Grants Pass PM10 Limited Maintenance Plan

Submitted to: U.S. Environmental Protection Agency

By: State of Oregon Department of Environmental Quality

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State of Oregon
Department of Environmental Quality

State Implementation Plan Revision
Grants Pass PM_{10} Limited Maintenance Plan

A Limited Maintenance Plan for Particulate Matter (PM_{10}) The Grants Pass Urban Growth Boundary

State of Oregon Clean Air Act Implementation Plan

Adopted by the Environmental Quality Commission on April 16, 2015

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Executive Summary

The City of Grants Pass and surrounding area currently meets the federal standard for Particulate Matter 10 microns and smaller (PM_{10}). This State Implementation Plan (SIP) revision explains how this area will continue to meet this standard through 2025. EPA sets standards for particle pollution because smaller particles such as soot, dust, and unburned fuel can penetrate deeply into the lungs and cause health problems. The current 24-hour federal health standard for PM_{10}, set in 1987, is 150 micrograms per cubic meter ($\mu g/m^3$). To maintain compliance with the standard, monitored levels should not exceed the daily standard more than once a year over three consecutive years.

The Grants Pass area, defined as the Urban Growth Boundary (UGB), last violated the daily standard in 1988. Smoke from woodstoves and fireplaces were the major contributing sources. As a result of this violation, EPA formally designated Grants Pass as a moderate nonattainment area in 1990, and an attainment plan was adopted, containing PM_{10} control measures for woodstoves, open burning, forestry burning, industrial growth, and others. The area was reclassified to attainment after DEQ adopted the PM_{10} maintenance plan in 2002 (see 68 FR 61111). This plan was designed to maintain compliance with the daily PM_{10} standard through the year 2015. A second maintenance plan is now required, and once approved by EPA, will fulfill the final maintenance planning requirements under the Clean Air Act.

The 2002 PM_{10} maintenance plan allowed for some future growth while ensuring continued protection of public health. It replaced the most stringent emission control requirements for new or expanding major industry with some flexibility for industrial growth, established a PM_{10} emissions budget for future transportation projects, and a contingency plan in case of an exceedance or violation of the PM_{10} standard.

Grants Pass qualifies for a Limited Maintenance Plan (LMP), which is an option EPA provides for areas at low risk of exceeding the PM_{10} standard (see EPA's 2001 Wegman Memo, Appendix A). The design value is 49 $\mu g/m^3$ (2004-2008) for the most recent 5-year average of PM_{10} monitoring data, and is the same value for most recent 5 years (2009-2013) based on estimated PM_{10} levels, which is well below the daily standard. According to the LMP guidance, EPA will consider the maintenance demonstration satisfied if the monitoring data shows the design value is at or below 98 $\mu g/m^3$ for the 24-hour PM_{10} standard, and if the area expects only limited growth in on-road motor vehicle emissions. The Grants Pass UGB passes the Motor Vehicle Regional Analysis outlined in the Wegman Memo.

PM_{10} monitoring began in Grants Pass in 1987, and was removed in 2008 (with EPA approval) due to measured PM_{10} levels being well below the 24-hour federal health standard for over 10 years.[1] Since then a surrogate method for estimating PM_{10} levels has been used based on $PM_{2.5}$ monitoring and applying an established correlation between PM_{10} and $PM_{2.5}$. Under the Grants Pass LMP, DEQ has committed to continue operating the $PM_{2.5}$ monitor and estimating PM_{10} levels in order to to demonstrate continued compliance with the PM_{10} NAAQS. Should it become necessary to remove the $PM_{2.5}$ monitor during the period of the LMP, DEQ will estimate

[1] See Appendix D: DEQ Report: Justification for Discontinuation of Monitoring in Carbon Monoxide and PM_{10} Maintenance Areas, October 2011.

PM_{10} levels using a beta attenuation mass (BAM) monitor, approved by EPA as a Federal Equivalent Method for measuring PM_{10}, in order to track PM_{10} levels for the remainder of the limited maintenance plan. EPA approval will be obtained prior to this change. To quantify PM_{10} emission sources in Grants Pass, the EPA 2011 National Emission Inventory (NEI) was used for this plan.

The control and contingency measures from the first Grants Pass PM_{10} maintenance plan remain in place. To qualify for the LMP approach, these measures must remain unchanged. The control strategies include a residential woodstove curtailment program, ban on the use of uncertified woodstoves, BACT controls for large new or expanding industrial sources, outdoor open burning restrictions, and prescribed forestry burning smoke management protection. As noted in the Wegman Memo, while federal conformity rules still apply, an emissions budget and regional emissions analysis will no longer be needed.

Plan Structure

This SIP revision includes the compliance history for Grants Pass and describes how the area met and will continue to meet the standard.

This document is organized as follows:

Section 1 – Introduction. Describes the purpose of this second maintenance plan, and summary on the PM_{10} standard.

Section 2 – Geographic Area. Describes the geographic area covered by the maintenance plan,

Section 3 – History of the PM_{10} Problem. Summarizes Grants Pass PM_{10} compliance history and past monitoring PM_{10} data and trends.

Section 4 – Tracking Current PM_{10} Levels in Grants Pass. Shows how future PM_{10} monitoring will take place, using the correlation of PM_{10} to $PM_{2.5}$, and justification for using this surrogate monitoring method.

Section 5 – Limited Maintenance Plan Option. Describes the criteria an area must meet to qualify for this option and how Grants Pass qualifies.

Section 6 – Emission Inventory. Includes historical information on the most significant PM_{10} emission categories from the original maintenance plan and an updated inventory on these categories.

Section 7 – Continuing Control Measures. Lists the measures that were in the original maintenance plan, and how these measures will be continued under this LMP.

Section 8 – Contingency Plan. Describes the contingency plan should a violation occur in the future.

Section 9 – Commitment to Continued Monitoring and Verification of Continued Attainment. Describes how monitoring will be continued and how compliance will be confirmed.

Appendices – Supporting documentation for this LMP.

1. Introduction

This State Implementation Plan revision explains how the Grants Pass PM_{10} maintenance area, as defined in OAR 340-204-0010 (the Grants Pass UGB) will continue to meet the National Ambient Air Quality Standard (NAAQS) for particulate matter ten microns or smaller (PM_{10}) through 2025. This plan represents a "limited" maintenance plan, developed in accordance with the federal Clean Air Act and the policies of the U.S. Environmental Protection Agency (EPA) (see Appendix A "Wegman Memo").

The Clean Air Act requires EPA to set air quality standards to protect public health for six common air pollutants, including particulate matter. On July 1, 1987, EPA revised the particulate matter NAAQS from total suspended particulate (TSP) to PM_{10}, or particulate matter that is ten microns is size or less. Particulate in this size range can be inhaled deeply into the lungs where they can remain for weeks to years and aggravate respiratory conditions, such as bronchitis, asthma, emphysema, and similar diseases. Health effects caused by particulate matter vary based upon the size, concentration, and chemical composition of the particles. In addition, there may be several potential carcinogens present on particulate matter. Of particular concern are the condensed organic compounds released from low temperature combustion processes such as wood stoves. Sensitive groups that appear to be at greatest risk to these effects include the elderly, individuals with cardiopulmonary disease, and children.

EPA established the PM_{10} standard at 150 micrograms per cubic meter ($\mu g/m^3$) for the 24-hour average and $50\mu g/m^3$ for the annual average. If an area is in violation of the standard, EPA designates it as a nonattainment area. State and federal restrictions are placed on nonattainment areas as needed to improve air quality and meet standards.

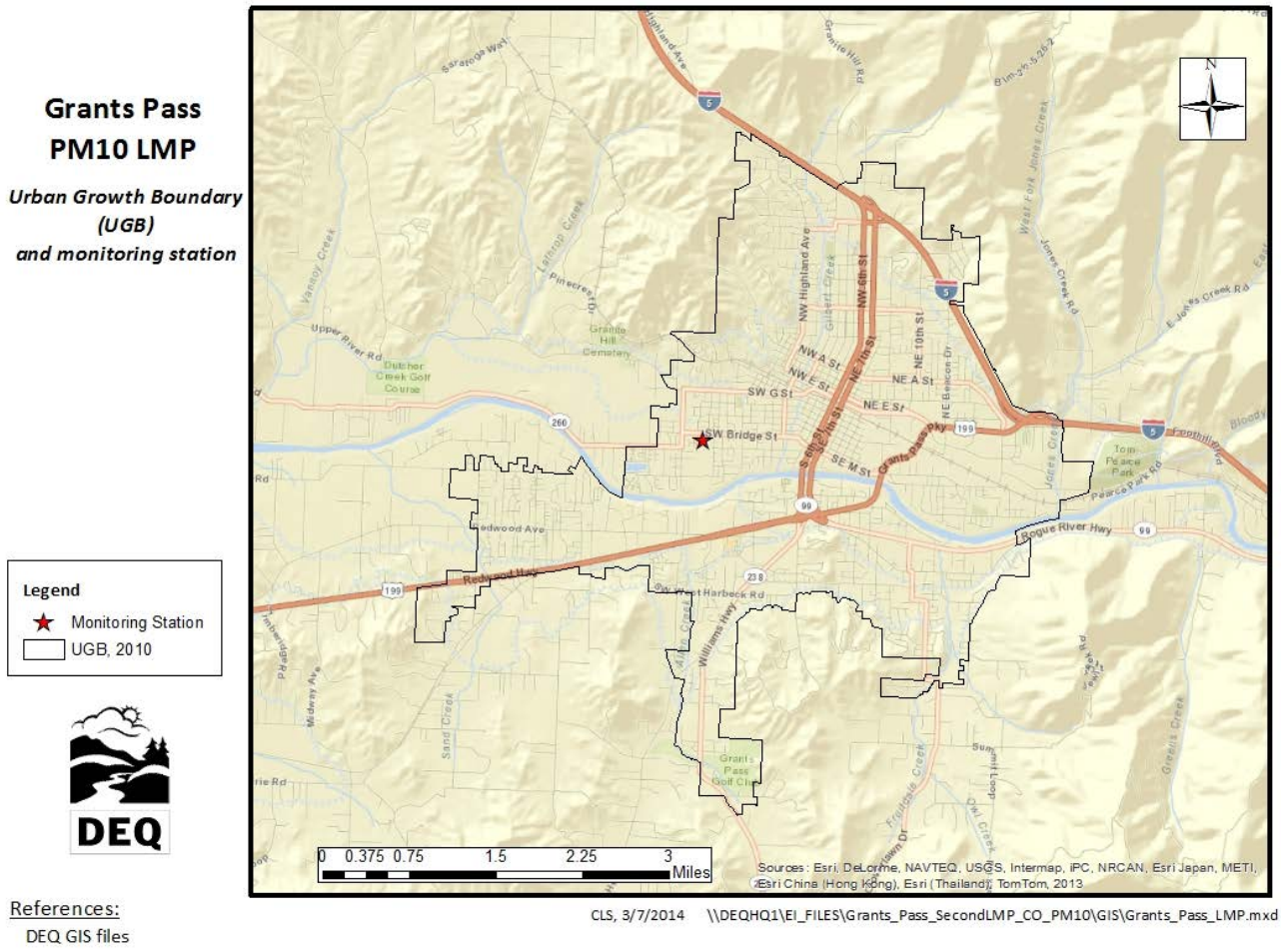
In addition to the PM_{10} standard, EPA adopted the $PM_{2.5}$ standard in 1997, for smaller or fine particulate matter 2.5 microns in size or less, since the smaller inhalable particles have been found to pose a greater health risk. This standard is set at 35 $\mu g/m^3$ for the 24-hour average and $12\mu g/m^3$ for the annual average. Grants Pass has never violated the $PM_{2.5}$ standard.

2. Geographic Area

The City of Grants Pass is located in southwestern Oregon, on the western side of the Cascade Mountains, in the Rogue Valley, northwest of Medford and along the Rogue River. The city is approximately 11 sq. miles in area, and the US Census 2013 population was 35,076. The surrounding hills can trap air pollution under stable meteorological conditions (inversions). These conditions exist most frequently during the late fall and winter and are associated with the majority of the particulate matter violations.

Figure 1 depicts the Grants Pass UGB, which is the geographic area subject to this limited maintenance plan. The map also shows the location of the Grants Pass Parkside School Air Quality Monitoring Station (2002-2008), located at the corner of SW Wagner and M streets, at an elevation of 277 meters (801 ft).

Figure 1. Grants Pass UGB and location of the Parkside School PM_{10} Monitor



3. History of PM_{10} Problem in Grants Pass

DEQ began monitoring PM_{10} in Grants Pass in 1987. The monitor was located at 11th and K Streets in downtown Grants Pass for 14 years, until 1999. A second PM_{10} monitor was located at 720 NE 11th Street from 1993 to 1999. Due to the loss of property access, both monitors were removed in 1999 and a new monitor was established at the sewage treatment plant at 1200 SW Greenwood Ave. This monitor was moved in 2002 to Parkside School at SW Wagner and M streets. In 2008, that monitor was permanently removed with EPA approval, due to very low PM_{10} levels being measured and resource/budget considerations.[2] Prior to removal, in 2006 a $PM_{2.5}$ monitor was co-located at Parkside School with the PM_{10} monitor, from which estimated PM_{10} values could be derived. Since then, this $PM_{2.5}$ monitor and a continuous non-FRM monitor (nephelometer) have been in operation.

[2] See Appendix D: DEQ report "Justification for Discontinuation of Monitoring in Carbon Monoxide and PM10 Maintenance Areas", October 2011

A violation of the 24-hour PM_{10} standard occurs when there are more than three exceedances of the standard within three years. The highest 24-hour PM_{10} concentration recorded in Grants Pass occurred in 1987 at a level of 268 $\mu g/m^3$. There were three exceedances of the 24-hour standard in that year. By the early 1990's, maximum levels were closer to the public health standard, and there have been no violations since 1987. Grants Pass has never violated the annual PM_{10} standard of 50 $\mu g/m^3$.

In 1987, Grants Pass was categorized as a "Group 1 Planning Area" by EPA for violating the 24-hour PM_{10} standard, based on a design value of 171 $\mu g/m^3$. In 1990, EPA formally designated Grants Pass as a moderate nonattainment area for the 24-hour standard. The UGB was established at that time as the PM_{10} nonattainment boundary.

Monitoring data shows that Grants Pass area has been in attainment of the 24-hour standard since 1989. In 2003, the area was reclassified to attainment for the 24-hour PM_{10} standard, when EPA approved the first maintenance plan designed to maintain compliance with the 24-hour PM_{10} standard through the year 2015 (see 68 FR 61111). The maintenance plan allowed for some future growth while ensuring continued protection of public health. It replaced the most stringent emission control requirements for new or expanding major industry with some flexibility for industrial growth, established a PM_{10} emissions budget for future transportation projects, and a contingency plan in case of an exceedance or violation of the PM_{10} standard. This limited maintenance plan is the second and final maintenance plan required, designed to ensure compliance through 2025.

The maximum 24-hour PM_{10} concentrations measured for the years 1987 to 2008 is provided in Table 1. The trend in PM_{10} concentrations over the same time period is shown in Figure 2, using the second highest 24-hour PM_{10} concentration rather than the maximum, based on how compliance with the standard is determined.[3]

Table 1. Grants Pass Maximum 24-hour PM_{10} Highest Values 1987-2013

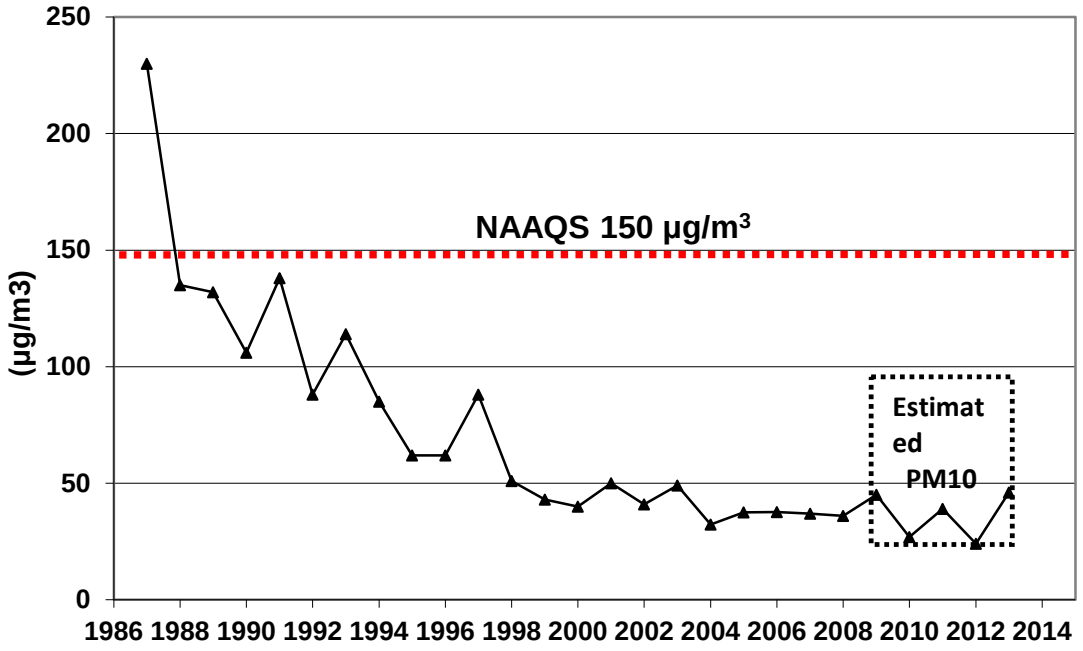
Year	Max PM_{10} $\mu g/m^3$	Max date
1987	268	09/06
1988	136	01/27
1989	151	01/27
1990	113	01/20
1991	141	01/03
1992	104	11/12
1993	132	12/27
1994	92	02/01
1995	77	11/04
1996	65	11/12
1997	89	01/15
1998	62	12/23
1999	43	11/11

[3] The PM_{10} standard allows one exceedance per year at any given location (averaged over a consecutive three-year period).

