

DRAFT

# Grants Pass Carbon Monoxide Limited Maintenance Plan

Submitted to: U.S. Environmental Protection Agency

By: State of Oregon Department of Environmental Quality

March 2015

A large, stylized, light gray illustration of a landscape occupies the left and center of the page. It features rolling hills, a winding river or path, a sun with rays, and two evergreen trees on the right side.

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State Implementation Plan Revision  
Grants Pass Carbon Monoxide Limited Maintenance Plan

**A Limited Maintenance Plan  
for Carbon Monoxide  
The Grants Pass Urban Growth  
Boundary**

**State of Oregon Clean Air Act  
Implementation Plan**

**Adopted by the Environmental Quality Commission on  
March XX, 2015**

State of Oregon  
Department of Environmental Quality  
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## Executive Summary

The City of Grants Pass and surrounding area currently meets the federal standard for Carbon Monoxide (CO). This State Implementation Plan (SIP) revision explains how this area will continue to meet this standard through 2025. EPA set the national ambient air quality standard for carbon monoxide at 35 parts per million (ppm) for a 1-hour average and 9 ppm for an 8-hour average. Like most areas of the country that failed to meet the carbon monoxide standard, Grants Pass did not meet the 8-hour portion of the standard.

Grants Pass was designated a nonattainment area for carbon monoxide on December 15, 1985 and classified as moderate upon enactment of the Clean Air Act Amendments in 1990. The downtown central business district represented the nonattainment area. The highest 8-hour CO concentration recorded in Grants Pass occurred in 1982 at level of 14.4 ppm. In that same year, Grants Pass exceeded the federal 8-hour standard of 9 ppm on 28 days. The 1-hour standard has never been exceeded in Grants Pass. By the late 1980's, maximum levels were closer to the level of the standard, and the last exceedance was in 1990.

The area was reclassified to attainment for the 8-hour CO standard in August 2000 when EPA approved the first maintenance plan designed to maintain compliance with the 8-hour CO standard through the year 2015 (see 65 FR 52932). While the central business district represented the maintenance area, EPA considered the Urban Growth Boundary to be a more representative area of influence for carbon monoxide emissions, and the 1993 emission inventory was prepared for UGB. The carbon monoxide monitor was located at 215 SE Sixth Street, known as the Wing Building. Measured CO levels were so low that the monitor was removed (with EPA approval) in 2006<sup>1</sup>. A second maintenance plan is now required, and once approved by EPA, will apply until 2025, and fulfill the final maintenance planning requirements under the Clean Air Act.

Grants Pass qualifies for a Limited Maintenance Plan (LMP), which is an option EPA provides for areas at low risk of exceeding the CO standard (see EPA 1995 Paisie Memo in Appendix A). The current 8-hour CO design value for the Grants Pass area is 4.0 ppm based on the two most recent years of data (2004-2005), which is well below the standard. According to the LMP guidance, EPA will consider the maintenance demonstration satisfied if the monitoring data show the design value is at or below 7.65 ppm, or 85 percent of the level of the 8-hour CO standard.

To qualify for the LMP approach, the control and contingency measures from the first Grants Pass CO maintenance plan must remain in place. The primary control measure has been the emission standards for new motor vehicles under the Federal Motor Vehicle Control Program. Another measure has been the New Source Review Program with Best Available Control Technology (BACT).

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<sup>1</sup> See Appendix C: EPA approval letter dated October 19, 2006, to Anthony Barnack, DEQ Air Monitoring Program, on discontinuing the Grants Pass CO monitor.

To quantify carbon monoxide emission sources in Grants Pass, DEQ used the EPA 2005 National Emission Inventory (NEI) for this plan. Since that the Grants Pass CO monitor was removed in 2006, to verify continued attainment with the CO standard, DEQ will track CO emissions every three years as part of the Statewide Emission Inventory, which is submitted to EPA for inclusion in the NEI. DEQ will review the NEI estimates to identify any increases, focusing on on-road mobile sources, which represent about 70% of the CO emissions in Grants Pass. Any emissions increase will be evaluated by DEQ to verify it is not due to a change in emission calculation methodology or other factors not representative of an actual emissions increase. For the purposes of triggering the Contingency Plan, an increase of 5 percent in either the total annual or season emissions, or the on-road mobile source category, will be considered as “significant” for triggering the contingency measures. These include resuming ambient CO monitoring in Grants Pass, and if needed, forming an advisory committee to develop new strategies to prevent or correct any violation of the CO standard, and replacing BACT with LAER control technology for industrial sources.

## **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 CO standard.

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

**Section 3 – History of the Carbon Monoxide Problem.** Summarizes Grants Pass CO compliance history and past CO monitoring data and trends.

**Section 4 – Limited Maintenance Plan Option.** Describes the criteria an area must meet to qualify for this option and how Grants Pass qualifies.

**Section 5 – Emission Inventory.** Includes historical information on the most significant CO emission categories from the original maintenance plan and an updated inventory on these categories.

**Section 6 – Continuing Control Measures.** Lists the measures that were in the original CO maintenance plan, and how these measures will be continued under this LMP.

**Section 7 – Contingency Plan.** Describes the contingency measures that apply should a violation occur in the future.

**Section 8 – Verification of Continued Attainment.** Describes how compliance will be tracked and confirmed.

**Appendices –** Supporting documentation for this LMP.

# 1. Introduction

This State Implementation Plan revision explains how the Grants Pass carbon monoxide (CO) 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 CO 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 1995 Paisie Memo).

The Clean Air Act requires EPA to set air quality standards to protect public health for six common air pollutants, including carbon monoxide. In 1971 EPA set the national ambient air quality standard for carbon monoxide. Carbon monoxide is a colorless, odorless gas that decreases the oxygen carrying capacity of the blood. High concentrations can severely impair the function of oxygen-dependent tissues, including the brain, heart, and muscle. Prolonged exposure to even low levels can aggravate existing conditions in people with heart disease or circulatory disorders. Motor vehicles are the primary source of CO in Oregon.

EPA established the national ambient air quality standard for CO at 35 parts per million (ppm) for a 1-hour average and 9 ppm for an 8-hour average. Two exceedances within one calendar year constitute a violation. Like most areas of the country that failed to meet the CO standard, Grants Pass did not meet the 8-hour portion of the standard<sup>2</sup>.

## 2. Geographic Area

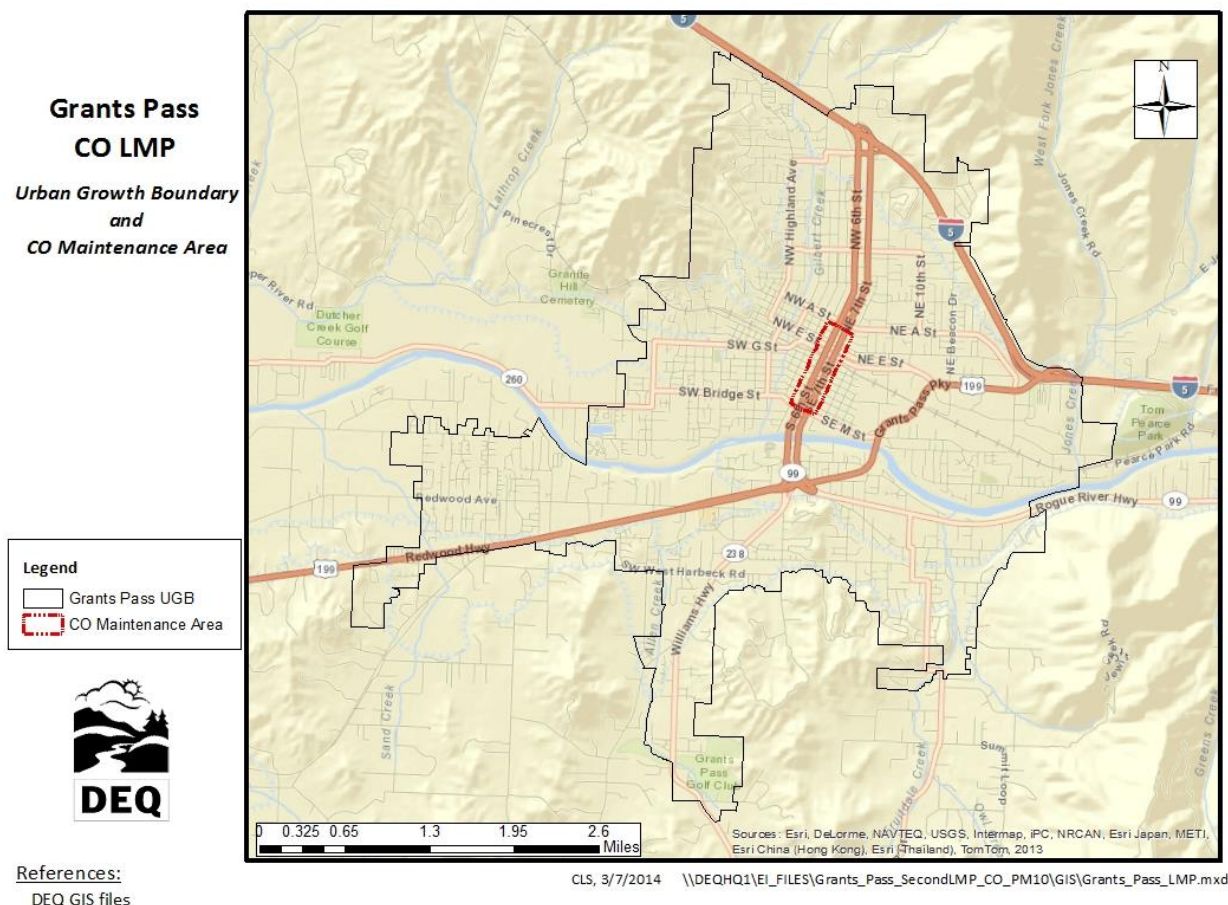
The City of Grants Pass is located in southwestern Oregon, on the western side of the Cascade Mountains, in the Rogue Valley, northwest of Medford and along the Rogue River. The city is approximately 11 sq. miles in area, and the US Census 2013 population was 35,076. The surrounding hills can trap air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

