS 153.008, ORS 153.012 and ORS 153.018 as now in effect or as may be amended from time to time.

The Town's Manager, or his designee, will have the primary responsibility of surveying the community for non-compliance and issuing warning letters. The Town's Chief of Police, or his designee, will have primary responsibility for the formal enforcement of the regulations as contained in the first paragraph of this Section and the remainder of this Ordinance.

#### SECTION 6. SEVERABILITY:

If any section, subsection, sentence or clause, or any portion of this Ordinance is, for any reason, held invalid or unconstitutional by a court of competent jurisdiction, such portion shall be deemed a separate, distinct and independent provision and shall not affect the validity of the remaining portion thereof.

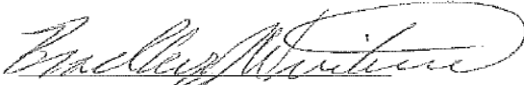
SECTION 7. EMERGENCY AND EFFECTIVE DATE:

This ordinance and its purposes being necessary for the preservation of public peace, health and safety of Lake County and its inhabitants, an emergency is hereby declared to exist and this ordinance shall be in full force and effect after its passage by the Board of Commissioners for Lake County.

Dated this 2 day of Sept., 2014



Dan Shoun, Chairman



Bradley J. Winters, Vice-Chair



Ken Kestner, Commissioner