2000	43	01/29
2001	55	11/12
2002	45	11/09
2003	56	11/14
2004	36	02/12
2005	48	07/27
2006	39	12/31
2007	41	02/05
2008	43	06/29
estimated PM_{10} using $PM_{2.5}$ data		
2009	49	11/09
2010	46	12/04
2011	41	12/23
2012	25	01/04
2013	111*	08/02
2013	45	11/24

*wildfire smoke impact

Figure 2. Grants Pass PM_{10} Trend 1987-2013
2nd highest 24-Hr Average



Second Highest Value used for showing compliance with PM10 Standard

4. Tracking Current PM_{10} Levels in Grants Pass

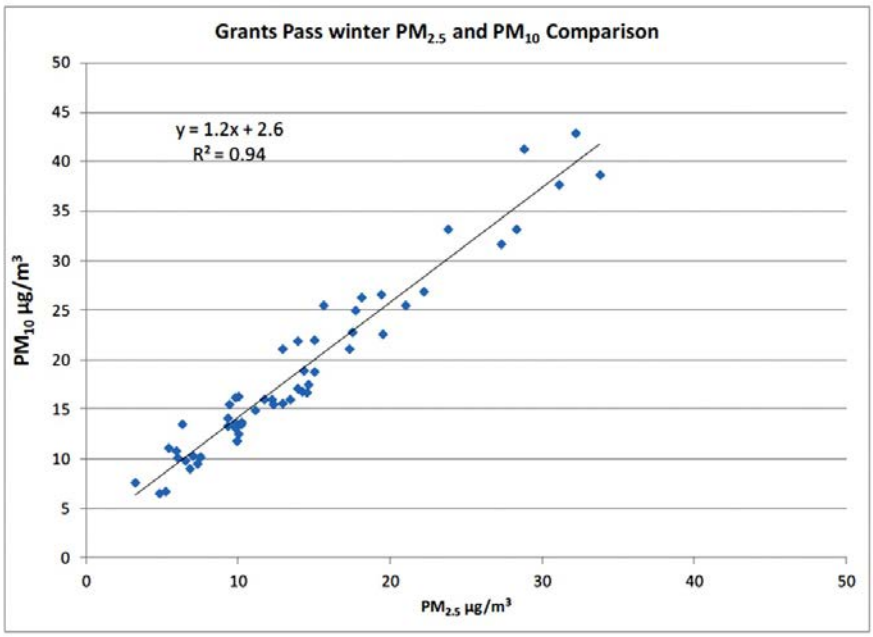
As noted above, in 2008 the PM_{10} monitor in Grants Pass was removed with EPA approval, due to very low levels being measured. Comparable Federal Reference Method PM_{10} and $PM_{2.5}$ monitors were co-located at Parkside School in Grants Pass from 2006-2008, from which a

reliable PM_{10} estimation methodology was developed, using the equation in Figure 3. It is expected if current low PM_{10} levels continue, budget considerations may lead to the removal of the $PM_{2.5}$ monitor and its relocation to another community. Should this occur, DEQ would then install a beta attenuation mass (BAM) monitor, approved by EPA as a Federal Equivalent Method for measuring PM_{10}, in order to track PM_{10} levels for the remainder of the limited maintenance plan. EPA approval will be obtained prior to removing the $PM_{2.5}$ monitor and installing a FEM BAM for PM_{10}. See Section 9 for additional information.

$PM_{10}/PM_{2.5}$ Correlation

A linear regression analysis was performed on the PM_{10} and $PM_{2.5}$ data, as shown in Figure 3. This shows the correlation has an R Squared of 0.94, which is very high and shows that the linear regression equation of $\boldsymbol{y = 1.2x + 2.6}$ can be used for calculating PM_{10} levels.

Figure 3. Grants Pass Parkside School $PM_{10}/PM_{2.5}$ Correlation



5. Limited Maintenance Plan Option

The EPA developed the Limited Maintenance Plan (LMP) option for areas with little risk of re-violating the PM_{10} standard (see 2001 Wegman Memo, Appendix A). EPA allows states to use this policy to prepare the required second 10-year maintenance plans, if the area meets three criteria in the EPA LMP Option Guidance. The first is that an area should be attaining the PM_{10} standard, the second that the average PM_{10} design value based on the most recent 5 years of air quality data should be at or below 98µg/m3, and the third that the area should expect only limited growth in on-road motor vehicle emissions and pass a motor vehicle regional emissions analysis test, in accordance with Appendix B of the LMP Guidance. The Grants Pass area meets all three criteria. As noted in Section 3, PM_{10} monitored data over the last 15 years have been well below the 24-hour standard.

EPA's PM_{10} SIP Development Guideline outlines four approaches to determining the PM_{10} design value. DEQ relied upon the table look-up procedure, as noted in Table 6-1 of the guidance. [4] Calculating the design value using this method provides the most conservative design value. Two PM_{10} design values for Grants Pass are provided here. The first is 49 $\mu g/m^3$, based on the most recent 5 years of FRM monitoring data (2004-2008) prior to removal of the PM_{10} monitor. The second design value is also 49 $\mu g/m^3$, based on the most recent 5 years of estimated PM_{10} levels (2009-2013) using the equation in Figure 3. Both are well below the 98 $\mu g/m^3$ value stipulated in the LMP Guidance. The area expects very limited growth in on-road motor vehicle emissions, as demonstrated by passing the Motor Vehicle Regional Analysis.[5]

6. Emission Inventory

This section presents the emissions inventory for the second 10-year maintenance plan and briefly describes its development. The LMP Guidance requires that the maintenance plan include an inventory with emission levels consistent with attainment of the PM_{10} standard. An inventory preparation plan, including a quality assurance plan, for the Grants Pass UGB was submitted to EPA in March 2014, and is provided in Appendix E. EPA reviewed the plan and agreed that the inventory be developed using EPA's 2011 National Emission Inventory (NEI) data for Josephine County, as the most recent, complete, readily available emission inventory. This approach is consistent with the 1993 emission inventory developed for the first maintenance plan. In accordance with requirements for the LMP option, no emission projections were calculated.

Historically, exceedences of the 24-hr PM_{10} standard in Grants Pass have occurred during the winter months, or between November 1 and the end of February. As such, in addition to annual emissions, typical season day and worst-case season day emissions are included in the inventory. The term "worst-case day" describes the maximum activity/emissions that have occurred or could occur on a season day, for each emissions source. Worst-case day emissions are summed for all sources/categories, i.e. assumed to occur on the same day. This assumption is the basis for what would be needed to cause an exceedence of the 24-hr standard. The unit of measure for annual emissions is in tons per year (tpy), while the unit of measure for season day emissions is in pounds per day (lb/day). In addition, the county-wide EI data was spatially allocated to the Grants Pass UGB, and to buffers around the UGB or monitor, depending on emissions category.

At noted in Table 2 and Figures 5 and 6 below, the most significant categories of PM_{10} emissions in the Grants Pass UGB are area sources (mostly home wood-heating), on-road mobile sources (mostly re-entrained road dust), point sources (industry), and non-road (engine and equipment) sources. A detailed breakdown of the 2011 PM_{10} Emission Inventory is provided in Appendix B.

[4] PM-10 SIP Development Guideline, publication EPA 450/2 86-001, Table 6-1, pp.6-5
[5] See Appendix C: Motor Vehicle Regional Analysis Test.

Table 2. 2011 Grants Pass UGB PM_{10} Daily and Annual Emission Inventory

Source Category	PM_{10} Emissions					
	Annual Tons / Year	Annual percent	Season Lbs / Day	Season percent	Worst Case Day (lbs/day)	Worst Case percent
Stationary Point Sources	27.5	4%	187	3.9%	1,357	19.3%
Stationary Area Sources	431.6	64%	3,540	73.4%	4,477	63.7%
Non-Road Engine Sources	4.9	1%	20	0.4%	20	0.3%
On-Road Mobile Sources	209.7	31%	1,078	22.3%	1,177	16.7%
Total	673.8	100%	4,826	100%	7,031	100%

Figure 4. 2011 Grants Pass Annual PM_{10} Emissions

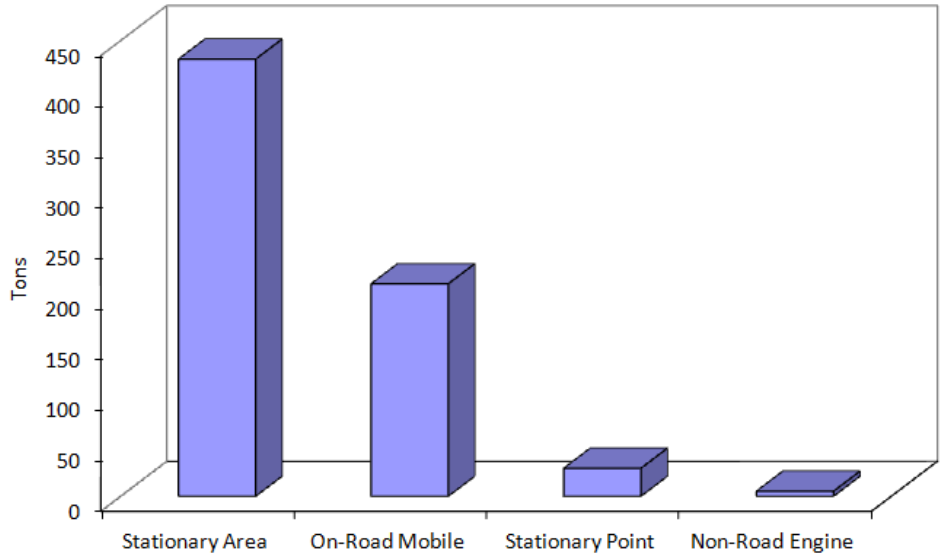
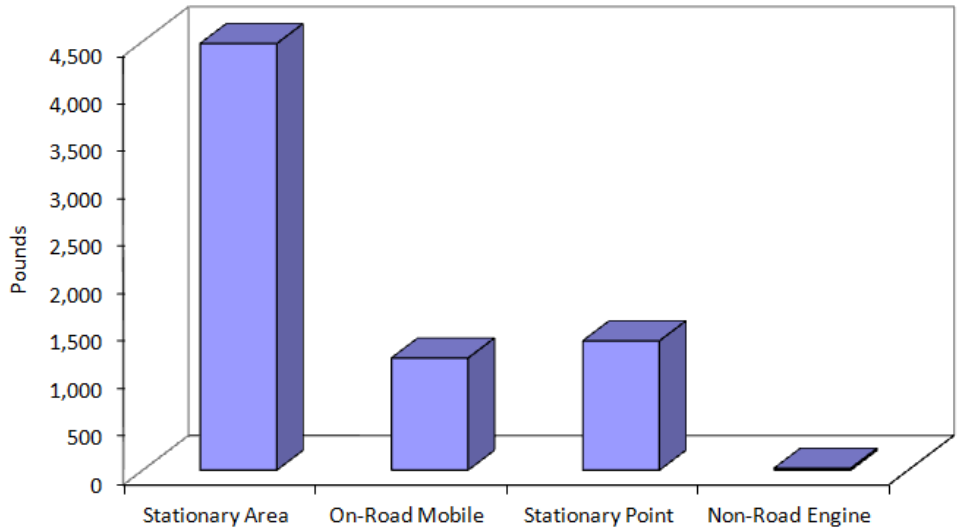


Figure 5. 2011 Grants Pass Worst Case Day PM_{10} Emissions



7. Continuing Control Measures

To qualify for the LMP option, the control measures from the first PM_{10} maintenance plan must remain in place and unchanged. The measures in Table 3 below were adopted in the first maintenance plan. They included a residential woodstove curtailment program, a ban on the use of uncertified woodstoves, outdoor open burning restrictions, prescribed forestry burning smoke management protection, and certain industrial requirements. The following table summarizes the primary control measures that will be retained under this limited maintenance plan, and the rule authority for each measure. The only measure not continued is the transportation conformity emissions budget, which is not required for a LMP.

Table 3. Grants Pass PM_{10} Continuing Control Measures

Control Measure	Effective Date	DEQ rule authority
Voluntary Woodstove Curtailment	1991	OAR 340-200-0040
Wood stove Certification	1990	OAR 340-262-0600
Ban on sale of used woodstoves	1991	OAR 340-262-0600
Open Burning ventilation index	1991	OAR 340-264-0070
New Source Review: BACT & offsets exemption	1981	OAR 340-224-0060
Industrial controls on veneer dryers/wood-fired boilers	1989	OAR 340-240-0110 OAR 340-240-0120
Forest Smoke Management Plan	1990	OAR 340-200-0040

Wood Heating Measures

Various measures were implemented to reduce wood-heating emissions in Grants Pass. As noted in the previous section, residential wood-heating emissions make up most of the stationary area source emissions, which represent well over 60 percent of the total annual and daily PM_{10} emissions in the Grants Pass UGB. The home wood heating curtailment program has been the most effective PM_{10} emission reduction strategy for Grants Pass. As noted in Table 3, woodstove emission control efforts include the emission certification standards for new stoves, change-out programs to encourage removal of non-certified stoves, and a local voluntary curtailment program to reduce wood burning during stagnant weather periods.

Open Burning

The Grants Pass UGB is wholly contained within the Rogue Basin Open Burning Control Area. Within this area, Oregon Administrative Rules prohibit commercial and industrial open burning, and limit domestic open burning to days with adequate ventilation. The City of Grants Pass prohibits open burning year round. The Josephine County Department of Health and

Community Action apply the wood heating curtailment and open burning restrictions to a broader area surrounding the UGB as a voluntary program.

Industrial Sources

Under the major New Source Review rules, large new or expanding sources (greater than 15 tons per year of PM_{10}) inside the Grants Pass UGB are required to install Best Available Control Technology (BACT), and provide PM_{10} offsets (an equivalent reduction in emissions within the UGB). BACT allows a source to consider cost in determining the best available emission controls. An exemption to offsets is allowed if modeling demonstrates that the new PM_{10} emissions, when combined with other PM_{10} emissions in the area, will not result in an air quality impact greater than120 $\mu g/m^3$. Specific industrial controls for veneer dryers and wood-fired boilers will continue to apply within the Grants Pass UGB.

Forest Prescribed Burning

The Oregon Department of Forestry's Smoke Management Plan restricts prescribed burning on poor air quality days on forested lands surrounding the Grants Pass UGB. This program is administered by the Department of Forestry. Grants Pass receives additional smoke management protection as a designated "Smoke Sensitive Receptor Area", which means that any burning conducted in the region must avoid causing a smoke impact in Grants Pass, including during the winter months when historically 24-hr PM_{10} standard violations have occurred.

Conformity requirements

Federal transportation conformity rules (40 CFR parts 51 and 93) and general conformity rules (58 FR 63214) continue to apply under a limited maintenance plan. However, as noted in the Wegman Memo, these requirements are greatly simplified. An area under a LMP can demonstrate conformity without submitting an emissions budget, and as a result emissions do not need be capped nor a regional emissions analysis (including modeling) conducted.[6]

8. Contingency Measures

Section 175(A) of the Clean Air Act requires a maintenance plan include contingency measures necessary to ensure prompt correction of any violation of the standard that may occur after redesignation. The first Grants Pass maintenance plan contained contingency measures that would be implemented under two scenarios – if the official PM_{10} monitor registers a value of 120 $\mu g/m^3$ or higher, or if a violation of the 24-hr PM_{10} standard were to occur. These two contingency scenarios will be continued under the limited maintenance plan. If the former, DEQ would initiate a study of the cause of the elevated level, and convene a planning group to evaluate the findings and identify strategies to be considered for implementation. If the later, DEQ would reinstate the New Source Review requirement for Lowest Achievable Emission Rate for new and expanding industry, and remove the offsets exemption. As described in the next

[6] See Wegman Memo in Appendix A for additional information on conformity requirements.

section, EPA has approved a surrogate method for estimating PM_{10} levels for tracking and NAAQS compliance purposes.

9. Commitment to Continued Monitoring and Verification of Continued Attainment

As described in this plan, PM_{10} levels in the Grants Pass UGB have steadily declined over the last 15 years, and are not expected to increase or threaten compliance with the daily or annual PM_{10} standards.