Figure 1 shows the Grants Pass central business district, which is the maintenance area, and the Grants Pass UGB, which is the geographic area subject to this limited maintenance plan. Inside the central business district is the location of the monitoring station, at 215 SE Sixth Street. This district is defined by “B street” to the north, 8<sup>th</sup> street to the east, “M” street to the south, and 5<sup>th</sup> street to the west.

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<sup>2</sup> 40CFR part 50.8 states that standards defined in parts per million should be compared “in terms of integers with fractional parts of 0.5 or greater rounding”. This led to an interpretation by EPA that any 8-hour CO concentration of less than 9.5 ppm would be equivalent to attainment. Therefore, concentrations at or above 9.5 ppm represent an exceedance of the standard. Two exceedances in one calendar year constitute a violation.

**Figure 1. Grants Pass UGB and location of the CO Monitoring Station**



### 3. History of CO Problem in Grants Pass

DEQ began monitoring carbon monoxide in Grants Pass in 1980. The monitor was located at 215 SE 6<sup>th</sup> Street, known as the Wing Building, and has remained at that location until it was removed in 2006.<sup>3</sup> A saturation survey conducted during the winter of 1993-1994 confirmed this location to be the best location for monitoring “worst case” CO concentrations.

A violation of the carbon monoxide standard occurs when there are two exceedances within one calendar year. The highest 8-hour CO concentration recorded in Grants Pass occurred in 1982 at level of 14.4 ppm. In that same year, Grants Pass exceeded the federal 8-hour standard of 9 ppm on 28 days. The 1-hour standard has never been exceeded in Grants Pass.

<sup>3</sup> See Appendix C: EPA approval letter dated October 19, 2006, to Anthony Barnack, DEQ Air Monitoring Program, on discontinuing the Grants Pass CO monitor in 2006.



In 1985, the Grants Pass Central Business District was designated by EPA as a nonattainment area for carbon monoxide. By the late 1980's, maximum levels were closer to the standard level, and the last exceedance was in 1990.

DEQ submitted a CO maintenance plan in November 1999, which EPA approved on August 2000 (65 FR 52932), and resulted in Grants Pass being reclassified to attainment with the carbon monoxide standard. The maintenance plan was to maintain compliance with the 8-hour carbon monoxide standard through the year 2015. While the central business district represented the maintenance area, EPA considered the Urban Growth Boundary to be a more representative of the area of influence for carbon monoxide emissions, and the 1993 emission inventory was prepared for UGB.

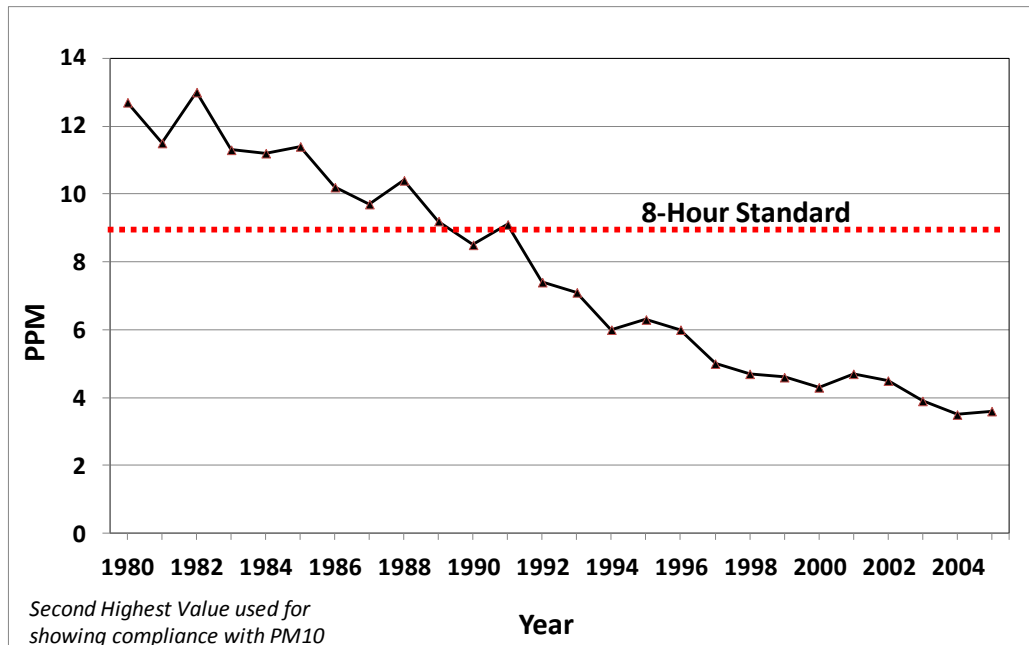
The trend in carbon monoxide levels, as recorded at the Wing Building monitor in downtown Grants Pass, is shown below in Table 1 and Figure 2. Since a violation is triggered by two exceedances in a calendar year, Figure 2 shows only the second highest concentration trend. Measured CO levels were so low that the monitor was removed with EPA approval in 2006 (the last full year of data is 2005).

**Table 1. Grants Pass Carbon Monoxide Concentrations 1980-2005**

<b>Year</b>	<b>8-hour CO Averages</b>	
	<b>Maximum</b>	<b>2<sup>nd</sup> Highest</b>
1980	13.3	12.7
1981	11.6	11.5
1982	14.4	13
1983	12.3	11.3
1984	12.9	11.2
1995	11.7	11.4
1996	10.4	10.2
1987	10.1	9.7
1988	10.8	10.4
1989	9.6	9.2
1990	9.9	8.5
1991	9.2	9.1
1992	8.3	7.4
1993	7.7	7.1
1994	6.6	6
1995	7.2	6.3
1996	6.4	6
1997	5.3	5
1998	4.7	4.7
1999	5	4.6
2000	4.5	4.3
2001	5.5	4.7
2002	4.6	4.5
2003	3.9	3.9
2004	4	3.5
2005	3.9	3.6



**Figure 2. Grants Pass Carbon Monoxide Trend 2<sup>nd</sup> highest 8-hour average, 1980-2005**



#### **4. Limited Maintenance Plan Option**

EPA developed the Limited Maintenance Plan (LMP) option for areas with little risk of re-violating the carbon monoxide standard (see 1995 Paisie Memo, Appendix A). EPA allows states to use this policy to prepare the required second 10-year maintenance plans, if the monitoring data show the design value is at or below 85 percent of the 8-hour CO standard, or 7.65 ppm. Determining the design value in this case is based on the higher of the two annual second highs in a two year calendar period. The Grants Pass 8-hour design value is 4.0 ppm, based on the two most recent years of data (2004-2005). This is well below both the 8-hour standard and the 85 percent level, so the area is eligible for the LMP option.

The LMP approach does not require future year emission projections or a maintenance demonstration. A LMP must include an attainment inventory, provisions for verification of continued attainment, a contingency plan and a statement regarding conformity determinations. Due to the low measured CO values in Grants Pass over the past 20 years, DEQ does not anticipate that CO levels will approach levels that would violate or exceed the 8-hour CO standard, and as noted above, has never exceeded the 1-hour CO standard.

#### **5. 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 CO standard. An inventory preparation and quality assurance plan (IPP) for the Grants Pass UGB was submitted to EPA in

March 2014, and is provided in Appendix D. EPA reviewed the plan and agreed that the inventory be developed using EPA's 2005 National Emission Inventory (NEI) data for Josephine County. In accordance with requirements for the LMP option, no emission projections were calculated.