As noted in Section 3, the Grants Pass PM_{10} monitor was removed in 2008 with EPA approval, and since then a surrogate method for estimating PM_{10} levels has been approved using a co-located FRM $PM_{2.5}$ monitor. DEQ will comply with Title III, Section 319 of the Clean Air Act, and will continue to operate the $PM_{2.5}$ monitor until the end of the maintenance period, and use the equation identified in Section 4 for calculating and tracking PM_{10} levels. In the event DEQ needs to remove the $PM_{2.5}$ monitor, DEQ will first obtain EPA approval, and then install a Beta Attenuation Mass monitor, approved by EPA as a Federal Equivalent Method for measuring PM_{10}, in order to track PM_{10} levels for the remainder of the limited maintenance plan. In the unlikely event that after exceptional events are discounted, the second highest PM_{10} concentration in a calendar year based on the $PM_{2.5}$ monitor or BAM FEM monitor exceeds the LMP threshold of 98µg/m^3, DEQ and EPA will discuss reestablishment of direct monitoring using an FRM PM_{10} monitor.

Appendix A

EPA 2001 Wegman Memo

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

AUG 09 2001

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

MEMORANDUM

SUBJECT: Limited Maintenance Plan Option for Moderate PM_{10} Nonattainment Areas

FROM: Lydia Wegman, Director
AQSSD (MD-15)

TO: Director, Office of Ecosystem Protection, Region I
Director, Division of Environmental Planning & Protection, Region II
Director, Air Protection Division, Region III
Director, Air, Pesticides & Toxics Management Division, Region IV
Director, Air and Radiation Division, Region V
Director, Air Pesticides & Toxics, Region VI
Director, Air and Toxics Division, Regions VII, IX
Director, Air Program, Region VIII
Director, Office of Air Quality, Region X

I. What is a Limited Maintenance Plan?

This memorandum sets forth new guidance[1] on maintenance plan submissions for certain moderate particulate matter (PM_{10}) nonattainment areas seeking redesignation to attainment (see section IV for further details on qualifying for the policy). If the area meets the criteria listed in this policy the State may submit a maintenance plan at the time it is requesting redesignation that is more streamlined than would ordinarily be permitted. This new option is being termed a limited maintenance plan (LMP)[2].

II. Why is there a need for a limited maintenance plan policy?

Before the U.S. Court of Appeals for the District of Columbia handed down its decision vacating the 1997 PM_{10} national ambient air quality standards (NAAQS)(see American Trucking Associations, et al. v. Environmental Protection Agency (EPA), 175 F.3d 1027 (D.C. Cir. 1999),

[1] This memorandum is intended to provide EPA's preliminary views on how certain moderate PM10 nonattainment areas may qualify to submit a maintenance plan that meets certain limited requirements. Since it represents only the Agency's preliminary thinking that is subject to modification, this guidance is not binding on States, Tribes, the public, or EPA. Issues concerning the applicability of the limited maintenance plan policy will be addressed in actions to redesignate moderate PM10 nonattainment areas under § 107 of the CAA. It is only when EPA promulgates redesignations applying this policy that those determinations will become binding on States, Tribes, the public, and EPA as a matter of law.

[2] Moderate PM_{10} areas that do not meet the applicability criteria of this policy, and all serious PM_{10} nonattainment areas. should submit maintenance plans that meet our guidance for submission of a full maintenance plan as described in the September 4. 1992 memorandum. "Procedures for Processing Requests to Redesignate Areas to Attainment," from John Calcagni. former Director of the Office of Air Quality Planning and Standards (OAQPS) Air Quality management Division to the Regional Air Division Directors (hereafter known as the Calcagni Memo).

Before the U.S. Court of Appeals for the District of Columbia handed down its decision vacating the 1997 PM_{10} national ambient air quality standards (NAAQS)(see American Trucking Associations, et al. v. Environmental Protection Agency (EPA), 175 F.3d 1027 (D.C. Cir. 1999), we were prepared to make case-by-case determinations that would make the 1987 PM_{10} NAAQS no longer applicable in any area meeting the standards. In taking actions to remove the applicability of the 1987 NAAQS, we would have removed, as well, the nonattainment designation and Clean Air Act (CAA) part D requirements from qualifying areas. As a result of the D.C. Circuit's decision, for areas subject to the 1987 NAAQS, the only route to recognized attainment of the NAAQS and removal of nonattainment status and requirements is formal redesignation to attainment, including submittal of a maintenance plan. Since many areas have been meeting the PM_{10} NAAQS for 5 years or more and have a low risk of future exceedances, we believe a policy that would allow both the States and EPA to redesignate speedily areas that are at little risk of PM_{10} violations would be useful.

III. How did EPA develop the approach used in the LMP option?

The EPA has studied PM_{10} air quality data information for the entire country over the past eleven years (1989-1999) and has determined that some moderate PM_{10} nonattainment areas have had a history of low PM10 design values with very little inter-annual variation. When we looked at all the monitoring sites reporting data for those years, the data indicate that most of the average design values fall below 2 levels, 98 $\mu g/m^3$ for the 24-hr PM_{10} NAAQS and 40 $\mu g/m^3$ for the annual PM_{10} NAAQS. For most monitoring sites these levels are also below their individual site-specific critical design values (CDV). The CDV is an indicator of the likelihood of future violations of the NAAQS given the current average design value and its variability. The CDV is the highest average design value an area could have before it may experience a future exceedance of the NAAQS with a certain probability. A detailed explanation of the CDV is found in Attachment A[3] to this policy which, because of its length, is a separate document accompanying this memorandum.

We believe that the very small amount of variation between the peaks and means in most of the data indicates a very stable relationship that can be reasonably expected to continue in the future absent any significant changes in emissions. The period we assessed provides a fairly long historical record and the data could therefore be expected to have been affected by a full range of meteorological conditions over the period. Therefore, the amount of emissions should be the only variable that could affect the stability in the air quality data. We believe we can reliably make estimates about the future variability of PM_{10} concentrations across the country based on our statistical analysis of this data record, especially in areas where the amount of emissions is not expected to change.

IV. How do I qualify for the LMP option ?

[3] Dr. Shao-Hang Chu's paper entitled "Critical Design Value and Its Applications" explains the CDV approach and is included in its entirety in Attachment A. This paper has been accepted for publication and presentation at the 94th Air and Waste Management Association (A&WMA) Annual Conference in June 2001 in Orlando, Florida.

To qualify for the limited maintenance plan option, an area should meet the following applicability criteria. The area should be attaining the NAAQS and the average PM_{10} design value[4] for the area, based upon the most recent 5 years of air quality data at all monitors in the area, should be at or below 40 $\mu g/m^3$ for the annual and 98 $\mu g/m^3$ for the 24-hr PM_{10} NAAQS with no violations at any monitor in the nonattainment area[5]. If an area cannot meet this test it may still be able to qualify for the LMP option if the average design values of the site are less than their respective site-specific CDV.

We believe it is appropriate to offer this second method of qualifying for the LMP because, based on the air quality data we have studied, we believe there are some monitoring sites with average design values above 40 $\mu g/m^3$ or 98 $\mu g/m^3$, depending on the NAAQS in question, that have experienced little variability in the data over the years. When the CDV calculation was performed for these sites we discovered that their average design values are less than their CDVs, indicating that the areas have a very low probability (1 in 10) of exceeding the NAAQS in the future. We believe it is appropriate to provide these areas the opportunity to qualify for the LMP in this circumstance since the 40 $\mu g/m^3$ or 98 $\mu g/m^3$ criteria are based on a national analysis and don't take into account each local situation.

The final criterion is related to mobile source emissions. The area should expect only limited growth in on-road motor vehicle PM_{10} emissions (including fugitive dust) and should have passed a motor vehicle regional emissions analysis test. It is important to consider the impact of future transportation growth in the LMP, since the level of PM-10 emissions (especially from fugitive dust) is related to the level of growth in vehicle miles traveled (VMT). Attachment B (below) should be used for making the motor vehicle regional emissions analysis demonstration.

If the State determines that the area in question meets the above criteria, it may select the LMP option for the first 10 year maintenance period. Any area that does not meet these criteria should plan to submit a full maintenance plan that is consistent with our guidance in the Calcagni Memo in order to be redesignated to attainment. If the LMP option is selected, the State should continue to meet the qualifying criteria until EPA has redesignated the area to attainment. If an area no longer qualifies for the LMP option because a change in air quality affects the average design values before the redesignation takes effect, the area will be expected to submit a full maintenance plan.

Once an area selects the LMP option and it is in effect, the State will be expected to recalculate the average design value for the area annually and determine if the criteria used to qualify for the LMP

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[4]The methods for calculating design values for PM_{10} are presented in a document entitled the "PM_{10} SIP Development Guideline", EPA-450/2-86-001, June 1987. The State should determine the most appropriate method to use from this Guideline in consultation with the appropriate EPA Regional office staff.

[5]If the EPA determines that the meteorology was not representative during the most recent five-year period, we may reject the State's request to use the LMP option and request, instead, submission of a full maintenance demonstration.

will still be met. If, after performing the annual recalculation of the area's average design value in a given year, the State determines that the area no longer qualifies for the LMP, the State should take action to attempt to reduce PM_{10} concentrations enough to requalify for the LMP. One possible approach the State could take is to implement a contingency measure or measures found in its SIP. If, in the next annual recalculation the State is able to re-qualify for the LMP, then the LMP will go back into effect. If the attempt to reduce PM_{10} concentrations fails, or if it succeeds but in future years it becomes necessary again to address increasing PM_{10} concentrations in the area, that area no longer qualifies for the LMP. We believe that repeated increases in PM_{10} concentrations indicate that the initial conditions that govern air quality and that were relied on to determine the area's qualification for the LMP have changed, and that maintenance of the NAAQS can no longer be assumed. Therefore, the LMP cannot be reinstated by further recalculations of the design values at this point. Once the LMP is determined to no longer be in effect, a full maintenance plan should be developed and submitted within 18 months of the determination.

Treatment of data used to calculate the design values.

Flagged Particulate Matter Data:

Three policies allow PM-10 data to be flagged for special consideration:

- Exceptional Events Policy (1986) for data affected by infrequent events such as industrial accidents or structural fires near a monitoring site;
- Natural Events Policy (1996) for data affected by wildfires, high winds, and volcanic and seismic activities, and;
- Interim Air Quality Policy on Wildland and Prescribed Fires for data affected by wildland fires that are managed to achieve resource benefits.

We will treat data affected by these events consistently with these previously-issued policies. We expect States to consider all data (unflagged and flagged) when determining the design value. The EPA Regional offices will work with the State to determine the validity of flagged data. Flagged data may be excluded on a case-by-case basis depending on State documentation of the circumstances justifying flags. Data flagged as affected by exceptional or natural events will generally not be used when determining the design value. However, in order for data affected by a natural event to be excluded, an adequate Natural Events Action Plan is required as described in the Natural Events policy.

Data flagged as affected by wildland and prescribed fires will be used in determining the design value. If the State is addressing wildland and prescribed fire use with the application of smoke management programs, the State may

submit an LMP if the design value is too high only as a result of the fire-affected data.

We are in the process of developing a policy to address agricultural burning. When it is finalized we will amend the LMP option to account for the new policy.

V. What should an LMP consist of?

Under the LMP, we will continue to satisfy the requirements of Section 107(d)(3)(E) of the Act which provides that a nonattainment area can be redesignated to attainment only if the following criteria are met:

1. The EPA has determined that the NAAQS for the applicable pollutant has been attained.
2. The EPA has fully approved the applicable implementation plan under section 110(k).
3. The EPA has determined that the improvement in air quality is due to permanent and enforceable reductions in emissions.
4. The State has met all applicable requirements for the area under section 110 and part D.
5. The EPA has fully approved a maintenance plan, including a contingency plan, for the area under section 175A.

However, there are some differences between what our previous guidance (the Calcagni memo) recommends that States include in a maintenance plan submission and what we are recommending under this policy for areas that qualify for the LMP. The most important difference is that under the LMP the demonstration of maintenance is presumed to be satisfied. The following is a list of core provisions which should be included in an LMP submission. Note that any final EPA determination regarding the adequacy of an LMP will be made following review of the plan submitted in light of the particular circumstances facing the area proposed for redesignation and based upon all available information.

a. Attainment Plan

The State's approved attainment plan should include an emissions inventory (attainment inventory) which can be used to demonstrate attainment of the NAAQS. The inventory should represent emissions during the same five-year period associated with the air quality data used to determine whether the area meets the applicability requirements of this policy (i.e., the most recent five years of air quality data). If the attainment inventory year is not one of the most recent five years, but the State can show that the attainment inventory did not change significantly during that five-year period, it may still be used to satisfy the policy. If the attainment inventory is determined to not be representative of the most recent 5 years, a new inventory must be developed. The State should

review its inventory every three years to ensure emissions growth is incorporated in the attainment inventory if necessary.

b. Maintenance Demonstration

The maintenance demonstration requirement of the Act will be considered to be satisfied for the moderate PM_{10} nonattainment areas meeting the air quality criteria discussed above. If the tests described in Section IV are met, we will treat that as a demonstration that the area will maintain the NAAQS. Consequently, there is no need to project emissions over the maintenance period.

c. Important elements that should be contained within the redesignation request

1. Monitoring Network Verification of Continued Attainment

To verify the attainment status of the area over the maintenance period, the maintenance plan should contain a provision to assure continued operation of an appropriate, EPA-approved air quality monitoring network, in accordance with 40 CFR part 58. This is particularly important for areas using an LMP because there will be no cap on emissions.

2. Contingency Plan

Section 175A of the Act states that a maintenance plan must include contingency provisions, as necessary, to promptly correct any violation of the NAAQS which may occur after redesignation of the area to attainment. These contingency measures do not have to be fully adopted at the time of redesignation. However, the contingency plan is considered to be an enforceable part of the SIP and the State should ensure that the contingency measures are adopted as soon as possible once they are triggered by a specific event. The contingency plan should identify the measures to be adopted, and provide a schedule and procedure for adoption and implementation of the measures if they are required.
Normally, the implementation of contingency measures is triggered by a violation of the NAAQS but the State may wish to establish other triggers to prevent a violation of the NAAQS, such as an exceedance of the NAAQS.

3. Approved attainment plan and section 110 and part D CAA requirements:

In accordance with the CAA, areas seeking to be redesignated to attainment under the LMP policy must have an attainment plan that has been approved by EPA, pursuant to section 107(d)(3)(E). The plan must include all control measures that were relied on by the State to demonstrate attainment of the NAAQS. The State must also ensure that the CAA requirements for PM_{10} pursuant to section 110 and part D of the Act have been satisfied. To comply with the statute, the LMP should clearly indicate that all controls that were relied on to demonstrate attainment will remain in place. If a State wishes to roll back or eliminate controls, the area can no longer qualify for the LMP and the area will become subject to full maintenance plan requirements within 18 months of the determination that the LMP is no longer in effect.

V. How is Conformity treated under the LMP option?

The transportation conformity rule (40 CFR parts 51 and 93) and the general conformity rule (58 FR 63214; November 30, 1993) apply to nonattainment areas and maintenance areas operating under maintenance plans. Under either conformity rule one means of demonstrating conformity of Federal actions is to indicate that expected emissions from planned actions are consistent with the emissions budget for the area. Emissions budgets in LMP areas may be treated as essentially not constraining for the length of the maintenance period because it is unreasonable to expect that an area satisfying the LMP criteria will experience so much growth during that period of time such that a violation of the PM_{10} NAAQS would result. While this policy does not exempt an area from the need to affirm conformity, it does allow the area to demonstrate conformity without undertaking certain requirements of these rules. For transportation conformity purposes, EPA would be concluding that emissions in these areas need not be capped for the maintenance period, and, therefore, a regional emissions analysis would not be required. Similarly, Federal actions subject to the general conformity rule could be considered to satisfy the "budget test" specified in section 93.158 (a)(5)(i)(A) of the rule, for the same reasons that the budgets are essentially considered to be unlimited.

EPA approval of an LMP will provide that if the LMP criteria are no longer satisfied and a full maintenance plan must be developed to meet CAA requirements (see Calcagni Memo referenced in footnote #2 for full maintenance plan guidance), the approval of the LMP would remain applicable for conformity purposes only until the full maintenance plan is submitted and EPA has found its motor vehicle emissions budgets adequate for conformity purposes under 40 CFR parts 51 and 93. EPA will condition its approval of all LMPs in this fashion because in the case where the LMP criteria are not met and a full maintenance plan is required EPA believes that LMPs would no longer be an appropriate mechanism for assuring maintenance of the standards.

For further information concerning the LMP option for moderate PM_{10} areas please contact Gary Blais at (919) 541-3223, or for questions about the CDV approach contact Dr. Shao-Hang Chu at (919) 541-5382. For information concerning transportation conformity requirements, please contact Meg Patulski of the Office of Transportation and Air Quality at (734) 214-4842.

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ATTACHMENT B:
MOTOR VEHICLE REGIONAL ANALYSIS METHODOLOGY

The following methodology is used to determine whether increased emissions from on-road mobile sources could, in the next 10 years, increase concentrations in the area and threaten the assumption of maintenance that underlies the LMP policy. This analysis must be submitted and approved in order to be eligible for the LMP option.

The following equation should be used:

$DV + (VMT_{pi} \times DV_{mv}) \bullet MOS$

Where:

DV	=	the area's design value based on the most recent 5 years of quality assured data in $\mu g/m^3$
VMT_{pi}	=	the projected % increase in vehicle miles traveled (VMT) over the next 10 years
DV_{mv}	=	motor vehicle design value based on on-road mobile portion of the attainment year inventory in $\mu g/m^3$
MOS	=	margin of safety for the relevant PM-10 standard for a given area: 40 $\mu g/m^3$ for the annual standard or 98 $\mu g/m^3$ for the 24-hour standard

Please note that DV_{mv} is derived by multiplying DV by the percentage of the attainment year inventory represented by on-road mobile sources. This variable should be based on both primary and secondary PM_{10} emissions of the on-road mobile portion of the attainment year inventory, including re-entrained road dust.

States should consult with EPA regarding the three inputs used in the above calculation, and all EPA comments and concerns regarding inputs and results should be addressed prior to submitting a limited maintenance plan and redesignation request.

The VMT growth rate (VMT_{pi}) should be calculated through the following methods:

1) an extrapolation of the most recent 10 years of Highway Performance Monitoring System (HPMS) data over the 10-year period to be addressed by the limited maintenance plan; and

2) a projection of VMT over the 10-year period that would be covered by the limited maintenance plan, using whatever method is in practice in the area (if different than #1).

Areas where method #1 is the current practice for calculating VMT do not also have to do calculation #2, although this is encouraged. All other areas should use methods #1 and #2, and VMT_{pi} is

whichever growth rate produced by methods #1 and #2 is highest. Areas will be expected to use transportation models for method #2, if transportation models are available. Areas without transportation models should use reasonable professional practice.

Examples

1. DV = 80 µg/m^3
   VMT_{pi} = 36%
   DV_{nav} = 30 µg/m^3
   MOS = 98 µg/m^3 for 24-hour PM-10 standard

   80 + (.36 * 30) = 91

   Less than 98 – Area passes regional analysis criterion.

2. DV = 35 µg/m^3
   VMT_{pi} = 25%
   DV_{nav} = 6 µg/m^3
   MOS = 40 µg/m^3 for annual PM-10 standard

   35 + (.25 * 6) = 37

   Less than 40 – Area passes regional analysis criterion.

3. DV = 115 µg/m^3
   VMT_{pi} = 25%
   DV_{nav} = 60 µg/m^3
   MOS = 98 µg/m^3 for 24-hour PM-10 standard

   115 + (.25 * 60) = 130

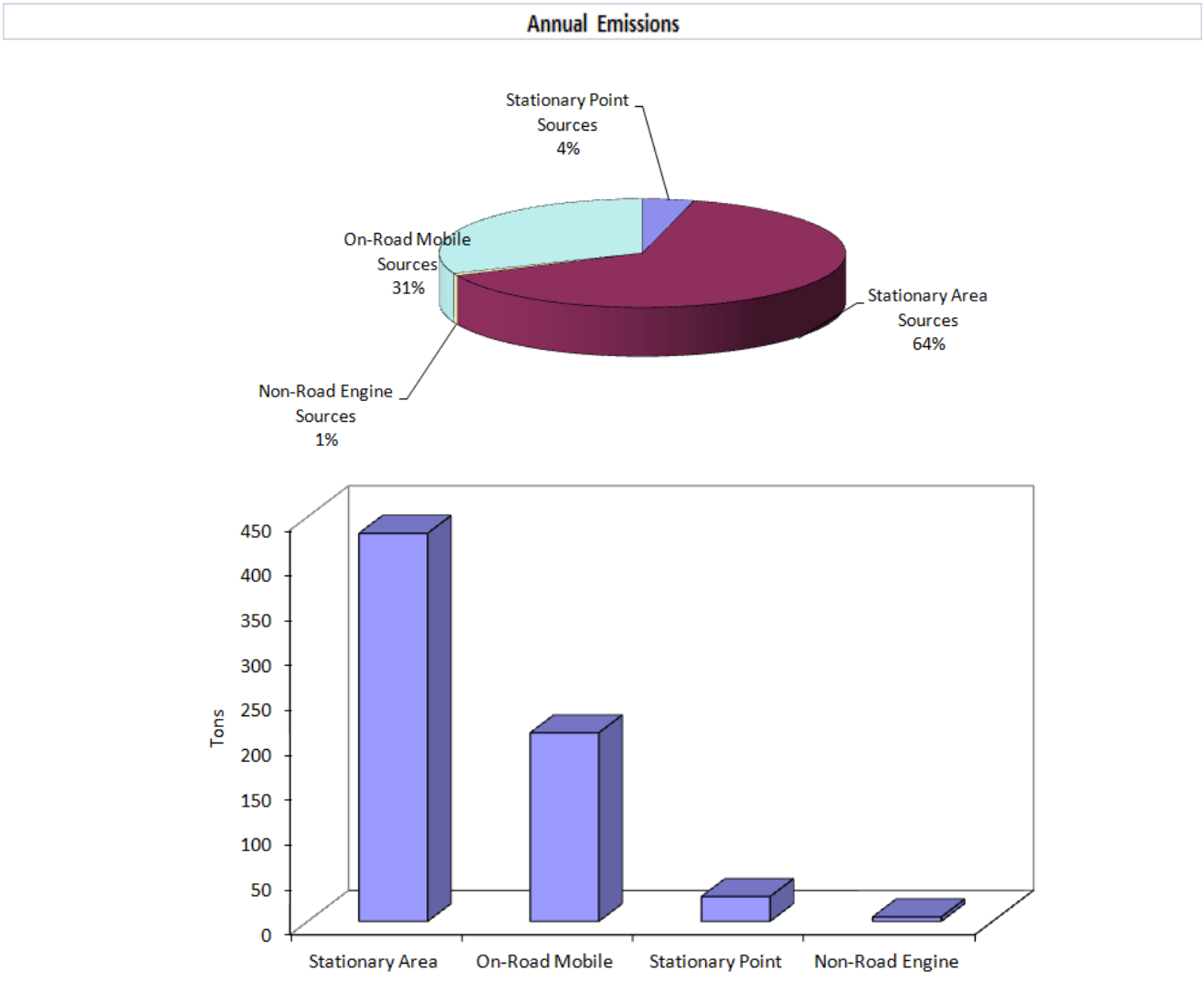
   More than 98 – Area does not pass criterion. Full section 175A maintenance plan required.

Appendix B

Grants Pass 2011 PM10 Emission Inventory

Table 1 Grants Pass UGB 2011 PM10 Season: Summary of Emissions by Source Type

		PM10 Emissions					
Source Type	Year	Annual Tons / Year	Annual % of Category	PM10 Season Lbs / Day	PM10 Season % of Category	Worst Case Day (lbs/day)	PM 10 Worst Case % of Category
Stationary Point Sources	2011	27.5	4%	187	3.9%	1,357	19.3%
Stationary Area Sources	2011	431.6	64%	3,540	73.4%	4,477	63.7%
Non-Road Engine Sources	2011	4.9	1%	20	0.4%	20	0.3%
On-Road Mobile Sources	2011	209.7	31%	1,078	22.3%	1,177	16.7%
Total within Grants Pass UGB		673.8	100%	4,826	100%	7,031	100%



	Annual	Worst	
Stationary Area	432	4,477	
On-Road Mobile	210	1,177	
Stationary Point	28	1,357	
Non-Road Engine	5	20	
	674	7,031	

Worst Case Day Emissions

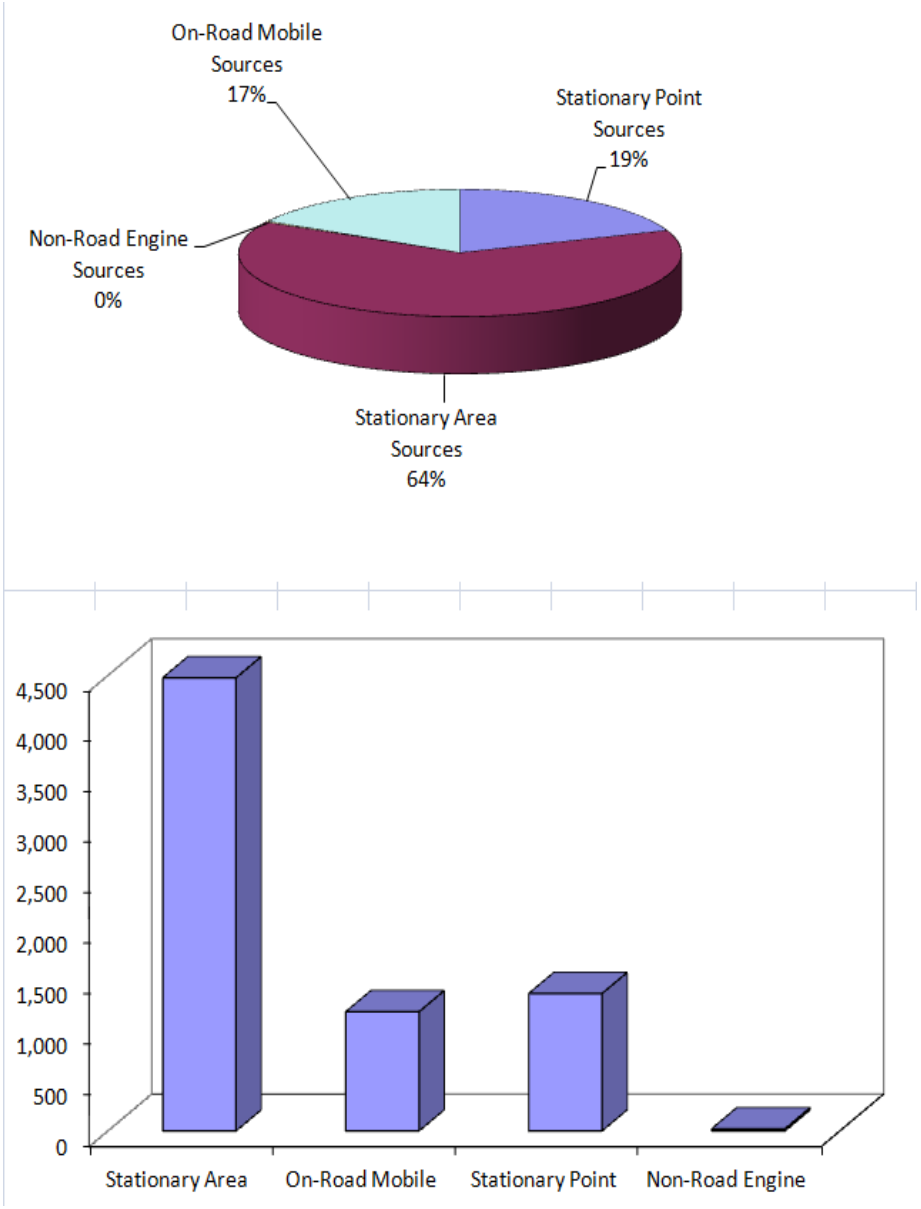


Table 2: Grants Pass UGB 2011 PM10 Season: Summary of Point Source Emissions by Facility

Emission Year	SIC Code	Source Number	Source Name	(1) PM10 Emissions AE (tpy)	(2) PM10 Emissions TSD (lbs/day)	(3) PM10 Emissions WCSD (lbs/day)
2011	4953	17-0003	Chapel Of The Valley Funeral Home Inc.	0.1	0	108
2011	2431	17-0008	Grants Pass Moulding, Inc.	1.7	13	109
2011	2421	17-0009	Bentwood Furniture, Inc.	0.0	0	90
2011	4961	17-0017	Asante Health System	0.0	0	77
2011	2421	17-0018	Rough & Ready Lumber CO	12.6	101	112
2011	4953	17-0028	Stephens Family Chapel	0.1	1	108
2011	2436	17-0030	TP Grants Pass, LLC	8.3	45	207
2011	2095	17-0031	Boersma Bros. LLC	0.6	3	77
2011	3273	17-0040	Riverside Ready Mix, Inc.	0.3	2	103
2011	2434	17-0046	MasterBrand Cabinets, Inc.	3.6	19	75
2011	3273	17-0053	Gary L. Peterson	0.0	0	107
2011	4953	17-0062	Hull & Hull Funeral Home, Inc.	0.1	1	108
2011	1442	17-0076	Dutch Mining, L.L.C.	0.0	0	76
			Pollutant Total	**27.5**	**187**	**1,357**

(1) AE = Annual Emissions, actual 2011 emissions from Appendix A, Table A-3.

(2) TSD = Typical Season Day, actual 2011 emissions from Appendix A, Table A-3

(3) WCSD = Worst Case Season Day, emissions from Appendix A, Table A-3.

Table 3 Grants Pass UGB 2011 PM10 Season: Summary of Emissions from Area Sources

Source Description	Table #	SCC Code	1993 EI PM10 Annual Emissions (tons/yr)	1993 EI PM10 Typical Season Day (lbs/day)	1993 EI PM10 Season Worst Case Day (lbs/day)	2011 EI PM10 Annual Emissions (tons/yr)	2011 EI PM10 Typical Season Day (lbs/day)	2011 EI PM10 Season Worst Case Day (lbs/day)
WASTE DISPOSAL, TREATMENT, & RECOVERY								
Residential Open Burning	2.4.10	26-10-030-000	43.7	8.2	2.8	1.8	3.5	3.51
Outdoor wood burning device, NEC (fire-pits, chimeas, etc)	2.4.10	21-04-008-700				0.7	1.4	1.43
Industrial Open Burning	2.4.11	26-10-010-000	3.8	29.1	29.1	0	0	0
Commercial / Institutional Open Burning	2.4.12	26-10-000-500	0.7	3.7	3.7	17.8	136	136
Commercial Incineration	2.4.17	26-10-020-000	10.0	1.0	65.8	0	0	0
		Category Subtotal	**58.2**	**42.0**	**101.4**	**20.3**	**141.4**	**141.4**
SMALL STATIONARY FUEL & WOOD USE								
Industrial								
Fuel Oil Combustion		21-02						
Distillate/Kerosene	2.4.3	21-02-004-000	0.72	7	171	1.11	13	19
Residual	2.4.3	21-02-005-000	1.71	17	407	0.014	0.2	0.2
Natural Gas Combustion	2.4.4	21-02-006-000	2.08	13	13	0.14	0.9	0.9
Liquid Petroleum Gas Combustion	2.4.5	21-02-007-000	0.15	1	1	0.004	0.03	0.03
Industrial Subtotal			4.7	38	592	1.3	14	20
Commercial / Institutional								
Fuel Oil Combustion		21-03						
Distillate/Kerosene	2.4.3	21-03-004-000	0.2	1.9	46.9	1.68	20	29
Residual	2.4.3	21-03-005-000	0.4	3.5	84.3	0.10	1	2
Natural Gas Combustion	2.4.4	21-03-006-000	1.4	12.8	12.8	0.06	0.6	0.6
Liquid Petroleum Gas Combustion	2.4.5	21-03-007-000	0.01	0.1	0.1	0.003	0.02	0.02
Commercial Subtotal			2.0	18	144	1.9	22	32
Residential								
Fuel Oil Combustion		21-04						
Distillate/Kerosene	2.4.3	21-04-004-000	0.07	0.6	15.0	0.20	2	3
Natural Gas Combustion	2.4.4	21-04-006-000	0.95	8.9	8.9	0.08	0.7	0.7
Liquid Petroleum Gas Combustion	2.4.5	21-04-007-000	0.03	0.3	0.3	0.02	0.2	0.2
Wood Combustion								
Fireplaces	2.4.6	21-04-008-100	35.5	379.6	723.7	31	319	433
Woodstoves - Insert Not Certified	2.4.6	21-04-008-210				33	343	466
Woodstoves - Insert NonCatalytic Certified	2.4.6	21-04-008-220	40.5	433.9	827.4	5	47	64
Woodstoves - Insert Catalytic Certified	2.4.6	21-04-008-230	14.1	150.5	287.0	3	27	37
Woodstoves - Woodstoves, General, Non-Certified	2.4.6	21-04-008-310				78	805	1,093
Woodstoves - Woodstove NonCatalytic Certified	2.4.6	21-04-008-320				26	271	368
Woodstoves - Woodstove Catalytic Certified	2.4.6	21-04-008-330				30	309	420
Exempt Pellet Stove	2.4.6	21-04-008-400	1.9	20.8	39.6	2	18	24
Furnace: Indoor, cordwood-fired, non-certified	2.4.6	21-04-008-510				12	128	173
Hydronic heater: outdoor	2.4.6	21-04-008-610				14	141	192
RWC Subtotal			197.9	2,119	4,040	233.4	2,408	3,271
Residential Subtotal			93.0	995	1,902	233.7	2,411	3,275
		Category Subtotal	**99.7**	**1,051**	**2,638**	**236.8**	**2,447**	**3,327**
MISCELLANEOUS AREA SOURCES								
Other Combustion		28-10						
Prescribed Burning	2.4.8	28-10-015-000	0.6	8.3	8.3	68.4	939	939
Structural Fires	2.4.9	28-10-030-000	0.8	4.2	12.4	0.7	4	4
Forest Wild Fires	2.4.13	28-10-001-000	1.3	1.4	37.1	101.7	0	0
Restaurant Flat Griddle Frying	2.4.15	23-02-003-100	19.4	42.6	42.6	3	8	8
Restaurant Clamshell Griddle Frying	2.4.15	23-02-003-200	1.6	3.4	3.4	0.2	0.5	0.5
		Category Subtotal	**23.6**	**60**	**104**	**174.5**	**951**	**951**
FUGITIVE DUST								
Road Sanding	2.4.16	22-94-000-002	0.01	0.06	57.63	0.02	0.3	58
Aggregate Storage Piles	2.4.7	25-30-000-060	0.001	0.01	0.01	0.001	0.02	0.02
		Category Subtotal	**0.01**	**0.1**	**58**	**0.02**	**0.3**	**58**
		Area Source Total	**182**	**1,153**	**2,901**	**432**	**3,540**	**4,477**

CLS 4/21/14: Added wildfire and prescribed burning, Re-formatted numbers and re-linked fugitive dust (links had been lost). Removed small point source category. Linked to Open Burning Data.