Historically, exceedences of the CO 8-hour standard in Grants Pass have occurred during the winter months, when cooler temperatures contribute to incomplete combustion, and when CO emissions are trapped near the ground by atmospheric inversions. As noted in Section 3, the UGB was used for the initial 1993 emission inventory since it was more representative of the area of influence for carbon monoxide emissions, and used again for the 2005 emission inventory in this LMP. Sources of carbon monoxide in Grants Pass include industry, motor vehicles, non-road mobile sources, (e.g., construction equipment, recreational vehicles, lawn and garden equipment, and area sources (e.g., outdoor burning, woodstoves, fireplaces, and wildfires). The CO season is defined as three consecutive months - December 1 through the end of February. As such, season day emissions in addition to annual emissions are included in the inventory. The unit of measure for annual emissions is in tons per year (tpy), while the unit of measure for season emissions is in pounds per day (lb/day). In addition, the county-wide EI data is spatially allocated to the Grants Pass UGB, and to buffers around the UGB, depending on emissions category.

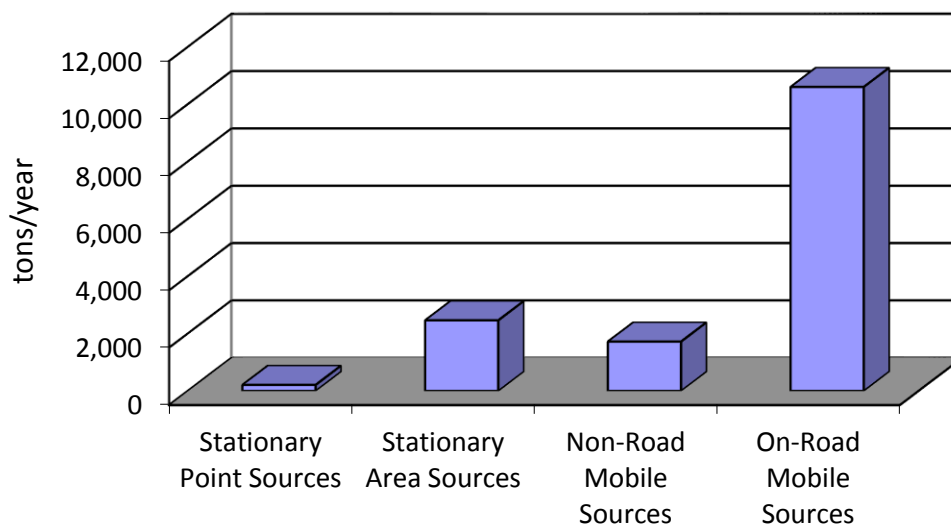
The 2005 carbon monoxide emission inventory for Grants Pass is summarized in Table 2 and Figures 3 and 4 below. The largest category of CO emissions is onroad mobile sources (primarily passenger cars and trucks). Considerably less are area sources (mostly residential wood combustion) and non-road engine sources (highest of these being commercial, industrial, and construction equipment, and lawn and garden equipment). The most significant difference between annual and seasonal emissions is that area sources during the winter season are higher (due to increased residential woodstove use), yet still much less than onroad mobile sources. While vehicle emission rates have declined steadily over preceding decades, the fact that cars and trucks tend to be operated close together and can create areas of traffic congestion, makes this source category the most likely to produce the highest CO concentrations.

A detailed breakdown of the 2005 CO emission inventory is provided in Appendix B.

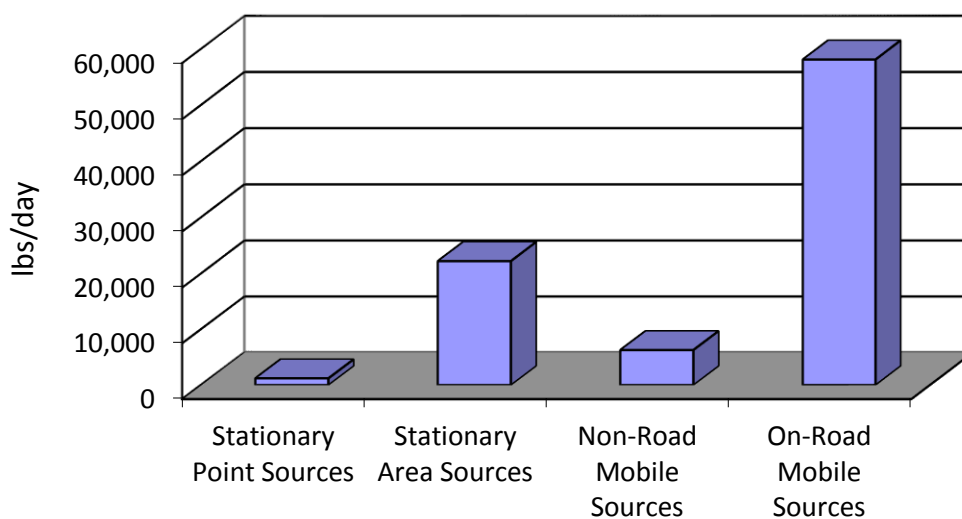
**Table 2. 2005 Grants Pass UGB CO Annual and Seasonal Emission Inventory**

Source Category	CO Emissions			
	Annual Tons / Year	Annual percent	Season Lbs / Day	Season percent
Stationary Point Sources	207	1%	1,202	1%
Stationary Area Sources	2,461.3	16%	22,244	25%
Non-Road Engine Sources	1,718.2	11%	6,289	7%
On-Road Mobile Sources	10,603.3	71%	58,120	66%
Total	14,989.7	100%	4,826	100%

**Figure 3. 2005 Grants Pass Annual CO Emissions**



**Figure 4. 2005 Grants Pass Season CO Emissions**



## 6. Continuing Control Measures

To qualify for the LMP option, the control measures from the first CO maintenance plan must remain in place and unchanged. The primary control measure has been the emission standards for new motor vehicles under the Federal Motor Vehicle Control Program. Other control measures have been the New Source Review Program, and several residential woodsmoke emission reduction efforts.

## Federal Motor Vehicle Emission Control Program

This limited maintenance plan continues to rely on federal emission standards for new motor vehicles. These requirements include the federal Tier II emission standards for new light and medium duty cars and trucks as well as standards for heavy duty on-road and non-road vehicles.

As noted in Table 2 above, on-road mobile sources are responsible for the highest CO concentrations in Grants Pass. That is because cars and trucks moving through an area can assemble in significant numbers at areas of heavy traffic. High CO concentrations typically occur over a small area close to a congested intersection; CO dissipates quickly over distance from a source.

Emission reductions mandated by the Federal Motor Vehicle Emission Control Program have been primarily responsible for the large decrease in ambient CO concentrations in the past. Before CO emissions were regulated, a typical car of the 1950s emitted approximately 87 grams of CO per mile. Since then, federal rules have lowered CO emissions to the point where today's federal Tier II requirements limit cars to no more than 3.4 grams CO per mile - a 95% reduction of CO. This program will continue to be an effective control for on-road mobile source emissions in the future.

## Major New Source Review

Under this limited maintenance plan, the emission control requirement for new or expanding major industry in Grants Pass area will continue to require Best Available Control Technology (BACT). BACT technology provides a high level of control while allowing some flexibility and consideration of the cost effectiveness of different control options.

It should be noted that very few new or expanding industrial sources are expected in the Grants Pass area, and as shown in Table 2, stationary point sources are only about 1 percent of the CO emissions.

## Woodsmoke Curtailment

As noted in the previous section, residential wood combustion emissions make up most of the stationary area source emissions, and as shown in Table 2, represent 16 percent of the total annual and 25 percent of season CO emissions in Grants Pass. The woodsmoke emission control efforts have significantly reduced particulate emissions through 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. These efforts will be continued under this limited maintenance plan, and are expected to provide modest reductions in CO emissions in Grants Pass.

## 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 Paisie 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.<sup>4</sup>

## 7. Contingency Plan

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. The first Grants Pass maintenance plan contained contingency measures that would be implemented based on monitoring data – if CO concentrations exceeded 90 percent of the 8-hour standard (8.1 ppm) or if a violation of the standard were to occur. Since the Grants Pass CO monitor was removed in 2006, these contingency measures are no longer applicable, other contingency measures are needed, which reflect an area like Grants Pass that is eligible for the LMP option and at low risk of re-violating the CO standard.

Contingency measures typically have several steps for action depending on the severity of air quality conditions. The following apply to this limited maintenance plan:

1. If DEQ's three-year periodic review of CO emissions shows a significant increase in emissions, as described in Section 8 of this plan, DEQ will then reestablish ambient CO monitoring in Grants Pass.
2. If the highest measured 8-hour CO concentration in a given year in Grants Pass exceeds the LMP eligibility level of 7.65 ppm (85 percent of the 8-hr standard), DEQ will evaluate the cause of the CO increase, and consider forming an advisory committee to recommend strategies. Within 6 months of the validated 7.65 ppm CO concentration, DEQ will determine a schedule of selected strategies to either prevent or correct any violation of the 8-hour CO standard. This will allow as choice to be made before or after an actual violation has occurred.

The contingency strategies that will be considered include, but are not limited to:

- Improvements to parking and traffic circulation
- Aggressive signal retiming program
- Funding for transit
- Implementation of bicycle and pedestrian networks

DEQ (and the advisory group if needed) may also choose to conduct further evaluation, to determine if other strategies are necessary, or to take no further action if the problem was caused by an exceptional event.