Table 4. Grants Pass UGB 1993 PM10: Summary Emissions from Non-Road Sources

Source Description[1]	Table # 1993	Table # 2011	SCC Code	1993 EI			2011 EI		
				1993 PM10 Annual Emissions (tons/yr)	1993 PM10 Season Emissions (lbs/day)	1993 PM10 Worst Case Day Emissions (lbs/day)	2011 PM10 Annual Emissions (tons/yr)	2011 PM10 Season Emissions (lbs/day)	2011 PM10 Worst Case Day Emissions (lbs/day)
GAS, 2-Cycle									
Recreational Equipment	2.5.2	2.5.2	22-60-001-000	0.00	0.00	0.00	0.08	0.72	0.72
Construction Equipment	2.5.2	2.5.2	22-60-002-000	0.00	0.00	0.00	0.03	0.17	0.17
Industrial Equipment	2.5.2	2.5.2	22-60-003-000	0.00	0.00	0.00	0.00	0.00	0.00
Lawn / Garden Equipment	2.5.2	2.5.2	22-60-004-000	0.42	3.04	3.04	1.77	2.91	2.91
Agricultural Equipment	2.5.2	2.5.2	22-60-005-000	0.00	0.00	0.00	0.00	0.00	0.00
Light Commercial Equipment	2.5.2	2.5.2	22-60-006-000	0.07	0.51	0.51	0.11	1.01	1.01
Logging Equipment	2.5.2	2.5.2	22-60-007-000	0.00	0.00	0.00	0.00	0.00	0.00
			Category Subtotal	0.49	3.54	3.54	1.98	4.82	4.82
GAS, 4-Cycle									
Recreational Equipment	2.5.3	2.5.3	22-60-001-000	0.00	0.00	0.00	0.01	0.06	0.06
Construction Equipment	2.5.3	2.5.3	22-60-002-000	0.00	0.00	0.00	0.00	0.01	0.01
Industrial Equipment	2.5.3	2.5.3	22-60-003-000	0.00	0.00	0.00	0.00	0.03	0.03
Lawn / Garden Equipment	2.5.3	2.5.3	22-60-004-000	0.91	6.58	6.58	0.36	0.60	0.60
Agricultural Equipment	2.5.3	2.5.3	22-60-005-000	0.00	0.00	0.00	0.00	0.00	0.00
Light Commercial Equipment	2.5.3	2.5.3	22-60-006-000	0.07	0.51	0.51	0.13	1.19	1.19
Logging Equipment	2.5.3	2.5.3	22-60-007-000	0.00	0.00	0.00	0.00	0.00	0.00
			Category Subtotal	0.98	7.09	7.09	0.51	1.89	1.89
CNG/LPG									
Recreational Equipment		2.5.4	22-67,68-xxx-xxx				0.00	0.00	0.00
Construction Equipment		2.5.4	22-67,68-xxx-xxx				0.00	0.00	0.00
Industrial Equipment		2.5.4	22-67,68-xxx-xxx				0.06	0.39	0.39
Lawn / Garden Equipment		2.5.4	22-67,68-xxx-xxx				0.00	0.00	0.00
Agricultural Equipment		2.5.4	22-67,68-xxx-xxx				0.00	0.00	0.00
Light Commercial Equipment		2.5.4	22-67,68-xxx-xxx				0.01	0.12	0.12
Logging Equipment		2.5.4	22-67,68-xxx-xxx				0.00	0.00	0.00
			Category Subtotal				0.08	0.51	0.51
Diesel									
Recreational Equipment	2.5.4	2.5.5	22-60-001-000	0.00	0.00	0.00	0.00	0.01	0.01
Construction Equipment	2.5.4	2.5.5	22-60-002-000	5.20	37.47	37.47	0.67	4.26	4.26
Industrial Equipment	2.5.4	2.5.5	22-60-003-000	0.56	4.05	4.05	0.35	2.24	2.24
Lawn / Garden Equipment	2.5.4	2.5.5	22-60-004-000	0.00	0.00	0.00	0.17	0.28	0.28
Agricultural Equipment	2.5.4	2.5.5	22-60-005-000	0.00	0.00	0.00	0.00	0.00	0.00
Light Commercial Equipment	2.5.4	2.5.5	22-60-006-000	0.14	1.01	1.01	0.58	5.23	5.23
Logging Equipment	2.5.4	2.5.5	22-60-007-000	0.00	0.00	0.00	0.00	0.00	0.00
			Category Subtotal	5.90	42.54	42.54	1.77	12.02	12.02
VEHICLE SUBTOTAL			**Category Subtotal**	7.38	53.17	53.17	4.34	19.24	19.24
AIRCRAFT									
All Aircraft Types and Operations	2.5.6	2.5.6	22-75-000-000				0	0	0
Aircraft		2.5.6	22-75-020-000				0	0	0
Aircraft		2.5.6	22-75-050-000				0	0	0
Aircraft		2.5.6	22-75-060-000				0	0	0
Airport GSE		2.5.6	22-65-008-000				0	0	0
			Category Subtotal				0	0	0
RAILROADS									
Locomotives - Line Haul	2.5.5	2.5.7	22-85-002-005	0.30	1.63	3.26	0.16	0.88	0.88
Locomotives - Yard	2.5.5	2.5.7	22-85-002-010	0.09	0.47	0.94	0	0	0
			Category Subtotal	0.38	2.10	4.20	0.16	0.88	0.88
MARINE VESSELS									
Recreational	2.5.6	2.5.8	22-82-005-000	0.95	0.04	0.06			
Commercial	2.5.6	2.5.8	22-80-004-000	0.37	0.00	0.00	0.37	0	0
Pleasure Craft-Diesel-Inboard/Sterndrive		2.5.8	22-82-020-005				0.00	0.00	0.00
Pleasure Craft-Diesel-Outboard		2.5.8	22-82-020-010				0.00	0.00	0.00
Pleasure Craft-Gasoline 2-Stroke-Outboard		2.5.8	22-82-005-010				0.01	0.01	0.01
Pleasure Craft-Gasoline 2-Stroke-Personal Water Craft		2.5.8	22-82-005-015				0.00	0.00	0.00
Pleasure Craft-Gasoline 4-Stroke-Inboard/Sterndrive		2.5.8	22-82-010-005				0.00	0.00	0.00
			Category Subtotal	1.32	0.04	0.06	0.39	0.01	0.01
				(tons/yr)	(lbs/day)	(lbs/day)	(tons/yr)	(lbs/day)	(lbs/day)
			TOTAL NON-ROAD	**9.08**	**55.31**	**57.43**	**4.88**	**20.12**	**20.12**

1) No airport emissions are included as the Grants Pass airport is located outside of the UGB.

Part of Table 4

Category Summary	PM10 Annual Emissions (tons/yr)	PM10 Season Emissions (lbs/day)
GASOLINE VEHICLES		
Construction Equipment	5.2	37.5
Industrial Equipment	0.6	4.1
Lawn / Garden Equipment	1.3	9.6
Light Commercial Equipment	0.3	2.0
RAILROADS	0.4	4.2
MARINE VESSELS	1.3	0.1

Table 5: 2011 On-Road Mobile Emissions by Vehicle Class: Grants Pass UGB: Exhaust, Brake, and Tire

Description	LDGV	LDGT1	LDGT2	HDGV	MC	LDDV	LDDT	2BHDDV
Annual	4.2	3.6	1.9	0.5	0.1	0.03	0.4	0.2
Typical Season Day	22.5	19.8	10.2	2.8	0.4	0.1	1.6	0.7
Worst Case Day	25.3	22.3	11.5	3.2	0.5	0.1	1.8	0.8

Part of Table 5

LHDDV	MHDDV	HHDDV	BUSES	Total / Units
0.8	1.7	9.4	0.9	23.6 (tons/year)
3.7	7.3	41.0	3.9	114 (lbs/day)
4.1	8.3	46.8	4.4	129 (lbs/day)

Table 6: On-Road Mobile Emissions by Facility: Grants Pass UGB: Exhaust, Brake, and Tire

Description	Interstate	Other Freeways and Expressways	Arterials	Collectors	Locals	Parking Areas	Total / Units
Annual	3.9	1.E-15	8.5	3.6	4.9	2.7	23.6 tons/year
Typical Season Day	20	6.E-15	39	16	22	16	114 lbs/day
Worst Case Day	21	6.E-15	45	19	26	19	129 lbs/day

Notes: From Appendix D, Table D-1:
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Table 7: On-Road Mobile Emissions by Component: Grants Pass UGB

Emissions Component	Josephine County Annual Emissions (tpy)	UGB % of County Total	Grants Pass UGB: Annual Emissions (tpy)	SAF	Worst-Case Season Day Emissions (lbs/day)	AAWD to AADT Adj.	Typical Season Day Emissions (lbs/day)
	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Exhaust	11.8	38%	4.5	0.91	22.3	0.89	19.8
Brake	4.7	38%	1.8	0.91	8.9	0.89	7.9
Tire	45.7	38%	17.4	1.03	97.8	0.89	86.3
Total: Exhaust, Brake, Tire			23.6		129		114
	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Re-Entrained Road Dust: Paved Roads	489.6	38%	186.1	1.03	1,048	0.921	965
Re-Entrained Road Dust: Unpaved Roads	6,146.0	0%	0	1.03	0	0.921	0
Total: Re-Entrained Road Dust			186.1		1,048		965
UGB Total On-Road PM10 Emissions: All Components			**209.7**		**1,177**		**1,078**

Notes

(1) From Appendix D, Table D-1.

(2). Source Data from 2011 NEI in SMOKE flat file format: link found here:
ftp://ftp.epa.gov/EmisInventory/2011v6/flat_files

Access database with on-road query found here:
\\DEQHQ1\EI_FILES\2011_Grants_Pass_Second_LMP_PM10\2011_EPA_SmokeFF_NEI_v1\EPA_2011SMOKEFlatFiles.accdb

(3) Paved Road Spatial Surrogate ID10, based on annual V 38% Please See Appendix X, Table X

Unpaved Road Spatial Surrogate set to 0 as there is no unpaved roadway within the Grants Pass UGB (1993 plan)

(4) Grants Pass UGB Annual Emissions, TPY = (Josephine County Annual Emissions, tpy) * (UGB % of County Total)

(5) From Appendix D, Table D-1: Tire SAF

(6) UGB Worst case day emissions = (Annual Emissions, tpy) * (SAF) * (2000 lbs/ton) / (365 days per year)

(6) Adjustment is for average annual weekday traffic (AAWT) to average annual daily traffic (AADT),
Value used is taken from the 1993 PM10 SIP EI, Table 2.6.4

(8) Typical Season Day Emissions, lbs/day = (Worst-Case Season Day Emissions, lbs/day) * (AAQD to AADT Adj.)

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Appendix C

Motor Vehicle Regional Analysis Test

To qualify for the PM_{10} LMP option, an area should expect only limited growth in on-road motor vehicle PM_{10} emissions (including fugitive dust) and pass a motor vehicle regional emissions analysis test, found in Appendix B of the LMP Guidance.

The following methodology was used to determine whether increased emissions from on-road mobile sources could, in the next 10 years, increase concentrations in the Grants Pass UGB and threaten the assumption of maintenance that underlies the LMP Guidance.

$$DV + (VMTpi \times DVmv) < MOS$$

Where:

DV = the area's design value based on the most recent 5 years of data, µg/m3
VMTpi = The projected percent increase in vehicle miles traveled (VMT) over the next 10 years
DVmv = Motor vehicle design value based on on-road mobile portion of the attainment year inventory, µg/m3
MOS = Margin of safety for 24-hour PM-10 standard is 98 µg/m3

Step 1: Determine DV

The maximum from five complete years of data (2004-2008) is 49 µg/m3

Step 2: Determine the projected percent increase in VMT over the next 10 years

The VMT data for the Grants Pass for 2011 and 2021 was supplied by Oregon Department of Transportation, Transportation Planning Analysis Unit. Based on the Grants Pass OSUM Model (Years 2002 and 2025), the percentage increase in the 10-year daily VMT between 2011 and 2021 is estimated to be 15%, and 2011 base year daily VMT is forecast to be 700,675.

Step 3: Calculate motor vehicle design value based on on-road mobile portion of the attainment year inventory

The 1996 Grants Pass maintenance plan identified that re-entrained road dust represented 42% and on-road mobile portion represented 1.4% of the attainment year inventory.

DVmv = DV x % Onroad Emissions
DVmv = 49 $\mu g/m^3$ x 0.43 = 21.07 $\mu g/m^3$

Step 4: Calculate the margin of safety

DV + VMTpi x DVmv = MOS
49 $\mu g/m^3$ + 0.15 x 21.07 $\mu g/m^3$ = **52 $\mu g/m^3$**

Since 52 µg/m^3 is much less than 98 µg/m^3 the area passes the motor vehicle regional analysis and qualifies for the LMP approach.

Appendix D

DEQ Report: Justification for Discontinuation of Monitoring in Carbon Monoxide and PM10 Maintenance Areas, 2011

Report

Justification for Discontinuation of Monitoring in Carbon Monoxide and PM_{10} Maintenance Areas

Submitted to: Keith Rose, EPA Region 10

By: Anthony Barnack, Oregon DEQ

October, 2011

DEQ
State of Oregon
Department of
Environmental
Quality

Last Updated: 12/01/11
By: Anthony Barnack

This report prepared by:

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Monitoring Discontinuation Justification

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Glossary of Terms:
NAAQS – National Ambient Air Quality Standards (EPA criteria pollutant standards)
CO – Carbon monoxide
PM_{10} – Particulate matter, 10 microns in diameter or smaller
$PM_{2.5}$ - Particulate matter, 10 microns in diameter or smaller
ODEQ – Oregon Department of Environmental Quality
LRAPA – Lane Regional Air Protection Authority (Lane County, Oregon)
SIP – State Implementation Plan
ppm – Parts per million (concentration)
$\mu g/m^3$ – micrograms per meter cubed (concentration)
FRM – Federal Reference Method
MPO – Metropolitan Planning Organization
AQCD - The Air Quality Conformity Determination

Monitoring Discontinuation Justification

1. Executive Summary

Due to budget cuts, Oregon DEQ and the Lane Regional Air Protection Authority needed to discontinue carbon monoxide and PM_{10} monitoring in maintenance areas which are now far below the National Ambient Air Quality Standard (NAAQS). The monitoring funds have either been lost or reinvested in higher priority monitoring such as $PM_{2.5}$ or ozone. These pollutants are much closer to the NAAQS and require sustained monitoring.

The CO and PM_{10} maintenance plans require continued monitoring for compliance determination and as triggers for contingency plans. To remove this requirement from the plans would require resources and time that ODEQ and LRAPA cannot afford at this time. EPA Region 10 has proposed a compromise which would require the use of alternative methods to track these pollutants in maintenance areas. The alternative methods will be included in the next maintenance plan revisions.

The method for tracking CO would use the regional emissions analysis performed in the Air Quality Transportation Conformity Determination. This is conducted every four years by the Metropolitan Planning Organizations. These analyses will show the emission trends and will provide a trigger for the contingency plans written into the maintenance plans. As a real time measure, the Portland CO monitor will be used to track trends in general CO levels.

For PM_{10}, $PM_{2.5}$ will be used as a surrogate. The percent of PM_{10} that is $PM_{2.5}$ is very high in Oregon and the control strategies are the same for both pollutants.

Maintenance Plans are located at: http://www.deq.state.or.us/aq/planning/maintenance.htm

Monitoring Discontinuation Justification

2. Introduction

Beginning in the 1970s, and continuing through the early part of the 1990s, Oregon had several communities that violated the carbon monoxide and PM_{10} NAAQS and were consequently declared out of attainment for these pollutants. Oregon DEQ and local stake holders implemented State Implementation Plans (SIPs) to bring these areas under the NAAQS. After many years of levels below the standards, maintenance plans were installed to keep the air quality below the NAAQS. The maintenance plans included requirements to continue monitoring to determine long-term trends and compliance. Monitoring was also required for contingency measure triggers for additional regulatory actions.

Over the last twenty years, the CO and PM_{10} concentrations have dropped far below the NAAQS. Monitoring continued only to meet the maintenance requirements, but had no real benefit for public health. The maintenance plans require monitoring until 2014 for Eugene/Springfield CO, and 2022 for Medford CO, and 2023 for Grants Pass PM_{10} and Klamath Falls PM_{10}. Public health benefits most from $PM_{2.5}$, ozone, and air toxic monitoring.

In the last ten years ODEQ and LRAPA have experienced repeated budget cuts as a result of diminished revenue and expanded costs. In 2010 and 2011, budget cuts were especially deep and resulted in the elimination or reprioritization of many monitoring activities. ODEQ and LRAPA had already cut discretionary monitoring and had to now consider shutting down required, but low priority monitoring. CO and PM_{10} sites were considered expendable as long as alternative methods were available to track general concentrations and act as contingency measure triggers.

This report shows the how alternative methods can be used to adequately track CO and PM_{10} and trigger contingency measures.