3. If a violation of the CO standard occurs, and is validated by DEQ, in addition to step 2 above, DEQ will replace the BACT requirement for new and expanding industries listed in Section 6, with the Lowest Achievable Emission Rate (LAER) technology, and reinstate the requirement to offset any new CO emissions. Additional CO emission reduction measures will be considered as

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<sup>4</sup> See Paise Memo in Appendix A for additional information on conformity requirements.

may be identified in the evaluation in step 2. Committing to further study in this way gives DEQ flexibility in choosing an appropriate approach should the need arise.

## **8. Verification of Continued Attainment**

As described in this plan, CO 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 CO standard. Given that the Grants Pass CO monitor was removed in 2006, another method of verifying continued attainment with the CO standard is needed.

DEQ will calculate CO emissions every three years as part of the Statewide Emission Inventory, which is submitted to EPA for inclusion in the NEI. DEQ will review the NEI estimates to identify any increases over the 2005 emission levels and source categories shown in Table 2 of this plan, and report on them in the annual network plan for the applicable year. Since on-road motor vehicles are the predominant source of carbon monoxide in Grants Pass (about 70%), this source category will be the primary focus of this review. Any increase in CO emissions will be evaluated by DEQ to verify it is not due to a change in emission calculation methodology, an exceptional event, or other factor not representative of an actual emissions increase.

Recognizing there could be a minor, insignificant emissions increase, for the purposes of triggering the Contingency Plan described in Section 7, DEQ will consider an increase of 5 percent in either the total annual or season emissions, or in the on-road mobile source category, as representing a “significant” emission increase.



## Appendix A

### EPA 1995 Paisie Memo

October 6, 1995

#### MEMORANDUM

SUBJECT: Limited Maintenance Plan Option for Nonclassifiable CO Nonattainment Areas

FROM: Joseph W. Paisie, Group Leader  
Integrated Policy and Strategies Group (MD-15)

TO: Air Branch Chiefs, Regions I-X

On November 16, 1994, EPA issued guidance regarding a limited maintenance plan option for nonclassifiable ozone nonattainment areas in a memorandum from Sally L. Shaver, Director, Air Quality Strategies and Standards Division, to Regional Air Division Directors. EPA believes that such an option is also appropriate for nonclassifiable CO nonattainment areas and the following questions and answers set forth EPA's guidance regarding the availability of this option for such areas. As this is guidance, final and binding determinations regarding the eligibility of areas for the limited maintenance plan option will only be made in the context of notice and comment rulemaking actions regarding specific redesignation requests.

If there are any questions concerning the limited maintenance plan option for nonclassifiable CO areas, please contact me at (919) 541-5556 or Larry Wallace at (919) 541-0906.

Attachment

cc: E. Cummings, OMS  
K. McLean, OGC  
C. Oldham  
L. Wallace

10/6/95

Limited Maintenance Plan Option for Nonclassifiable CO  
Nonattainment areas

1. **Question:**

What requirements must CO nonclassifiable areas, which are attaining the CO NAAQS with a design value that is significantly below the NAAQS, meet in order to have an approvable maintenance plan under section 175A of the Act?

**Answer:**

Nonclassifiable CO nonattainment areas seeking redesignation to attainment whose design values are at or below 7.65ppm (85 percent of exceedance levels of the CO NAAQS) at the time of redesignation may choose to submit a less rigorous maintenance plan than was formerly required. This new option is being termed a limited maintenance plan. Nonclassifiable CO areas with design values greater than 7.65ppm will continue to be subject to full maintenance plan requirements described in the September 4, 1992 memorandum, "Procedures for Processing Requests to Redesignate Areas to Attainment," from John Calcagni, former Director of the OAQPS Air Quality Management Division to the Regional Air Division Directors.

The EPA now believes that it is justifiable and appropriate to apply a different set of maintenance plan requirements to a nonclassifiable CO nonattainment areas whose monitored air quality is equal to or less than 85 percent of exceedance levels of the ozone NAAQS. The EPA does not believe that the full maintenance plan requirements need be applied to these areas because they have achieved air quality levels well below the standard without the application of control measures required by the Act for moderate and serious nonattainment areas. Also, these areas do not have either a recent history of monitored violation of the CO NAAQS or a long prior history of monitored air quality problems. The EPA believes that the continued applicability of prevention of significant deterioration (PSD) requirements, any control measures already in the SIP, and Federal measures (such as the Federal motor vehicle control program) should provide adequate assurance of maintenance for these areas.

2. **Question:**

Besides having a design value that is equal to or less than 85% of the CO NAAQS what other requirements are necessary for a nonclassifiable CO nonattainment area to qualify for the limited maintenance plan option?

**Answer:**

To qualify for the limited maintenance plan option, the CO design value for the area, based on the 8 consecutive quarters (2 years of data) used to demonstrate attainment, must be at or below 7.65ppm (85 percent of exceedance levels of the ozone NAAQS). Additionally, the design value for the area must continue to be at or below 7.65ppm until the time of final EPA action on the redesignation. The method for calculating design values is presented in the June 18, 1990 memorandum, "Ozone and Carbon Monoxide Design Value Calculations," from William G. Laxton, former Director of the OAQPS Technical Support Division to Regional Air Directors. The memorandum focuses primarily on determining design values for nonattainment areas in order to classify the areas as moderate or serious for CO. Therefore, the document discusses determining the design value for an area based on the monitors which are exceeding the standard. In the case of a nonattainment area seeking redesignation to attainment, all monitors must be meeting the standard. To assess whether a nonclassifiable area meets the applicability cutoff for the limited maintenance plan, a separate design value must be developed for every monitoring site. The highest of these design values is the design value for the whole area. If the area design value is at or below 7.65ppm, the State may select the limited maintenance plan option for the first 10-year maintenance period under section 175A. If the design value for the area exceeds 7.65ppm prior to final EPA action on the redesignation, the area no longer qualifies for the limited maintenance plan and must instead submit a full maintenance plan, as indicated in the September 4, 1992 memorandum.

3. **Question:**

What elements must be contained in a section 175A maintenance plan for nonclassifiable CO areas which qualify for the limited maintenance plan option?

**Answer:**

Following is a list of core provisions which should be included in the limited maintenance plan for CO nonclassifiable areas. Any final EPA determination regarding the adequacy of a limited maintenance plan will be made following review of the plan submittal in light of the particular circumstances facing the area proposed for redesignation and based on all relevant available information.

a. Attainment Inventory

The State should develop an attainment emissions inventory to identify a level of emissions in the area which is sufficient to attain the NAAQS. This inventory should be consistent with EPA's most recent guidance<sup>1</sup> on emissions inventories for nonattainment areas available at the time and should represent emissions during the time period associated with the monitoring data showing attainment. The inventory should be based on actual "typical winter day" emissions of CO.

b. Maintenance Demonstration

The maintenance demonstration requirement is considered to be satisfied for nonclassifiable areas if the monitoring data show that the area is meeting the air quality criteria for limited maintenance areas (7.65ppm or 85% of the CO NAAQS). There is no requirement to project emissions over the maintenance period. The EPA believes if the area begins the maintenance period at or below 85 percent of exceedance levels, the air quality along with the continued applicability of PSD requirements, any control measures already in the SIP, and Federal measures, should provide adequate assurance of maintenance over the initial 10-year maintenance period.

When EPA approves a limited maintenance plan, EPA is concluding that an emissions budget may be treated as essentially not constraining for the length of the maintenance

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<sup>1</sup>The EPA's current guidance on the preparation of emissions inventories for ozone areas is contained in the following documents: "Procedures for the Preparation of Emission Inventories for Carbon Monoxide and Precursors of Ozone: Volume I" (EPA-450/4-91-016), "Emission Inventory Requirements for Ozone State Implementation Plans" (EPA-450/4-91-010), and "Procedures for Emission Inventory Preparation: Volume IV, Mobile Sources" (EPA-450/4-81-026d).

period because it is unreasonable to expect that such an area will experience so much growth in that period that a violation of the CO NAAQS would result.

c. Monitoring Network/Verification of Continued Attainment

To verify the attainment status of the area over the maintenance period, the maintenance plan should contain provisions for 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 a limited maintenance plan because there will be no cap on emissions.

d. Contingency Plan

Section 175A of the Act requires that a maintenance plan include contingency provisions, as necessary, to promptly correct any violation of the NAAQS that occurs after redesignation of the area. 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 should ensure that the contingency measures are adopted expeditiously once they are triggered by a specified event. The contingency plan should identify the measures to be promptly adopted and provide a schedule and procedure for adoption and implementation of the measures. The State should also identify specific indicators, or triggers, which will be used to determine when the contingency measures need to be implemented. While a violation of the NAAQS is an acceptable trigger, States may wish to choose a pre-violation action level as a trigger, such as an exceedance of the NAAQS. By taking early action, a State may be able to prevent any actual violation of the NAAQS and, therefore, eliminate any need on the part of EPA to redesignate an area back to nonattainment.

e. Conformity Determinations Under Limited Maintenance Plans

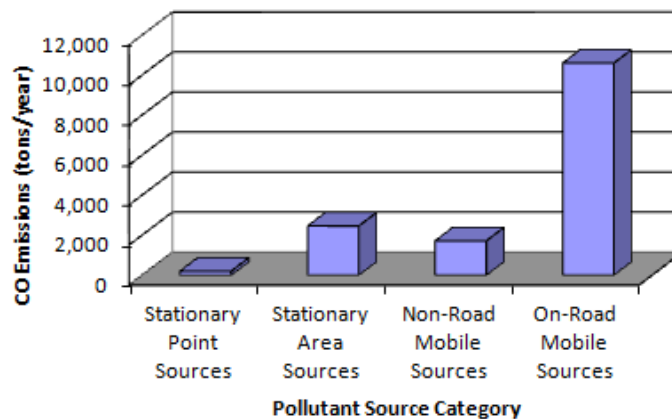
The transportation conformity rule (58 FR 62188; November 24, 1993) and the general conformity rule (58 FR 63214; November 30, 1993) apply to nonattainment areas and maintenance areas operating under maintenance plans. Under either rule, one means of demonstrating conformity of Federal actions is to indicate that expected emissions from planned actions are consistent with the emissions budget for the area. Emissions budgets in limited maintenance plan areas may be treated as essentially not constraining for the length of the initial maintenance period because it is unreasonable to expect that such an area will experience so much growth in that period that a violation of the CO NAAQS would result. In other words, EPA would be concluding that emissions need not be capped for the maintenance period. Therefore, in areas with approved limited maintenance plans, Federal actions requiring conformity determinations under the transportation conformity rule could be considered to satisfy the "budget test" required in sections 93.118, 93.119, and 93.120 of the rule. Similarly, in these areas, 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.

## Appendix B

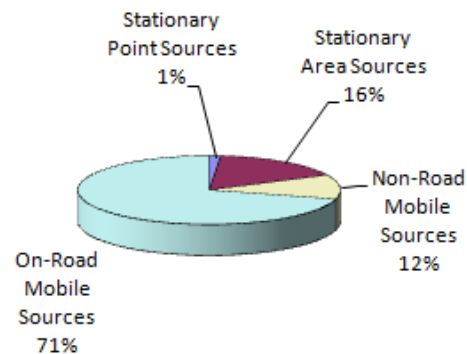
### Grants Pass 2005 Carbon Monoxide Emission Inventory

Table 2.2.1 Grants Pass UGB 2005 CO Season: Summary of Emissions by Source Type					
Carbon Monoxide Emissions					
Source Type	Year	Annual Tons / Year	Annual % of Category	CO Season Lbs / Day	CO Season % of Category
Stationary Point Sources	2005	207.0	1%	1,202	1%
Stationary Area Sources	2005	2,461.3	16%	22,244	25%
Non-Road Mobile Sources	2005	1,718.2	11%	6,289	7%
On-Road Mobile Sources	2005	10,603.3	71%	58,120	66%
Total within Grants Pass UGB		14,989.7	100%	87,855	100%

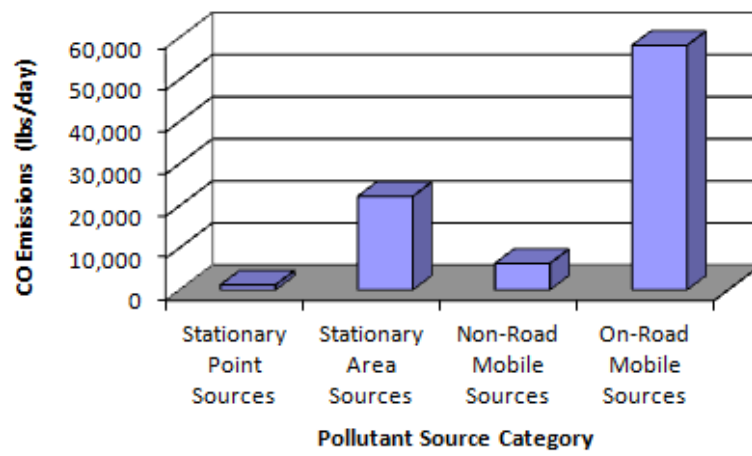
**2005 Grants Pass UGB: CO**



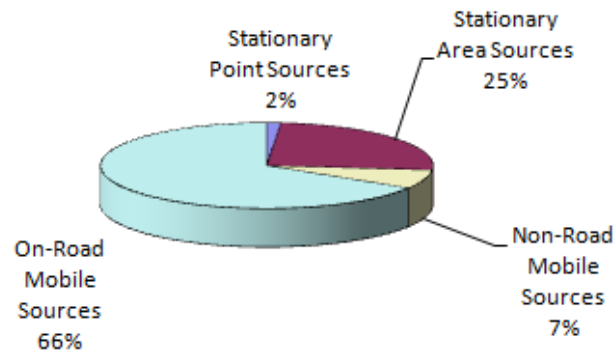
**2005 Grants Pass UGB: Annual Emissions: CO**



**2005 Grants Pass UGB: CO**



**2005 Grants Pass UGB: Lbs/Season Day: CO**



**Table 2.3.1: Grants Pass UGB 2005 CO Season: Summary of Point Source Emissions by Facility**

Emission Year	SIC Code	Source Number	Source Name	(1)	(2)
				CO Emissions	
				Annual Emissions (tpy)	Typical Season Day (lbs/day)
2005	4953	17-0003	Chapel Of The Valley Funeral Home Inc.	0.1	1
2005	2431	17-0008	Grants Pass Moulding, Inc.	0.7	5
2006	4961	17-0017	Asante Health System	1.6	9
2005	2421	17-0018	Rough & Ready Lumber CO	20.0	160
2005	4953	17-0022	City of Grants Pass	23.5	129
2005	4953	17-0028	Stephens Family Chapel	0.0	0
2005	2436	17-0029	Tim-Ply Co.	20.7	134
2005	2436	17-0030	TP Grants Pass, LLC	140.3	764
2005	2434	17-0046	MasterBrand Cabinets, Inc.	0.1	0
2005	4953	17-0062	Hull & Hull Funeral Home, Inc.	0.1	1
<b>Pollutant Total</b>				<b>207.0</b>	<b>1,202.0</b>

**Notes:**

(1) 2005 Annual Emissions from Appendix A, Table A-2

(2) TSD = Typical Season Day, 2005 TSD emissions from Appendix A, Table A-2



Table 2.4.2. Grants Pass UGB 2005 CO Season: Summary of Emissions from Area Sources

Source Description	Table #	SCC Code	1993 EI		2005 EI	
			CO Annual Emissions (tons/yr)	CO Season Emissions (lbs/day)	CO Annual Emissions (tons/yr)	CO Season Emissions (lbs/day)
<u>WASTE DISPOSAL, TREATMENT, &amp; RECOVERY</u>						
Residential Open Burning	2.4.10	26-10-030-000	219.3	692	21.0	30
Industrial Open Burning	2.4.11	26-10-010-000	20.1	111	0	0
Commercial / Institutional Open Burning	2.4.12	26-10-000-500	3.6	20	340.0	0
Commercial / Institutional On-Site Incineration	2.4.13	26-01-020-000	0.5	3	0	0
Category Subtotal			243.5	825	361.0	30
<u>SMALL STATIONARY FUEL &amp; WOOD USE</u>						
Industrial						
Fuel Oil Combustion		21-02				
Distillate	2.4.3	21-02-004-000	3.6	23	3.0	19
Residual	2.4.3	21-02-005-000	1.0	6	0.4	3
Kerosene	2.4.3	21-02-011-000	Combined with Distillate		0.09	0.6
Natural Gas Combustion	2.4.4	21-02-006-000	11.0	70	17.8	114
Liquid Petroleum Gas Combustion	2.4.5	21-02-007-000	0.8	5	0.17	1.10
Industrial Subtotal			16.4	105	21.5	138
Commercial / Institutional						
Fuel Oil Combustion		21-03				
Distillate	2.4.3	21-03-004-000	0.9	8	0.5	5
Residual	2.4.3	21-03-005-000	0.3	3	0.05	0.5
Kerosene	2.4.3	21-03-011-000	Combined with Distillate		0.07	0.62
Natural Gas Combustion	2.4.4	21-03-006-000	3.9	35	11.6	104
Liquid Petroleum Gas Combustion	2.4.5	21-03-007-000	0.1	0	0.22	1.95
Commercial Subtotal			5.2	47	12.4	112
Residential						
Fuel Oil Combustion		21-04				
Distillate	2.4.3	21-04-004-000	0.9	9	0.4	3.9
Residual	2.4.3	21-04-005-000	NA	NA	NA	NA
Kerosene	2.4.3	21-04-011-000	Combined with Distillate		0.05	0.5
Natural Gas Combustion	2.4.4	21-04-006-000	5.0	47	19.0	177
Liquid Petroleum Gas Combustion	2.4.5	21-04-007-000	0.3	2	1.4	13
Wood Combustion						
Fireplaces	2.4.6	21-04-008-100	191.7	1,791	184.1	1,719
Woodstoves - fireplace inserts; non-EPA certified	2.4.6	21-04-008-210	53.4	499	236.6	2,210
Woodstoves - fireplace inserts, EPA certified, non-catalytic	2.4.6	21-04-008-220			30.9	289
Woodstoves - Insert Catalytic Certified	2.4.6	21-04-008-230	216.2	2,020	12.7	119
Woodstoves - freestanding, non-EPA certified	2.4.6	21-04-008-310	610.5	5,702	554.9	5,183
Woodstove - freestanding, EPA certified, catalytic	2.4.6	21-04-008-330			144.5	1,350
Woodstove - freestanding, EPA certified, non-catalytic	2.4.6	21-04-008-320			177.8	1,661
Exempt Pellet Stoves	2.4.6	21-04-008-400	8.7	81	8.4	79
RWC Subtotal			1,080.6	10,094	1,349.9	12,609
Residential Subtotal			1,086.8	10,152	1,370.7	12,804
Category Subtotal			1,108.4	10,303	1,404.7	13,053
<u>MISCELLANEOUS AREA SOURCES</u>						
Other Combustion						
Forest Wild Fires	2.4.7	28-10-001-000	0.0	0	10.4	0
Prescribed Burning	2.4.8	28-10-015-000	7.2	64	664.0	9,115
Structural Fires	2.4.9	28-10-030-000	25.1	138	7.97	-----
Category Subtotal			32.3	201	682.4	9,115
Area Source Total			1,384.1	11,330	2,448.1	22,199
Note: NA indicates category or pollutant not applicable						