3. Pollutant Trends and Source of Emissions

3.1 Carbon Monoxide Trends for Eugene/Springfield and Medford

The carbon monoxide levels have continuously dropped over the past 20 years and are now routinely one quarter of the NAAQS. Figure 1 shows the CO trends for Medford and Eugene/Springfield and Table 1 provides the design values from 2000 to 2010. Medford has been below the NAAQS since 1993 and Eugene/Springfield has been below the NAAQS since 1983. With ever more cleaner cars on the road, the design values are not expected to increase.

Monitoring Discontinuation Justification

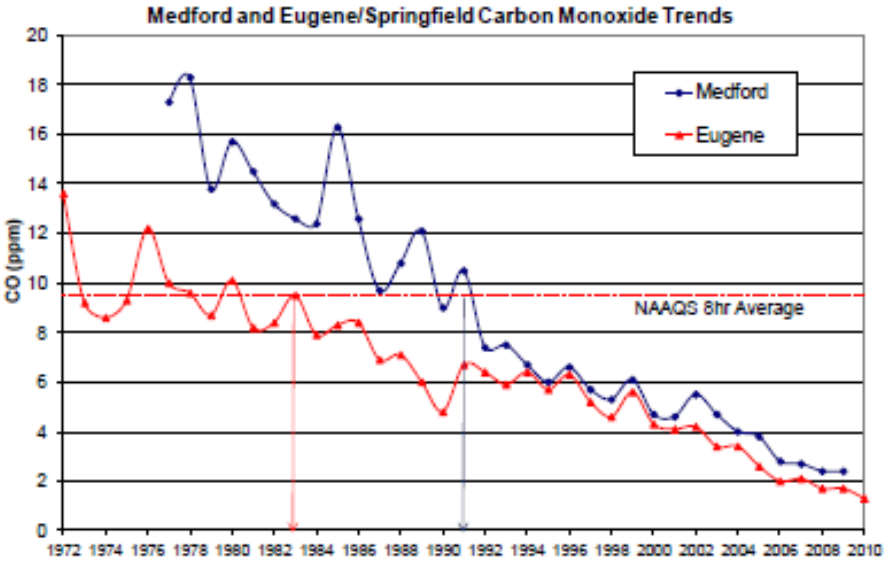

Figure 1. Medford and Eugene/Springfield CO trends.
Second highest 8 hour average.

Table 1. Medford and Eugene/Springfield CO design values.

	Eugene		Medford	
	(ppm)	% of NAAQS	(ppm)	% of NAAQS
2000	4.3	45%	4.7	49%
2001	4.1	43%	4.6	48%
2002	4.2	44%	5.5	58%
2003	3.4	36%	4.7	49%
2004	3.4	36%	4	42%
2005	2.6	27%	3.8	40%
2006	2	21%	2.8	29%
2007	2.1	22%	2.7	28%
2008	1.7	18%	2.4	25%
2009	1.7	18%	2.4	25%
2010	1.3	14%	ND	ND

Based on annual 2nd highest, daily maximum eight hour average.

3.2 Carbon Monoxide Emission Sources in Eugene/Springfield and Medford

In the past, CO emissions in Medford and Eugene/Springfield were primarily from mobile source. In newer vehicles, catalytic converters, fuel injections, and electronic timing have greatly reduced tailpipe CO levels. As the vehicle fleet becomes newer the CO levels are expected to continue dropping.

Non-mobile CO sources include industrial and area sources. Both areas have EPA Title V sources with Plant Site Emission Limits over 100 tons per year. These sources have been operating for years and are regulated. They would have to go through Prevention of Significant Deterioration review if they wanted to raise their CO emissions.

Both areas also have a significant population using residential wood heating. Both were PM_{10} non-attainment areas and have had programs in place for years that encourages the use of certified woodstoves. All of Oregon now has the Heat Smart Program which requires the removal of non-certified woodstove upon sale of a home. Certified wood stoves emit far less CO than non-certified stoves.

3.3 PM_{10} Trends

Over the last 20 years PM_{10} levels have dropped statewide because of permitting programs and other reduction strategies. Figure 2 shows the PM_{10} trends for Grants Pass and Klamath Falls from 1987 to 2010. Table 2 provides the design values from 2000 to 2010. Grants Pass has been below the NAAQS since 1988 and Klamath Falls has been below the NAAQS since 1991.

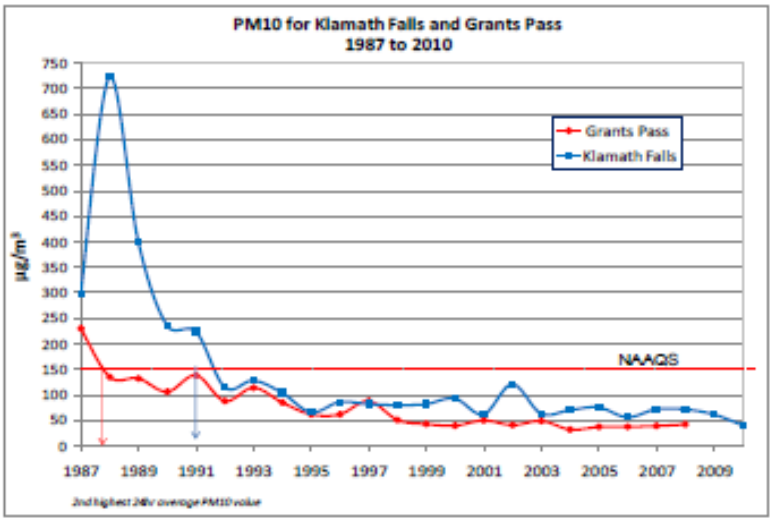

Figure 2. Grants Pass and Klamath Falls PM_{10} trends.

Second highest 24 hour average PM_{10} values.

Table 2. Grants Pass and Klamath Falls PM_{10} design values.

	Grants Pass		Klamath Falls	
	(µg/m3)	% of NAAQS	(µg/m3)	% of NAAQS
2000	40.0	27%	93.0	62%
2001	50.0	33%	62.0	41%
2002	41.0	27%	121.0*	81%
2003	49.0	33%	63.2	42%
2004	32.3	22%	70.4	47%
2005	37.5	25%	75.5	50%
2006	37.7	25%	56.3	38%
2007	39.3	26%	71.8	48%
2008	42.3	28%	71.7	48%
2009	ND	ND	61.8	41%
2010	ND	ND	40.8	27%

Based on annual 2nd highest, 24 hour average.

* The 2002 Klamath Falls PM_{10} value was from a forest fire but was not considered an exceptional event because it was below the NAAQS.

3.4 PM_{10} Emission Sources in Eugene/Springfield and Medford

In the past, PM_{10} emissions in Medford and Eugene/Springfield were primarily from industrial and area sources. Both areas have EPA Title V sources with Plant Site Emission Limits over 100 tons per year. Industrial sources were regulated and now have cyclones , bag houses, and more efficient boilers to control emissions. Other methods such as Wigwam burners were outlawed. If these sources wanted to emit more PM_{10} they would have to go through Prevention of Significant Deteriation review.

The primary source of PM_{10} is now smoke from residential wood heating. Medford and Eugene/Springfield were PM_{10} non-attainment areas and have had programs in place for years that encourage the use of certified woodstoves. All of Oregon now has the Heat Smart Program which requires the removal of non-certified woodstove upon sale of a home. Certified wood stoves emit far less PM_{10} than non-certified stoves.

4. Fraction of PM_{10} that is $PM_{2.5}$

In Oregon, PM_{10} is mostly made up of $PM_{2.5}$. This section will show the results of years of wintertime collocated PM_{10} and $PM_{2.5}$ sampling in Klamath Falls and Grants Pass to ascertain the PM coarse (PMc) fraction of PM_{10}. In Oregon, winter weather occurs from November through February. This is when most winter inversions occur and the highest concentrations are measured.

Monitoring Discontinuation Justification

4.1 Klamath Falls PM_{10} vs. $PM_{2.5}$

Comparable PM_{10} and $PM_{2.5}$ FRM samplers were operated in Klamath Falls from 2007 through 2010. Comparison of the winter $PM_{2.5}$ and PM_{10} data shows a correlation with an R Squared of 0.87 (Figure 3). During this period there were 17 samples greater than ¼ of the NAAQS, three of which were greater than ½ the NAAQS. The highest value in the past three winters was 57% of the PM_{10} NAAQS. On average, winter PM_{10} is 70% $PM_{2.5}$ by weight with a 95% confidence level of 66% to 74% (summarized in Table 3). Figure 4 shows the $PM_{2.5}$ and PMcoarse fractions for the highest winter values for 2007-2009.

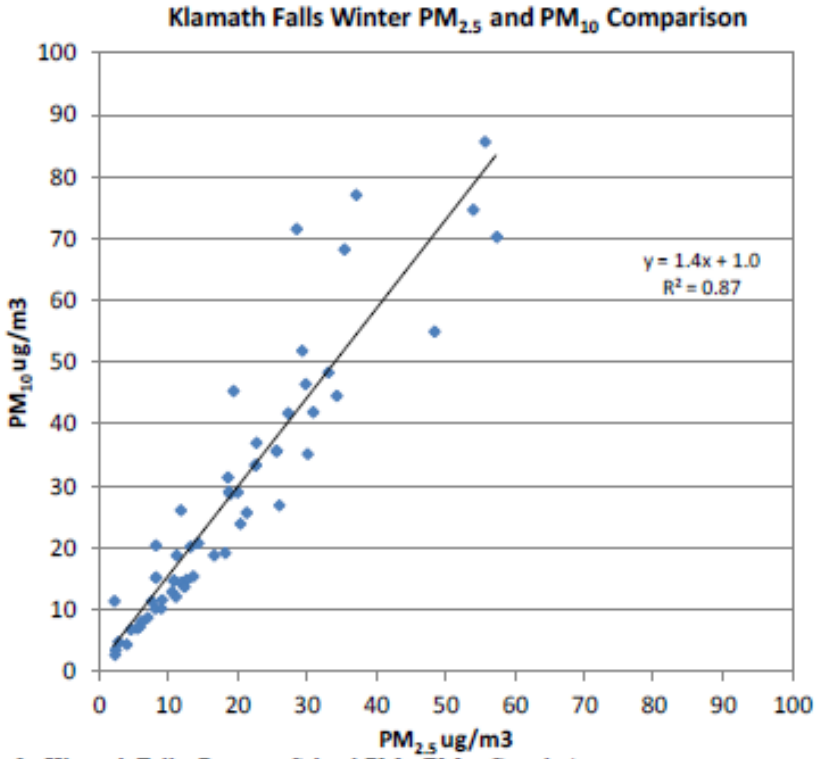

Figure 3. Klamath Falls, Peterson School $PM_{10}/PM_{2.5}$ Correlation.

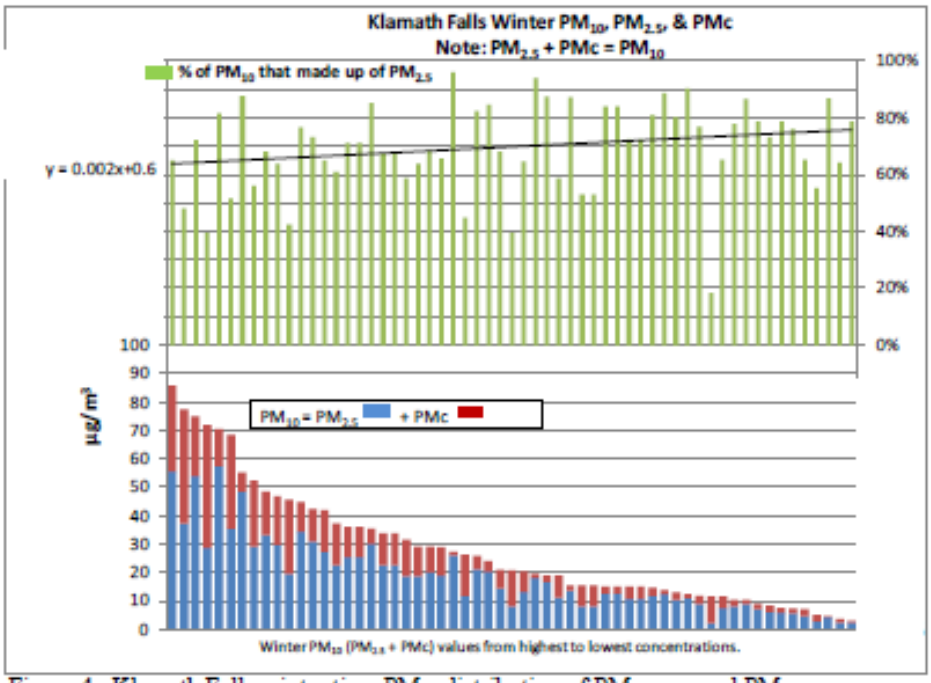

Figure 4. Klamath Falls winter time PM_{10} distribution of PMcoarse and $PM_{2.5}$.
Note: In Figure 4, PMc(red)+$PM_{2.5}$ (blue) = PM_{10}

Over the past ten years there were two years with elevated days outside of winter. In 2002, massive forest fires caused elevated levels during August; the PM_{10} was mostly $PM_{2.5}$. In 2009, a dust event caused an elevated level in early October. The dust event had a low $PM_{2.5}$ quotient but the PM_{10} concentration (87µg/m^3) was well below the NAAQS. If that single dust event was included in the linear regression done in Figure 2, the RSquared would change from 0.87 to 0.76 and the equation would change from y =1.4x+1.0 to y =1.4x+3.2. This is only a 2.2µg/m^3 higher PM_{10} derived value if the dust event is included.

4.2 Grants Pass PM_{10} vs. $PM_{2.5}$:
Comparable PM_{10} and $PM_{2.5}$ samplers were co-located in Grants Pass from 2006 through 2008. The $PM_{2.5}$ and PM_{10} correlation has an R Squared of 0.94 (Figure 5).

From 2006 to 2008 there were only four samples over ¼ of the NAAQS, and none over ½ the NAAQS. On average, winter PM_{10} is 73% $PM_{2.5}$ by weight with a 95% confidence level of 70% to 76% (summarized in Table 3). The highest value in the past three winters was only 29% of the PM_{10} NAAQS. Figure 6 shows the $PM_{2.5}$ and PM coarse fractions for the winter values for 2006-2008.

Monitoring Discontinuation Justification

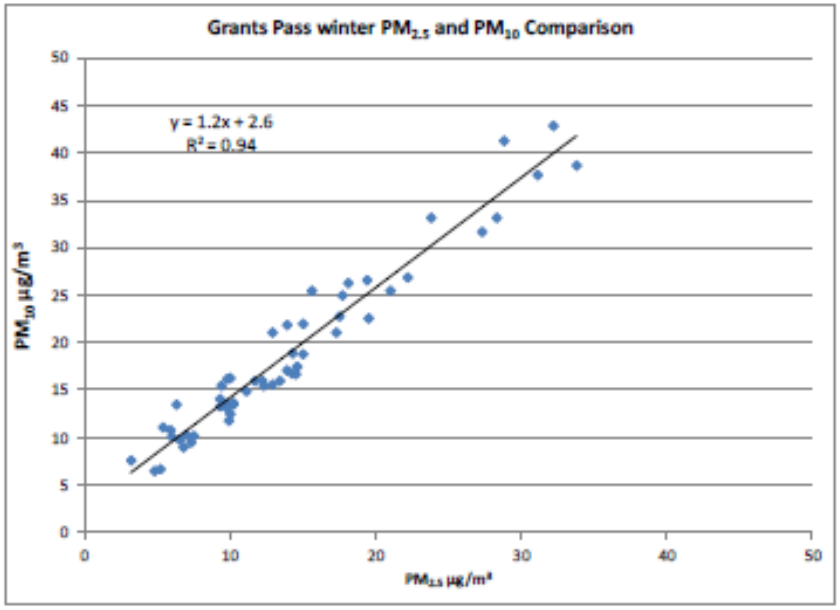

Figure 5. Grants Pass, Parkside School PM10/PM2.5 Correlation.

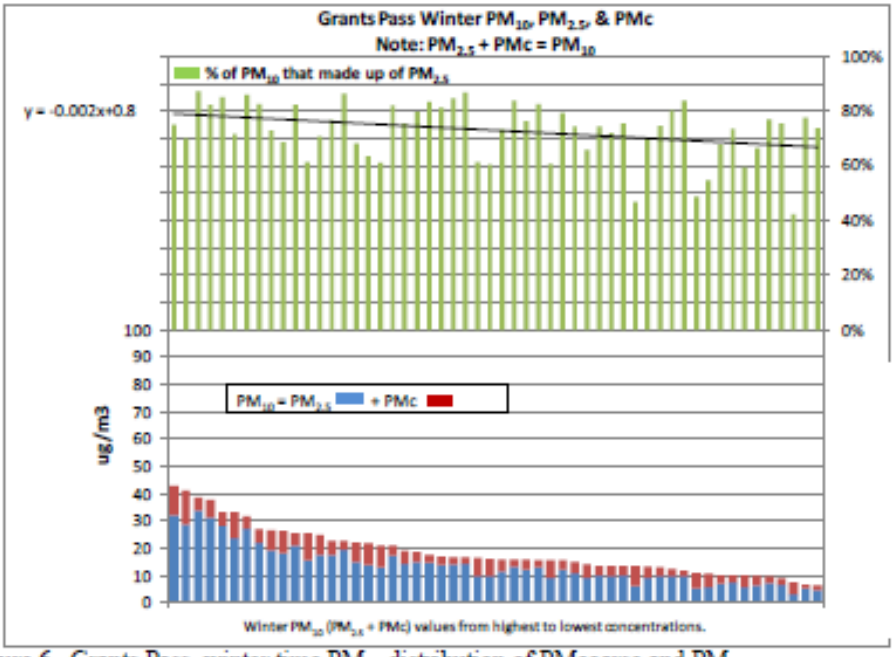

Figure 6. Grants Pass, winter time PM_{10} distribution of PMcoarse and $PM_{2.5}$.
Note: In Figure 6, PMc(red)+$PM_{2.5}$ (blue) = PM_{10}

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4.3 PM_{10} vs. $PM_{2.5}$ Summary:
Table 3 shows the summary of the winter co-located PM_{10} and $PM_{2.5}$ samples. This percentage shows the percentage (by weight) of PM_{10} that is $PM_{2.5}$.