**Table 2.5.1. Grants Pass UGB 2005 CO Season: Summary Emissions from Non-Road Sources**

Source Description	Table #	SCC Code	1993 EI		2005 EI	
			CO Annual Emissions (tons/yr)	CO Season Emissions (lbs/day)	CO Annual Emissions (tons/yr)	CO Season Emissions (lbs/day)
<u><b>GAS, 2-Cycle</b></u>						
Recreational Equipment	2.5.2	22-60-001-xxx	0.0	0.0	3.0	27.8
Construction Equipment	2.5.2	22-60-002-xxx	1.4	4.2	1.0	6.7
Industrial Equipment	2.5.2	22-60-003-xxx	13.0	70.7	0.0	0.1
Lawn / Garden Equipment	2.5.2	22-60-004-xxx	83.6	5.5	73.6	121.3
Agricultural Equipment	2.5.2	22-60-005-035	0.0	0.0	0.0	0.0
Light Commercial Equipment	2.5.2	22-60-006-xxx	10.8	58.2	3.4	30.2
Logging Equipment	2.5.2	22-60-007-005	0.0	0.0	0.0	0.0
Category Subtotal			108.8	138.6	81.0	186.0
<u><b>GAS, 4-Cycle</b></u>						
Recreational Equipment	2.5.3	22-65-001-xxx	0.0	0.0	5.6	52.4
Construction Equipment	2.5.3	22-65-002-xxx	17.9	38.8	8.3	53.2
Industrial Equipment	2.5.3	22-65-003-xxx	42.9	231.5	15.9	102.2
Lawn / Garden Equipment	2.5.3	22-65-004-xxx	467.3	15.2	1126.0	1856.0
Agricultural Equipment	2.5.3	22-65-005-xxx	0.0	0.0	0.0	0.0
Light Commercial Equipment	2.5.3	22-65-006-xxx	210.9	1,139.5	401.5	3603.5
Logging Equipment	2.5.3	22-65-007-xxx	0.0	0.0	0.0	0.0
Category Subtotal			739.0	1,425.1	1557.4	5667.2
<u><b>CNG/LPG</b></u>						
Recreational Equipment	2.5.4	22-67,68-xxx-xxx			0.0	0.0
Construction Equipment	2.5.4	22-67,68-xxx-xxx			0.2	1.1
Industrial Equipment	2.5.4	22-67,68-xxx-xxx			43.1	276.4
Lawn / Garden Equipment	2.5.4	22-67,68-xxx-xxx			0.7	1.1
Agricultural Equipment	2.5.4	22-67,68-xxx-xxx			0.0	0.0
Light Commercial Equipment	2.5.4	22-67,68-xxx-xxx			7.1	63.8
Logging Equipment	2.5.4	22-67,68-xxx-xxx			0.0	0.0
Category Subtotal			0.0	0.0	51.1	342.4
<u><b>Diesel</b></u>						
Recreational Equipment	2.5.5	22-70-001-xxx	0.0	0.0	0.0	0.1
Construction Equipment	2.5.5	22-70-002-xxx	27.5	61.0	5.0	32.1
Industrial Equipment	2.5.5	22-70-xxx-xxx	2.2	11.1	2.3	15.0
Lawn / Garden Equipment	2.5.5	22-70-004-xxx	0.3	0.0	1.1	1.8
Agricultural Equipment	2.5.5	22-70-005-xxx	0.0	0.0	0.0	0.0
Light Commercial Equipment	2.5.5	22-70-006-xxx	0.9	5.5	3.8	34.1
Logging Equipment	2.5.5	22-70-007-xxx	0.0	0.0	0.0	0.0
Category Subtotal			30.9	77.6	12.2	83.0
<b>VEHICLE SUBTOTAL</b>			878.8	1,641.4	1,701.6	6,278.6
<u><b>AIRCRAFT</b></u>						
All Aircraft Types and Operations	2.5.6	22-75-000-000	0.0		0.0	0.0
Aircraft		22-75-020-000	0.0		0.0	0.0
Aircraft		22-75-050-000	0.0		0.0	0.0
Aircraft		22-75-060-000	0.0		0.0	0.0
Airport GSE		22-65-008-000	0.0		0.0	0.0
Category Subtotal			0.0	0.0	0.0	0.0
<u><b>RAILROADS</b></u>						
Railroads	2.5.7	22-85-002-000	1.6	8.9		
Locomotives: Line-Haul	2.5.7	22-85-002-005			0.1	0.6
Locomotives: Yard	2.5.7	22-85-002-010			1.6	9.0
Diesel-Railway Maintenance	2.5.7	22-85-002-015			0.0	0.0
LPG-Railway Maintenance	2.5.7	22-85-006-015			0.0	0.0
4-Stroke-Railway Maintenance	2.5.7	22-85-004-015			0.0	0.0
Category Subtotal			1.6	8.9	1.7	9.6
<u><b>MARINE VESSELS</b></u>						
Recreational marine vessels	2.5.8	22-82-005-000	25.4	33.9		
Commercial marine vessels, Rouge River Jet	2.5.8	22-80-004-000	11.2	0.0	11.2	0.0
Pleasure Craft-Diesel-Inboard/SternDrive	2.5.8	22-82-020-005			0.0	0.0
Pleasure Craft-Diesel-Outboard	2.5.8	22-82-020-010			0.0	0.0
Pleasure Craft-Gasoline 2-Stroke-Outboard	2.5.8	22-82-005-010			2.1	0.7
Pleasure Craft-Gasoline 2-Stroke-Personal V	2.5.8	22-82-005-015			0.8	0.3
Pleasure Craft-Gasoline 4-Stroke-Inboard/St	2.5.8	22-82-010-005			0.8	0.3
Category Subtotal			36.6	33.9	14.9	1.2
			(tons/yr)	(lbs/day)	(tons/yr)	(lbs/day)
<b>TOTAL NON-ROAD</b>			917.0	1,684.2	1,718.2	6,289.4
Note: NA indicates category or pollutant not applicable						

**Table 2.6.1.****Grants Pass UGB Winter Daily Average Calendar Year 2005****On-Road Vehicle CO Emissions by MOVES Source Type**

(1) Source TypeID	(2) Vehicle Class	(1) Source Type Description	(1) (1) (3) ----- CO Emissions -----			(1) Pct. of Fleet
			(Lbs/day)	(Tons/day)	(tpy)	
11	MC	Motorcycle	210	0.1	36.5	0.40%
21	LDGV	Passenger Car	27,738	13.87	5,062.6	47.70%
31	LDGT2	Passenger Truck	23,137	11.57	4,223.1	39.80%
32	LDGT4	Light Commercial Truck	4,738	2.37	865.1	8.20%
41	HDGB	Intercity Bus	17	0.01	3.7	0.00%
42	HDDBT	Transit Bus	6	0	0	0.00%
43	HDDBS	School Bus	121	0.06	21.9	0.20%
51	HDDV7	Refuse Truck	10	0.01	3.7	0.00%
52	HDDV2B	Single Unit Short-haul Truck	1,582	0.79	288.4	2.70%
53	HDGV3 - HDGV7	Single Unit Long-haul Truck	108	0.05	18.3	0.20%
54	MH	Motor Home	169	0.08	29.2	0.30%
61	HDDV8A	Combination Short-haul Truck	119	0.06	21.9	0.20%
62	HDDV8B	Combination Long-haul Truck	166	0.08	29.2	0.30%
<b>On-Road Fleet Totals</b>			<b>58,120</b>	<b>29.06</b>	<b>10,603.3</b>	<b>100.00%</b>

**Notes**

(1) E-mail from Tom Carlson, Sierra Research, Inc. to C. Swab.