Table 3. $PM_{2.5}$ fraction of PM_{10} Average and 95% confidence level.

	Average	95% Confidence Level
Klamath Falls	70%	66% - 74%
Grants Pass	73%	70% - 76%

5. Emission Estimate Methods:
Modeled CO emission estimates are developed by the Metropolitan Planning Organizations (MPOs) for Eugene/Springfield and Medford as part of the transportation conformity requirements in the maintenance plans in accordance with Clean Air Act section 176(c). Transportation conformity ensures that federal funding and approval are given to highway and transit projects that are consistent with ("conform to") the air quality goals established by a SIP. Conformity, to the purpose of the SIP, means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the NAAQS.

A regional emissions analysis is a major component of demonstrating transportation conformity. The regional emissions analysis includes emissions from all current and planned regionally significant projects in the entire transportation system in the maintenance area for the duration of the transportation plan or TIP. The regional emissions analysis must use the latest planning assumptions and latest emissions model.

This following section discusses the regional emissions analyses conducted in Eugene/Springfield and Medford for transportation conformity determinations.

5.1 The Central Lane MPO Regional Emissions Analysis
The Central Lane MPO is the agency responsible for performing the regional emissions analysis in the Eugene/Springfield maintenance area. The most recent regional emissions analysis was completed in 2010 for the "FY10-13 Metropolitan Transportation Improvement Program."

The 2010 CO emissions projections from the regional emissions analyses are shown in Table 4 (in tons per year). The first year listed, 2004, is the regional land use/transportation model base year.

Monitoring Discontinuation Justification

Table 4. 2010 CO emission estimates within the Eugene/Springfield boundary.

Analysis Year	Estimated CO Emissions (tons/yr)
2004	*2,198*
2008	1,634
2018	1,160
2028	1,056
2031	1,059

5.2 The Rogue Valley Regional Emissions Analysis

The Rogue Valley MPO is the agency responsible for performing the regional emissions analysis in the Medford maintenance area. The most recent regional emissions analysis was completed in 2010 "2010-2013 Metropolitan Transportation Improvement Program 2009-2034 Regional Transportation Plan".

The 2010 AQCD's CO emissions from the regional emissions analysis are shown in Table 5 (in pounds per day). The first year listed, 2005, is the regional land use/transportation model base year used in the "2001-2023 Regional Transportation Plan and 2002-2005 Transportation Improvement Program".

Table 5. 2010 CO emission estimates within the Medford urban growth boundary.

Analysis Year	Estimated CO Emissions (lbs/day)
2005	*33,910*
2015	19,359
2020	20,280
2026	19,770
2034	32,640

6. An alternate approach for tracking the pollutant

CO and PM_{10} maintenance plans required continued monitoring to determine NAAQS compliance. If the monitoring agency discontinues monitoring, CO and PM_{10} must be tracked using alternative methods. This section outlines the specific tracking methods ODEQ and LRAPA will use for CO in Medford and Eugene/Springfield, and PM_{10} in Klamath Falls and Grants Pass.

6.1 Tracking Carbon Monoxide:

Carbon monoxide has traditionally been tracked by monitoring and modeling. Once monitoring is discontinued in the Eugene/Springfield and Medford maintenance areas, regional emissions modeling will be the primary method of tracking CO.

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Because on-road motor vehicle emissions are the primary source of CO in the Eugene/Springfield and Medford maintenance areas, ODEQ believes the regional emissions analysis conducted for the CO maintenance areas provides an effective surrogate method for tracking CO emissions. The regional emissions analysis must use the latest planning assumptions (e.g., population, vehicle miles traveled, employment estimates) and the latest emissions model. The regional emissions modeling is done at least every four years and produces CO estimates based on current and planned transportation activities throughout the CO maintenance areas. If these estimates exceed the base year estimates (shown in italics in Tables 4 and 5), then the current CO concentrations may be higher than the design values for those years (3.4 ppm in Eugene in 2004 and 3.8 ppm in Medford in 2005, see Table 1). If this occurs, EPA and ODEQ or LRAPA will decide whether to conduct CO survey monitoring. If the CO survey monitoring shows levels > ½ of the NAAQS, then CO monitoring will be restarted. Survey monitoring is done with an inexpensive non-FRM monitor.

ODEQ will also continue to monitor CO in Portland. This monitoring will track general CO concentrations, because if the CO levels increase in Portland, they may also be going up in the other cities. If the Portland CO design value exceeds ½ the NAAQS, survey monitoring may be performed at the former Medford and Eugene/Springfield CO sites to determine current conditions. If the surveyed CO levels are ½ the NAAQS, CO monitoring will be restarted.

The CO estimates will be included in the annual network review.

6.2 Tracking PM_{10}:

PM_{10} in Klamath Falls and Grants Pass will be tracked using $PM_{2.5}$ monitoring. The major source of PM_{10} in these communities is smoke from wood heating. The percentage of PM_{10} which is $PM_{2.5}$ is known in both of these communities and PM_{10} estimates can be made using $PM_{2.5}$ monitored levels. $PM_{2.5}$ is monitored with both continuous and FRM samplers. Table 6 contains the linear regression equations used to estimate PM_{10} from $PM_{2.5}$ at these sampling locations.

The PM_{10} estimates will be included in the annual network review.

7. Alternate contingency measure trigger

CO and PM_{10} maintenance plans contain contingency triggers which are tied to monitored levels. If the trigger concentration is reached, ODEQ or LRAPA must institute the contingency measures outlined in the maintenance plan. If the monitoring agency wants to discontinue monitoring, they need to offer an alternative method to measure air quality for comparison to the trigger level. This section outlines the specific alternative trigger methods for CO in Medford and Eugene/Springfield, and PM_{10} in Klamath Falls and Grants Pass.

7.1 Alternative trigger for CO for Medford UGB:

Contingency trigger requirements:

On March 9th, 2001, the Environmental Quality Commission adopted the State implementation plan revision for carbon monoxide in the Medford urban growth boundary (a

Monitoring Discontinuation Justification

plan for maintaining the national ambient air quality standards for carbon monoxide). Section 4.52.3.3 of the plan requires a "Contingency Plan" to take effect if the second highest daily 8 hour average monitored values were 1) above 90% of the NAAQS (phase 1), or 2) above the NAAQS (phase 2). The "Plan" makes an exception for the Medford Old Car Rally.

The problem:

ODEQ had to discontinue CO monitoring due to budget cuts and very low concentrations. The contingency plan relies on continued monitoring to compare to the trigger points. ODEQ needs to adopt a trigger point based on an alternative pollutant measure.

The Solution:

For Medford, two alternative contingency trigger methods will be used. Method 1 relies on estimates produced every four years. Method 2 relies on hourly, real time data.

Method 1:

The first method will be to use the modeled CO emissions in the regional emissions analysis conducted every four years by the Rogue Valley MPO for the transportation conformity determination. If the modeled emissions are above the modeled baseline year emissions, CO survey monitoring will be started to determine whether the contingency requirements are triggered. Survey monitoring is done with an inexpensive non-FRM monitor.

Method 2:

The Portland, SE Lafayette CO monitor will be used as a surrogate. This provides real time monitoring data. If the Portland monitor reaches ½ the NAAQS, survey sampling will be started in Medford to determine whether the contingency requirements are triggered. Survey monitoring is done with an inexpensive non-FRM monitor.

7.2 Alternative trigger for CO for Eugene/Springfield AQMA:

Contingency trigger requirements:

On February 27th, 1992, Lane Regional Air Pollution (now Protection) Authority sent an addendum to their carbon monoxide maintenance plan title "Contingency Commitment for Amendment of Oregon's SIP, Eugene-Springfield carbon monoxide Attainment Redesignation & Adoption of Maintenance Plan". The letter committed LRAPA to a carbon monoxide contingency plan as part of their carbon monoxide maintenance plan. The letter stated that "Within 60 days of reporting on AIRS that a violation of the carbon monoxide NAAQS has occurred within the Eugene-Springfield AQMA, LRAPA and LCOG will submit to the EPA a contingency plan for attaining the standard, which will be implemented as expeditiously as practicable". Since the carbon monoxide NAAQS was never violated following this letter, the contingency plan for attaining the standard was never required.

The problem:

LRAPA had to discontinue CO monitoring due to budget cuts and low CO concentrations. The contingency plan relies on continued monitoring to compare to the trigger points. LRAPA needs to adopt a trigger point based on an alternative pollutant measure.

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The Solution:
For Eugene/Springfield, one of two alternative contingency trigger methods will be used. Method 1 relies on estimates produced every four years. Method 2 relies on hourly, real time data.

Method 1:
The first method will be to use the modeled CO emissions in the regional emissions analysis conducted every four years by the Central Lane MPO. If the modeled emissions are above the modeled baseline year emissions, CO survey monitoring will be started to determine whether the contingency requirements are triggered. Survey monitoring is done with an inexpensive non-FRM monitor.

Method 2:
The Portland, SE Lafayette CO monitor will be used as a surrogate. This provides real time monitoring data. If the Portland monitor reaches ½ the NAAQS, survey sampling will be started in Eugene to determine whether the contingency requirements are triggered. Survey monitoring is done with an inexpensive non-FRM monitor.

7.3 Alternative trigger for Klamath Falls PM_{10} Urban Growth Boundary
Contingency trigger requirements:
In October 2002, the Klamath Falls PM_{10} maintenance plan was finalized, installing a contingency plan that said:

Phase 1: Risk of Violation

The County and DEQ will reconvene a planning group to develop an action plan if ambient concentrations (actual or estimated) equal or exceed 90% of the NAAQS concentration of PM_{10} (135µg/m3 for the 24 hour average or 45µg/m3 for an annual average) at Peterson School. The planning group will prepare an action plan that includes a schedule for implementation of additional strategies as necessary to prevent an exceedance or violation of PM_{10} standards. If the high PM_{10} concentration was determined to be a natural event based on EPA's policy or an exceptional event, no further action may be needed.

Phase 2: Actual Violation

If a violation of the PM_{10} standard occurs and is validated by DEQ, the following contingency measures will automatically be implemented:

The problem:
DEQ had to discontinue PM_{10} monitoring due to budget cuts and low PM_{10} levels. The contingency plan relies on continued PM_{10} monitoring to compare to the trigger points. ODEQ needs to adopt a trigger point based on an alternative pollutant measure.

The Solution:
The PM_{10} alternative pollutant measure will be to use $PM_{2.5}$ monitoring as a surrogate. The $PM_{2.5}$ relationship to PM_{10} has been established in recent years with collocated PM_{10} and $PM_{2.5}$ monitors. Linear regression analysis was performed on the PM_{10} and $PM_{2.5}$ data

(Figure 3) and a linear regression equation was established (Table 6). Using this linear regression equation, ODEQ has determined the $PM_{2.5}$ concentration needed to trigger the PM_{10} "Risk of Violation" and "Actual Violation" levels discussed above, also shown in Table 6.

7.4 Alternative trigger for Grants Pass PM_{10} Urban Growth Boundary

Contingency trigger requirements:

In October 2002, the Grants Pass PM_{10} maintenance plan was finalized, installing a contingency plan that said:

> "DEQ will convene a planning group if the 24-hour PM_{10} concentration as measured at the Grants Pass PM_{10} monitor equals or exceeds 120µg/m^3. The planning group will assess the probable emissions event resulting in the elevated PM_{10} level and consider a range of measures with the potential to reduce emissions. However, if a violation of the 24-hour PM_{10} standard occurs, Lowest Achievable Emission Rate requirements, plus offsets, for major new industrial sources in the UGB will be restored and the exemption for offsets eliminated."

The problem:

ODEQ discontinued PM_{10} monitoring due to budget cuts and low PM_{10} levels. The contingency plan relies on continued PM_{10} monitoring to compare to the trigger points. ODEQ needs to adopt a trigger point based on an alternative pollutant measure.

The Solution:

The PM_{10} alternative pollutant measure will be to use $PM_{2.5}$ monitoring as a surrogate. The $PM_{2.5}$ relationship to PM_{10} has been established in recent years with collocated PM_{10} and $PM_{2.5}$ monitors. Linear regression analysis was performed on the PM_{10} and $PM_{2.5}$ data (Figure 3) and a linear regression equation was established (Table 6). Using this linear regression equation, DEQ has determined the $PM_{2.5}$ concentration needed to trigger the PM_{10} trigger of 120µg/m^3. This is shown in Table 6.

Table 6. Linear regression equations and ratios used to estimate PM_{10} using $PM_{2.5}$.

	Klamath Falls	Grants Pass
Linear Regression Equation	y = 1.4x + 3.2	y = 1.2x + 2.6
$PM_{2.5}$ trigger for "Risk of Violation"	94 µg/m^3	
$PM_{2.5}$ trigger for "Actual Violation"	105 µg/m^3	
$PM_{2.5}$ trigger for 120 µg/m^3 PM_{10}		101 µg/m^3

Y = PM_{10}, X = $PM_{2.5}$

8. Conclusion

Budget cuts have forced ODEQ and LRAPA to cut CO and PM_{10} monitoring where they are required by the maintenance plans for compliance determination and contingency measure triggers. Fortunately, the CO and PM_{10} levels are so far below the NAAQS that there is very little probability that the monitors would trigger the contingency plans. Regardless, the maintenance plans need ambient levels for comparison, so alternative methods are needed to estimate concentrations. The alternative contingency plans described in this document will

allow ODEQ and LRAPA to track CO and PM_{10} levels into the future. If levels start trending back up near the NAAQS, funding from other monitoring can be shifted and CO and PM_{10} monitors restarted. This is very unlikely however.

Finally, monitoring is only required during the first 20 years of the maintenance plan. The monitoring requirement for Eugene/Springfield CO expires in 2014. The monitoring requirements for Medford CO will expire in 2023 and for Grants Pass PM_{10} and Klamath Falls PM_{10}, the monitoring requirements will expire in 2023.

9. **Reference**

1. Air Quality Conformity Determination, Central Lane MPO FFY10-13 Metropolitan Transportation Improvement Program and 2007-2031 Regional Transportation Plan, October, 2010.
2. Air Quality Conformity Determination for 2010-2013. Metropolitan Transportation Improvement Program & 2009-2034 Regional Transportation Plan – Amended, Rogue Valley MPO, April, 2010.

Appendix E

Inventory Preparation and Quality Assurance Plan
for the
Grants Pass Urban Growth Boundary Limited PM10 Maintenance Plan

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

Inventory Preparation and Quality Assurance Plan for the Grants Pass Urban Growth Boundary Limited PM_{10} Maintenance Plan

March 2014

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1. INTRODUCTION

The Grants Pass PM_{10} maintenance area was classified as a "Group 1 Planning Area" in 1987 by the Environmental Protection Agency (EPA) for violating the 24-hour PM_{10} standard. In 1990, EPA formally designated Grants Pass as a moderate nonattainment area for the 24-hour standard, 150µg/m^3.

Monitoring data shows that Grants Pass area has been in attainment of the standard since 1989. Full compliance for the area was achieved by 1990 with no exceedances recorded at the PM_{10} monitor for three consecutive years. The area was reclassified to attainment for the 24-hour PM_{10} standard in December 2003 when EPA approved the first maintenance plan designed to maintain compliance with the 24-hour PM_{10} standard through the year 2015. The second maintenance plan is due in 2015. Once approved by EPA, the second maintenance plan will fulfill the final maintenance planning requirements of the Clean Air Act. This Inventory Preparation Plan is in support of the development of the required second PM_{10} maintenance plan.

The Grants Pass Urban Growth Boundary (UGB) is the maintenance area for PM_{10}. A PM_{10} monitor was located at 11th and K Streets in downtown Grants Pass from 1985 until 1999. Due to loss of property access in 1999, the monitor was relocated to the sewage treatment plant within the UGB. Measured PM_{10} levels were so low that the monitor was removed with EPA approval at the end of 2008. Since then, both continuous, non-reference method monitoring and Federal Reference Method (FRM) monitoring of $PM_{2.5}$ has been conducted in Grants Pass, which has been correlated with a co-located PM_{10} monitor to provide estimated PM_{10} values. Figure 1-1 shows the Grants Pass UGB and the present location of the monitor.