Grants Pass CO LMP – Transmittal of MOVES Documentation for 2005 CO Inventory. May 14, 2014.Grants Pass LMP Inventory Development

"MOVES On-Road Vehicle Emission Modeling Methodology Supporting Grants Pass LMP Inventory Development"

Table 14, p 13. DEQ AQ-TS ref. 927.

(2) Best match by DEQ staff

(2) Emissions, tpy = (Emissions, Tons/day) \* (365 days/yr)

**Table 2.6.2.****Grants Pass UGB Winter Daily Average Calendar Year 2005****On-Road Vehicle CO Emissions by Facility (Roadway Type)**

Road TypeID	Road Type Description	(1) (1) (2) ----- CO Emissions -----		
		Lbs/day	Tons/day	tpy
1	Off-Network	41,604	20.80	7,589.0
2	Rural Restricted Access	0	0	0
3	Rural Unrestricted Access	0	0	0
4	Urban Restricted Access	3,818	1.91	697.2
5	Urban Unrestricted Access	12,698	6.35	2,317.2
<b>Total</b>		<b>58,120</b>	<b>29.06</b>	<b>10,603.3</b>

**Notes**

(1) E-mail from Tom Carlson, Sierra Research, Inc. to C. Swab.

Grants Pass CO LMP – Transmittal of MOVES Documentation for 2005 CO Inventory. May 14, 2014.Grants Pass LMP Inventory Development

"MOVES On-Road Vehicle Emission Modeling Methodology Supporting Grants Pass LMP Inventory Development"

Table 15, p 14. DEQ AQ-TS ref. 927.

(2) Emissions, tpy = (Emissions, Tons/day) \* (365 days/yr)

## Appendix C

### EPA October 16, 2006 Approval Letter for removing the carbon monoxide FRM monitor Grants Pass



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 10  
1200 Sixth Avenue  
Seattle, WA 98101

RECEIVED

OCT 27 2006

OCT 19 2006

Reply to  
Attn Of: OAWT-107

Mr. Anthony Barnack  
Air Monitoring Program  
Oregon Department of Environmental Quality  
811 SW Sixth Avenue  
Portland, OR 97204-1390

Re: 2006 Oregon Ambient Air Monitoring Network Assessment

Dear Mr. Barnack:

We have evaluated the Oregon 2006 Ambient Air Monitoring Network Assessment and ODEQ's proposed monitoring network for 2007. This network assessment proposes changes to the carbon monoxide (CO) portion of the Oregon air monitoring network. The proposed changes to the CO monitoring network include discontinuing monitors at the following sites:

1. Medford/Brophy Bldg. (#410290009)
2. Klamath Falls/Hope St. (#410350006)
3. Eugene/Sacred Heart (#410392062)
4. Portland 82<sup>nd</sup> & Division (#410510243)
5. Salem/Lancaster & Market (#410470039)
6. Grants Pass/Wing Bldg. (#410330006)
7. Bend (#410170002)

The rationale for discontinuing these monitors is that their 8-hour averages are about one-half of the CO standard and the CO concentrations do not appear to be increasing with population increase or vehicle miles traveled. I approve the discontinuation of these CO monitors.

On September 19, 2006, EPA took final action on a new monitoring regulation that lowers the 24-hour PM<sub>2.5</sub> monitoring standard to 35 ug/m<sup>3</sup>. The following PM<sub>2.5</sub> monitors are designated "core" monitors because they are either,

required by 40 CRF Part 58 based on population, are an essential element of the National Monitoring Strategy, or because they are reporting values near or above the new PM2.5 standard of 35 ug/m3:

1. PM2.5 FRMs or correlated continuous monitors:
  - a) Portland/SE Lafayette
  - b) Portland/N Roselawn
  - c) Medford (primary and co-located)
  - d) Eugene (primary and co-located)
  - e) La Grande NATTS site
  - f) Klamath Falls
  - g) Oakridge
2. PM2.5 speciation monitors located at the following sites:
  - a) Portland/SE Lafayette
  - b) Eugene/Amazon Park
  - c) Medford/Grant & Belmont
  - d) La Grande NAATS
3. Pre-cursor gas monitors operated at the Portland/SE Lafayette site

The "non-core" PM2.5 monitors in the State's network can be funded and operated at ODEQ's discretion with the remaining funds. ODEQ or any local air agency may choose to operate a monitoring site with its own funding beyond the sites approved in this letter as part of the State's monitoring network.

If you have any questions about our approval of the Oregon monitoring network, please contact Keith Rose at (206) 553-1949.

Sincerely,



Mahbubul Islam, Manager  
State and Tribal Program Unit  
Office of Air, Waste and Toxics

cc: Paul Kaprowski, OOO  
William Puckett, OEA  
Jeff Smith, ODEQ

## **Appendix D**

### **Inventory Preparation and Quality Assurance Plan for the Grants Pass Urban Growth Boundary Limited CO Maintenance Plan**

---

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

Air Quality Division – Technical Services Section

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# **Inventory Preparation and Quality Assurance Plan for the Grants Pass Urban Growth Boundary Limited Carbon Monoxide Maintenance Plan**

**March 2014**

© Oregon Department of the Environmental Quality  
Environmental Solutions Division, Technical Services Section  
811 SW Sixth Avenue  
Portland, Oregon 97204  
Phone 503.229.5359 • Fax 503.229.5675

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## **1. INTRODUCTION**

Grants Pass was designated a nonattainment area for carbon monoxide (CO) on December 15, 1985 and classified as moderate upon enactment of the Clean Air Act Amendments in 1990. The highest 8-hour carbon monoxide concentration recorded in Grants Pass occurred in 1982 at level of 14.4 ppm. In that same year, Grants Pass exceeded the federal 8-hour standard of 9 ppm on 28 days. The 1-hour standard has never been exceeded in Grants Pass. By the late 1980's, maximum levels were closer to the standard level, and the last exceedances of the standard was in 1990.

The area was reclassified to attainment for the 8-hour CO standard in August 2000 when EPA approved the first maintenance plan designed to maintain compliance with the 8-hour CO 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 CO maintenance plan.

The maintenance area is the Central Business District in downtown Grants Pass (Figure 1.1). However, EPA considered the Urban Growth Boundary to be a more representative area of influence for CO emissions and the 1993 emission inventory was prepared for UGB. Similar approach is recommended for the second maintenance plan. CO monitor was located at 215 SE Sixth Street, known as the Wing Building. Measured CO levels were so low that the monitor was removed with EPA approval at the end of 2005. Because on-road mobile vehicle emissions are the primary source of CO in Grants Pass (over 70%), Oregon DEQ will track any increase in emissions as reported every three years through the Statewide Emission Inventory which is submitted to EPA for inclusion in the National Emission Inventory (NEI). Significant increase in emissions inventory that is not due to a change of emissions factor or computer models will prompt DEQ to resume monitoring for CO in Grants Pass.