The Grants Pass UGB qualifies for the Limited Maintenance Plan (LMP) approach because the area satisfies all criteria outlined in the Limited Maintenance Plan Option for Moderate PM_{10} Nonattainment Areas (Wegman memo, 2001). The design value for 2004-2008 was 49 µg/m^3, and the risk to the community of exceeding the PM_{10} standard is low. According to the LMP guidance, EPA will consider the maintenance demonstration satisfied if the monitoring data show the design value to be at or below 98 µg/m^3 for the 24-hr PM_{10} NAAQS, and if the area expects only limited growth in on-road motor vehicle emissions. The Grants Pass UGB passes the Motor Vehicle Regional Analysis outlined in Appendix B of the Wegman memo (Appendix B attached). Oregon DEQ proposes using existing information from the EPA 2011 National Emission Inventory (NEI) to create the emissions inventory for PM_{10} sources in Grants Pass. This document describes the planned approach to the LMP EI and the basis for selecting that approach.

1.1 Geographic Area

The city of Grants Pass is located in the Rogue Valley, northwest of Medford and along the Rogue River. The city is approximately 11 sq. miles in area, and the US Census 2011 population was 34,533. The Grants Pass Parkside School Air Quality Monitoring Station is located at the corner of SW Wagner and M streets, at an elevation of 277 meters (801 ft). Figure 1-1 shows the geographic area of the Grants Pass UGB, along with the location of the monitor.

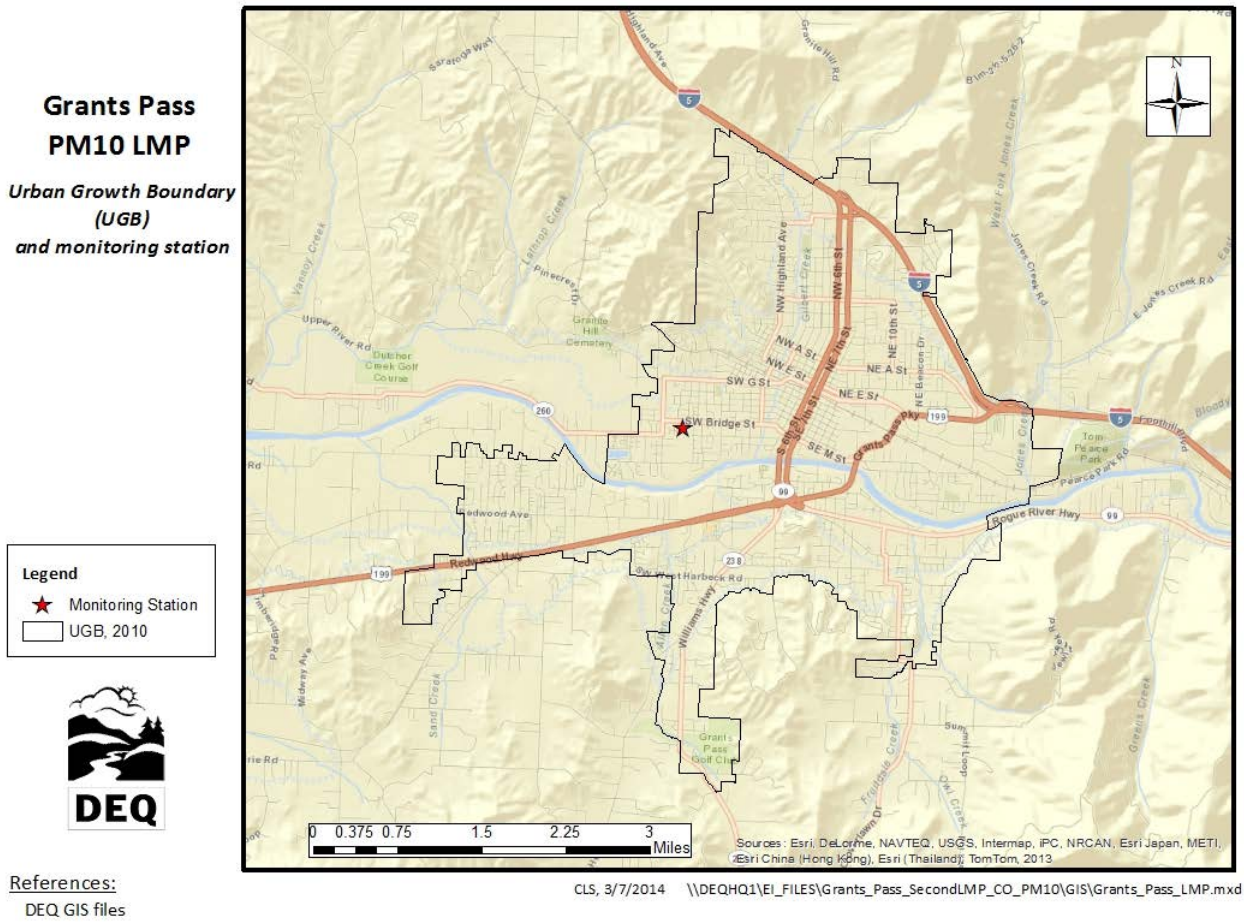

Figure 1-1. Grants Pass UGB and Location of the Air Quality Monitoring Station

1.2 Temporal Resolution

Historical exceedences of the 24-hr PM10 standard have occurred during the PM season, which is defined as four consecutive months, November 1st through the end of February. As such, in addition to annual emissions typical season day and worst-case season day emissions will be included in the inventory. The term "worst-case day" describes the maximum activity/emissions that have occurred or could occur on a season day, for each emissions source. Worst-case day emissions are summed for all sources/categories, i.e. assumed to occur on the same day. The assumption: A "perfect storm" of emissions that could cause an exceedence. The unit of measure for annual emissions will be tons per year (tpy), and the unit of measure for season day emissions will be pounds per day (lb/day).

2. INVENTORY DEVELOPMENT

The DEQ will develop an emission inventory using EPA 2011 National Emissions Inventory (NEI) data for Josephine County. We will temporally allocate the EI data to PM season, and spatially allocate the county-wide NEI data to the Grants Pass UGB, or to buffers around the UGB or monitor, depending on emissions category. All data sources and allocation methods will be documented. The emission inventory will be consistent with the 1993 inventory.

2.1 Data Categories

From the base year (1993) emission inventory for the maintenance plan, the most significant categories of PM_{10} emissions in the Grants Pass UGB are re-entrained road dust, residential wood combustion, small stationary fossil fuel combustion, and permitted point source fossil fuel combustion. Table 2.1 shows the breakdown by category for worst-case day PM_{10} emissions in 1993.

Table 2.1. 1993 PM_{10} Seasonal Worst-Case Day Emissions by Category

Emission Inventory Category	Emissions per Day (lb/day)	Percent of Worst-Case Day Emissions
Re-Entrained Road Dust	4,512	42%
Residential Wood Combustion	4,064	38%
Small Stationary Fossil Fuel Combustion[(a)]	1,064	10%
Permitted Point Sources	591	6%
All other sources	470	4%
	-------	-------
Total	10,701	100%

(a) Non-permitted stationary residential, industrial, commercial, and institutional fuel use

2.2 Emission Sectors

We propose 14 emission inventory sources be included in this LMP for the Grants Pass maintenance area. The sectors are based on a review of emission sectors listed in the 1993 maintenance plan, and an analysis of 2011 NEI data. Table 2.2 shows the breakdown by source category of average daily PM_{10} emissions in 1993 inventory; DEQ will use the same emission source categories as in the 1993 inventory.

Table 2.2. 1993 PM_{10} Seasonal Worst-Case Daily Emissions by Source Category

Emission Source Category	Emissions per Day (lb/day)	Percent of Worst-Case Day Emissions
Permitted Point Sources	591	5.52%
Open Burning	101	0.95%
Small Stationary Fossil Fuel Combustion[(a)]	736	9.94%
Residential Wood Combustion	4,064	37.98%
Wildfires & Prescribed Burning	45	0.42%
Commercial Food Preparation[(b)]	46	0.43%
Fugitive Dust	58	0.54%
Structure Fires	12	0.12%
Aircraft & Airport Related	0[(c)]	0%
Locomotives	2	0.02%
Recreational Marine	1	0.01%
Nonroad Vehicles & Equipment	53	0.50%
Onroad Mobile: Exhaust + Brake + Tire	148	1.40%
Re-Entrained Road Dust	4,512	42.16%
	---	---
Total	10,701	100%

(a) Non-permitted stationary residential, industrial, commercial, and institutional fuel use
(b) Particulate emissions from the cooking process only; fuel used by restaurants is covered under small stationary fossil fuel combustion.
(c) Grants Pass Airport located outside the Grants Pass UGB, so emissions are not included. However, DEQ staff will verify that no additional airports/heliports are located within the UGB for the 2011 EI.

3. SPATIAL ALLOCATION METHODS

For emissions sources with specific coordinates, emissions will be mapped to either the UGB or to a buffer zone around the monitor or other boundary, depending on emissions source category. For sources without specific coordinates, spatial surrogates will be used to approximate both the location and magnitude of emissions. Spatial surrogates are typically used to approximate emissions inside smaller boundaries from larger boundaries. For sources without specific coordinates, county-wide emissions will be spatially allocated to UGB using the formula:

$$E_{UGB} = E_{COUNTY} * Surrogate_{UGB} / Surrogate_{COUNTY}$$

Where E_{UGB} = emissions in UGB,
E_{COUNTY} = county-wide emissions
$Surrogate_{UGB}$ = surrogate activity in UGB
$Surrogate_{COUNTY}$ = surrogate activity in county

Data sources, spatial surrogates or boundaries used for each category of emissions are detailed in Table 3-1.

Table 3.1. Data Sources, Spatial Surrogates and Boundaries

Sector and Category	EI Data Source	Spatial Surrogate or Boundary	Surrogate Data Source	Comment
Permitted Point	2011 NEI + DEQ	within UGB (consistent with 1993	DEQ GIS data	Source coordinates used
Nonpoint (Area)				
Open Burning	2011 NEI	zoning and burn ban boundary	DEQ and Josephine County	residential (BBB) and other (zoning)
Small Stationary Fossil Fuel Combustion	2011 NEI	zoning	Josephine County zoning	non-permitted source fuel use
Residential Wood Combustion	2011 NEI	Census block group	US Census	Census data used for allocation
Wildfires and Prescribed Burning	2008 & 2011 NEI	within a 15-km buffer of the monitor[(a)]	2008 & 2011 NEI	Fire coordinates used: Average of two year's worth of data from the NEI
Structure Fires	2011 NEI	population	US Census	2011 Census data
Commercial Food Preparation	2011 NEI	zoning	Josephine County zoning	Particulate from cooking meat
Fugitive Dust				
Road Sanding	1993 SIP EI	UGB	N/A	Growth using population as a surrogate
Aggregate storage piles	1993 SIP EI	UGB	N/A	Growth using population as a surrogate
Nonroad				
Aircraft & Airport related	2011 NEI	Grants Pass airport located outside UGB	2011 NEI (airport location)	DEQ staff will verify via GIS mapping whether or not any additional airports/heliports are located within the UGB
Locomotives				
Line-Haul (Road)	2011 NEI	track miles	DEQ GIS	Active track miles only
Switching (Yard)	2011 NEI	yard location (polygon)	DEQ GIS	
Marine (recreational)	2011 NEI	boat use days by waterbody	Oregon State Marine Board	2011 Recreational boat use days from OSMB
Nonroad Vehicles & Equipment	2011 NEI	zoning	Josephine County zoning	EPA Nonroad Model categories
Onroad Mobile				
Exhaust, Brake, Tire	2011 NEI	road miles	DEQ GIS	
Re-Entrained Road Dust				
Paved Roads	2011 NEI	paved road miles	DEQ GIS	paved road mileage
Unpaved Roads	2011 NEI	unpaved road miles	DEQ GIS	unpaved road mileage[(b)]

(a) Fire spatial and temporal data has become increasingly sophisticated since the 1993 EI. The date, emissions, and coordinates of specific fires are now available in the 2008 and 2011 NEIs. As such, a 15-km buffer around the monitor was chosen, as in the 2008 Klamath Falls PM2.5 Attainment Plan.

(b) estimated to be 0 miles; no unpaved roads within the UGB

4. TEMPORAL ALLOCATION METHODS

Annual emissions will be adjusted from tons per year to lbs per typical season and worst-case season day for each source category. Methods for each category are described below, and all methods are consistent with the 1993 EI.

4.1 Permitted Point

Typical day emissions estimates will be calculated from annual emissions utilizing facility operating schedules taken from source permits. Worst-case day emissions will be actual emissions calculated from permits, source annual reports, and DEQ point source emissions estimation reports.

4.2 Aircraft and Locomotives

Aircraft and locomotive activity will be considered uniform throughout the year. Annual emissions will be divided by 365 days to estimate typical season day and worst-case day emissions.

4.3 Nonpoint (area) and Nonroad Vehicles & Equipment

For nonpoint (area) and nonroad vehicles and equipment (excluding aircraft and locomotive), temporal allocation to season will follow the formula:

Annual to Typical Season Day = (Annual Emissions * SAF) / (weekly activity * 52 weeks/yr)

Where SAF = Seasonal Adjustment Factor =

= *(Season Activity * 12 months) / (Annual Activity * Season Months)*

(Reference: EPA-450/4-91-016, p. 5-22)

4.3.1 Open Burning

Open burning will be temporally allocated using SAF values and activity in days per week taken from the 1993 EI. Open burning is prohibited during low-ventilation days; however a worst-case scenario will be calculated using estimates for illegal open burning activity as determined in the 1993 EI.

4.3.2 Small Stationary Fossil Fuel Combustion

Annual emissions from small stationary fossil fuel combustion will be temporally allocated using SAF values and activity in days per week taken from the 1993 EI. However, the residential heating SAF will be developed from base year (2011) heating degree day (HDD) data. Worst-case day for industrial/commercial/institutional fuel use will be assumed equal to typical season day. However, worst-case day for residential heating will be allocated from typical season day using a "multiplier" (scalar) calculated from HDD data.

4.3.3 Residential Wood Combustion

Residential wood combustion annual emissions will be allocated to season using SAF values calculated from 2011 heating degree day (HDD) data. A worst-case "multiplier" (scalar) based on 2011 HDD data will be used to estimate worst-case day emissions. Activity in days per week will be taken from the 1993 EI.

4.3.4 Wildfires and Prescribed Burning

As wildfires and prescribed burning are date-specific events, DEQ will temporally allocate emissions from these sources using fire date data, available in the EPA National Emission Inventory (NEI). SAF values will be calculated using annual and seasonal fire dates. Worst-case day emissions will be assumed to be equal to typical season day emissions.

4.3.5 Structure Fires

As structure fires are date-specific events, DEQ will temporally allocate emissions from these sources using fire date data. Fire data used by DEQ to estimate structure fire emissions for the NEI is supplied by the state fire marshal. A seasonal adjustment factor (SAF) will be estimated using annual and seasonal fire dates. Worst-case day emissions will be assumed equal to typical season day emissions.

4.3.6 Commercial Food Preparation

Emissions from commercial food preparation will be temporally allocated using SAF values and weekly activity taken from the 1993 EI. The SAF and weekly activity in the 1993 EI were estimated from a Commercial Food Preparation Survey conducted in Grants Pass specifically for the emission inventory.

4.3.7 Fugitive Dust

Fugitive dust emissions will be temporally allocated using SAF values and activity in days per week taken from the 1993 EI. Fugitive dust within the UGB was determined to come from road sanding and aggregate storage piles. The 1993 SAF and weekly data is based on aggregate storage pile disturbance by month, obtained from municipal records.

4.3.8 Nonroad Vehicles & Equipment Excluding Aircraft and Locomotives

Sources of emissions covered by the Nonroad model include the following categories:

- Recreational marine
- Agricultural
- Construction
- Light commercial
- Airport Ground Support Equipment (GSE)
- Railway maintenance
- Lawn & garden
- Industrial
- Logging

Emissions from these categories will be temporally allocated to season using SAFs and weekly activity taken from the 1993 emission inventory.

4.4 On-Road Mobile

Emissions from on-road mobile, including re-entrained road dust, will be temporally allocated to season using SAF data and weekly activity taken from the 1993 emission inventory.

5. QUALITY ASSURANCE AND QUALITY CONTROL

DEQ will be using existing data that has already been quality checked. DEQ staff will perform quality assurance for accuracy, completeness, and representativeness on the spatial and temporal allocation of emissions from the existing inventory.

6. EXTERNAL AUDITS

DEQ is willing to be audited by the EPA, and make changes to this inventory preparation and quality assurance plan if warranted.

7. PERSONNEL

DEQ personnel responsible for the Grants Pass PM_{10} Limited Maintenance Plan inventory include:

Wendy Wiles, DEQ Environmental Solutions Division Administrator
Jeffrey Stocum, Air Quality Technical Services Section Manager
Emission Inventory and Air Quality Information Systems
Christopher Swab, Senior Emission Inventory Analyst
Brandy Albertson, Emission Inventory Analyst
Wesley Risher, Emission Inventory Analyst
Miyoung Park, Emission Inventory Specialist
Quality Assurance
Anthony Barnack, Air Monitoring Coordinator
David Collier, Air Quality Planning & Development Manager
Aida Biberic, Air Quality Planner

8. SCHEDULE

Table 8.1 shows the draft schedule for document submittal to EPA Region 10 and other tasks to be completed. DEQ will submit a draft inventory to EPA upon their request, and will submit a final inventory to EPA according to this Inventory Preparation and Quality Assurance Plan.

Table 8.1. Draft Project Schedule: Grants Pass Limited Maintenance Plans for CO and PM_{10}