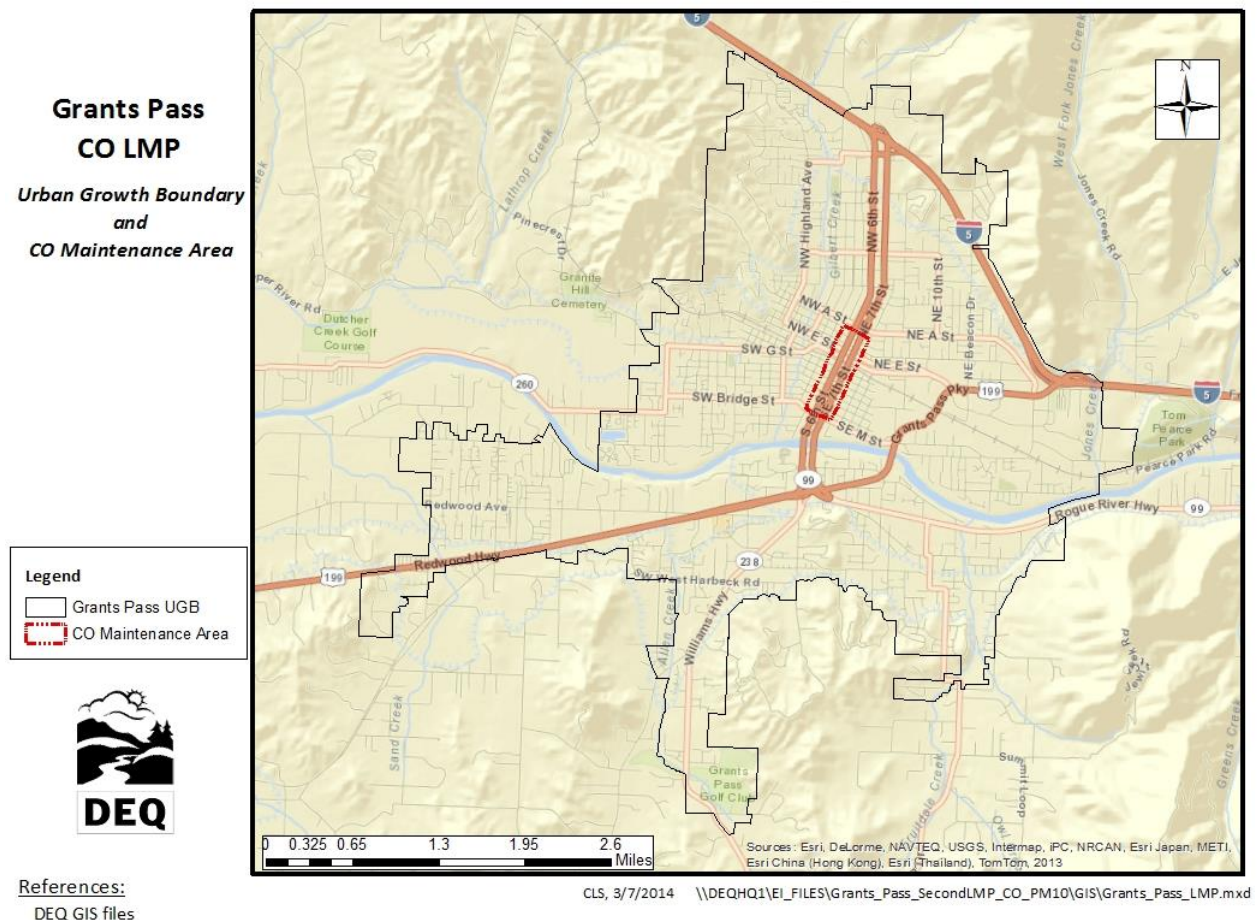
The Grants Pass second maintenance plan qualifies for the Limited Maintenance Plan (LMP) approach because it satisfies all the requirements outlined in the Limited Maintenance Plan Option for Nonclassifiable CO Nonattainment Areas (Paisie memo, 1995). For the 8-hour CO, in the most recent two years of data, the maximum value of 4.0 ppm was recorded on November 3, 2004 and the second maximum value of 3.9 was recorded on March 22, 2005. The risk to the community of exceeding the CO standard is low.

Oregon DEQ proposes using existing information from the EPA 2005 National Emission Inventory (NEI) to create the emissions inventory for CO sources in Grants Pass. The exception will be on-road emission estimates, which will be obtained from Sierra Research Inc., working under contract for the Rogue Valley Council of Governments (RVCOG). 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 elevation of the city is approximately 277 meters (801 ft). Figure 1-1 shows the geographic area of the Grants Pass UGB.



**Figure 0-1. Grants Pass UGB and CO Maintenance Area**

## 1.2 Temporal Resolution

The CO season is defined as three consecutive months, December 1<sup>st</sup> through the end of February. As such, season day emissions in addition to annual emissions will be included in the inventory. 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 2005 National Emissions Inventory (NEI) data for Josephine County. We will temporally allocate the EI data to CO season, and spatially allocate the county-wide NEI data to the Grants Pass UGB, or to buffers around the UGB, depending on emissions category. All data sources and allocation methods will be documented. The emission inventory will be consistent with the 1993 inventory.

The exception will be on-road mobile sources; for the 2005 on-road mobile emission inventory, emissions will be estimated by Sierra Research as contracted by the Rogue Valley Council of Governments (RVCOG) and in coordination with the Oregon Department of Transportation

(ODOT). Sierra Research will generate emissions estimates through activity in the form of 2005 VMT data provided by ODOT in conjunction with emission factors generated by the EPA MOVES2010b model. DEQ staff will review the MOVES model inputs for appropriateness.

## 2.1 Data Categories

From the base year (1993) emission inventory for the maintenance plan, the most significant categories of CO emissions in the Grants Pass UGB are on-road mobile vehicle exhaust, residential wood combustion, permitted point sources, and nonroad vehicles and equipment. Table 2.1 shows the breakdown by category for worst-case day CO emissions in 1993.

**Table 0.1. 1993 CO Season Day Emissions by Category**

<b>Emission Inventory Category</b>	<b>Emissions per Day (lb/day)</b>	<b>Percent of Daily Emissions</b>
On-Road Mobile Vehicle Exhaust	48,104	76%
Residential Wood Combustion	10,094	16%
Permitted Point Sources	2,386	4%
Nonroad Vehicles & Equipment	1,684	3%
All other sources	1,285	2%
	-----	-----
Total	63,553	100%

## 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 2005 NEI data. Table 2.2 shows the breakdown by source category of average daily CO emissions in 1993 inventory; DEQ will use the same source categories as in the 1993 inventory.

**Table 0.2. 1993 CO Season Day Emissions by Source Category**

Emission Source Category	Emissions per Day (lb/day)	Percent of Worst-Case Day Emissions
Permitted Point Sources	2,386	3.75%
Open Burning	825	1.30%
Small Stationary Fossil Fuel Combustion <sup>(a)</sup>	258	0.41%
Residential Wood Combustion	10,094	15.88%
Wildfires & Prescribed Burning	64	0.10%
Structure Fires	138	0.22%
Aircraft & Airport Related	0 <sup>(b)</sup>	0%
Locomotives	9	0.01%
Recreational Marine	34	0.05%
Nonroad Vehicles & Equipment	1,641	2.58%
Onroad Mobile: Exhaust	48,104	75.69%
	-----	-----
Total	63,553	100%

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

(b) 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 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 0.3. Data Sources, Spatial Surrogates and Boundaries**

Sector and Category	EI Data Source	Spatial Surrogate	Surrogate Data Source	Comment
<b>Permitted Point</b>	2005 NEI	within 25-mi buffer of the UGB (consistent with 1993 EI)	DEQ GIS data	Source coordinates used
<b>Nonpoint (Area)</b>				
Open Burning	2005 NEI and/or DEQ records	zoning and burn ban boundary	DEQ and Josephine County	residential (BBB) and other (zoning)
Small Stationary Fossil Fuel Combustion	2005 NEI	zoning	Josephine County zoning	non-permitted source fuel use
Residential Wood Combustion	2005 NEI	Census block group	US Census	Census data used for allocation
Wildfires and Prescribed Burning	2008 & 2011 NEI	Average of two year's worth of data: fires within a 9.5 km buffer around the UGB <sup>(a)</sup>	2008 & 2011 NEI	Fire coordinates used: Average of two year's worth of data from the NEI
Structure Fires	2005 NEI	population	US Census	2005 Census data
<b>Nonroad</b>				
Aircraft & Airport related	2005 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)	2005 NEI	track miles	DEQ GIS	Active track miles only
Switching (Yard)	2005 NEI	yard location (polygon)	DEQ GIS	
Marine (recreational)	2005 NEI	boat use days by waterbody	Oregon State Marine Board	2005 Recreational boat use days from OSMB
Nonroad Vehicles & Equipment	2005 NEI	zoning	Josephine County zoning	EPA Nonroad Model categories
<b>Onroad Mobile</b>				
Exhaust	RVCOG	road miles	MOVES runs specific to UGB	MOVES runs w/ODOT TDM VMT (RVCOG/Sierra Research)

(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 9.5-km buffer around the UGB was chosen, approximating the fire boundary in the 2008 Klamath Falls PM2.5 Attainment Plan.

## 4. TEMPORAL ALLOCATION METHODS

Annual emissions will be adjusted from tons per year to lbs per 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. Seasonal adjustment may also be estimated from 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 season 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:

$$\text{Annual to Typical Season Day} = (\text{Annual Emissions} * \text{SAF}) / (\text{weekly activity} * 52 \text{ weeks/yr})$$

Where SAF = Seasonal Adjustment Factor =

$$= (\text{Season Activity} * 12 \text{ months}) / (\text{Annual Activity} * \text{Season Months})$$

(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; using 2005 permit and complaint data, DEQ may either verify the SAF values used in the 1993 EI or develop new SAF values based on the 2005 data. Regardless, the method will be consistent with 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. SAF values for these sources in the 1993 EI were taken directly from EPA-450/4-91-016, Table 5.8-1, p. 5-18.

#### 4.3.3 Residential Wood Combustion

Annual emissions from residential wood combustion will be temporally allocated using SAF values and activity in days per week taken from the 1993 EI. SAF values for these sources in the 1993 EI were taken directly from EPA-450/4-91-016, Table 5.8-1, p. 5-18.

#### 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 from the EPA National Emission Inventory (NEI). SAF values will be calculated using annual and seasonal fire dates.

#### 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.

#### **4.3.6 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: Vehicle Exhaust**

ODOT will develop on-road temporal allocation profiles (monthly and hourly) from available traffic count station volumes within UGB/Josephine County. The ultimate source of the profiles may be seasonal adjustment calculations performed by DEQ staff for the 1993 EI; however ODOT has the discretion of making changes or revisions to the factors.

### **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. DEQ staff will review MOVES (on-road EF model) inputs for appropriateness.

### **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 CO 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 0.4. Draft Project Schedule: Grants Pass Limited Maintenance Plans for CO**

