

# ***Revised Carbon Monoxide Maintenance Plan Greeley Attainment/Maintenance Area***

## **Second 10-year Revision:**

- Submitted to EPA -- TBD
- Adopted by the Colorado Air Quality Control Commission, December 17, 2009

## **First Revision:**

- Adopted by the Colorado Air Quality Control Commission, December 19, 2002
- Adopted by The North Front Range Metropolitan Planning Organization, December 12, 2002
- Approved by The U.S. Environmental Protection Agency August 19, 2005  
(effective September 19, 2005)

## **Original Redesignation Request and Maintenance Plan:**

- Adopted by The Colorado Air Quality Control Commission, September 19, 1996
- Approved by The U.S. Environmental Protection Agency, March 10, 1999



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## **Background**

The purpose of this second revision to the Greeley carbon monoxide (CO) maintenance plan is to show continued attainment of the federal CO standard for a second ten-year term (through 2019) as required by the federal Clean Air Act and the U.S. Environmental Protection Agency (EPA).

The Greeley area was originally designated as nonattainment for CO under provisions of the 1977 Clean Air Act (CAA). This designation was reaffirmed by the 1990 CAA, and Greeley was designated as a “not classified” CO area. “Not classified” areas are those areas that have historically been designated as nonattainment, but did not have violations of the CO NAAQS during the two years preceding the 1990 amendments to the CAA.

The EPA first approved a CO redesignation request and maintenance plan for the Greeley area on March 10, 1999 (Federal Register Notice: 64 FR 11775). That plan established an attainment year of 1995 and provided for the continuation of a motor vehicle inspection and maintenance program and an oxygenated gasoline program in the Greeley area.

A revision of the plan occurred in 2002 to remove the inspection and maintenance program as well as the oxygenated fuels program. The 2002 revision showed an attainment year of 1992 and continued maintenance through 2015 with emissions for all future years less than the 1992 attainment year emissions. The two control measures were removed because they were no longer needed to show attainment of the CO national ambient air quality standards (NAAQS). Removal of the control programs complied with state requirements that maintenance plans be no more stringent than federal requirements. EPA approved the revision on August 19, 2005 (Federal Register Notice: 70 FR 48650).

## **Attainment History**

- 1977: Greeley designated nonattainment for CO under provisions of the Clean Air Act
- 1982: First State Implementation Plan adopted by the Colorado Air Quality Control Commission to bring area into attainment by 1987.
- 1987: Attainment would not be reached, so new plan was developed with additional control measures of basic I/M, oxyfuels and woodburning stove standards. 1987 also was the last year of a CO violation in Greeley.
- 1984-1988: Number of CO yearly exceedances dropped from 10 in 1984 to 1 in 1988. It takes more than one exceedance in a calendar year to result in a violation.
- 1991: Greeley designated “not classified” nonattainment area under the Clean Air Act revisions of 1990. “Not classified” is for areas well below the NAAQS. The area was attaining the standard, and no SIP revisions were necessary under the CAA.
- 1995: EPA published guidance for “not classified” CO areas to develop SIPS under the limited maintenance plan option. The APCD began a SIP revision under the limited maintenance plan option to request redesignation for Greeley as an attainment/maintenance area.
- 1996: The Colorado Air Quality Control Commission adopted the SIP plan and request for redesignation. The SIP was forwarded to the U.S. EPA.
- 1999: Greeley was officially redesignated as an attainment/maintenance area by the U.S. EPA. Maintenance was demonstrated for 10 years through 2009 as required by the CAA.

- 2002: The SIP was revised to remove I/M and oxyfuels because Greeley was far below the NAAQS. That revision was adopted by EPA in 2005.
- 2009: The SIP is updated to show continued attainment of the NAAQS for an additional 10-year term, through 2019, as required by the CAA.

### **Limited Maintenance Plan Option**

Colorado is using the Limited Maintenance Plan option in preparing this second ten-year revision. This option was also used in the initial Greeley CO maintenance plan and redesignation request that EPA approved on March 10, 1999. The option is explained in EPA guidance of October 6, 1995, from Joseph W. Paisie, Group Leader, Integrated Policy and Strategies Group, U.S. Environmental Protection Agency.

The guidance allows for a less rigorous approach than was previously required in developing maintenance plans for CO nonattainment areas that have design values at or below 7.65 ppm (85 percent of the CO NAAQS). Greeley's design value in this plan revision is just 2.4 ppm (27 percent of CO NAAQS), and was 5.3 ppm in the first 10-year maintenance plan. The design values were determined by using the second-highest maximum 8-hour value of eight consecutive quarters, as required by EPA guidance. Greeley has shown a continued reduction in CO values throughout the maintenance period.

The limited maintenance plan approach requires development of an emissions inventory but does not require the inventory to be projected for future years. The maintenance demonstration is considered to be satisfied if the monitoring data show that the area is meeting the air quality criteria for limited maintenance areas (at or below 7.65 ppm or 85 percent of the CO NAAQS).

Transportation conformity is demonstrated by showing that transportation plans are consistent with the emissions budget. The guidance for limited maintenance plans state that emissions budgets may be treated as essentially non-constraining for transportation conformity because it is unreasonable to expect that such an area will experience so much growth during the maintenance period that a violation of the CO NAAQS would result. Therefore, the "budget test" of the transportation conformity rule is met, according to the guidance.

### **Continued Attainment of the Carbon Monoxide Standard**

Attainment of the national ambient air quality standard for carbon monoxide is demonstrated when monitoring data for each site show no more than one exceedance per year of the 8-hour (9 ppm) and 1-hour (35 ppm) standards. Greeley has never exceeded the 1-hour standard, so this maintenance plan only addresses the 8-hour standard. The 8-hour standard has not been exceeded in Greeley since 1988.

Monitoring data for 1999-2008 demonstrates that Greeley continues to attain/maintain the national standard for carbon monoxide as required by 40 CFR 50.8. Data from 1999 through 2008 are provided to demonstrate continual attainment/maintenance since the redesignation to attainment was promulgated in 1999. This demonstration is based on quality assured monitoring data representative of the location of expected maximum concentrations of carbon monoxide in

the area (downtown Greeley). Data presented is the second highest maximum value recorded at the monitors. The second maximum value is used by EPA for determining compliance with the CO NAAQS.

The monitoring data presented in Table 1 verifies that Greeley continues to attain the national 8-hour standard for carbon monoxide. Data recovery rates for the monitor exceeded the 75 percent completeness requirements for all years. All State and Federal quality assurance procedures were complied with, further substantiating the validity of the measurements as indicators of ambient carbon monoxide levels in Greeley.

**Table 1**  
**1999-2008, 8-Hour Carbon Monoxide Summary for Greeley**  
 Standard: 8-hour = 9 ppm \*

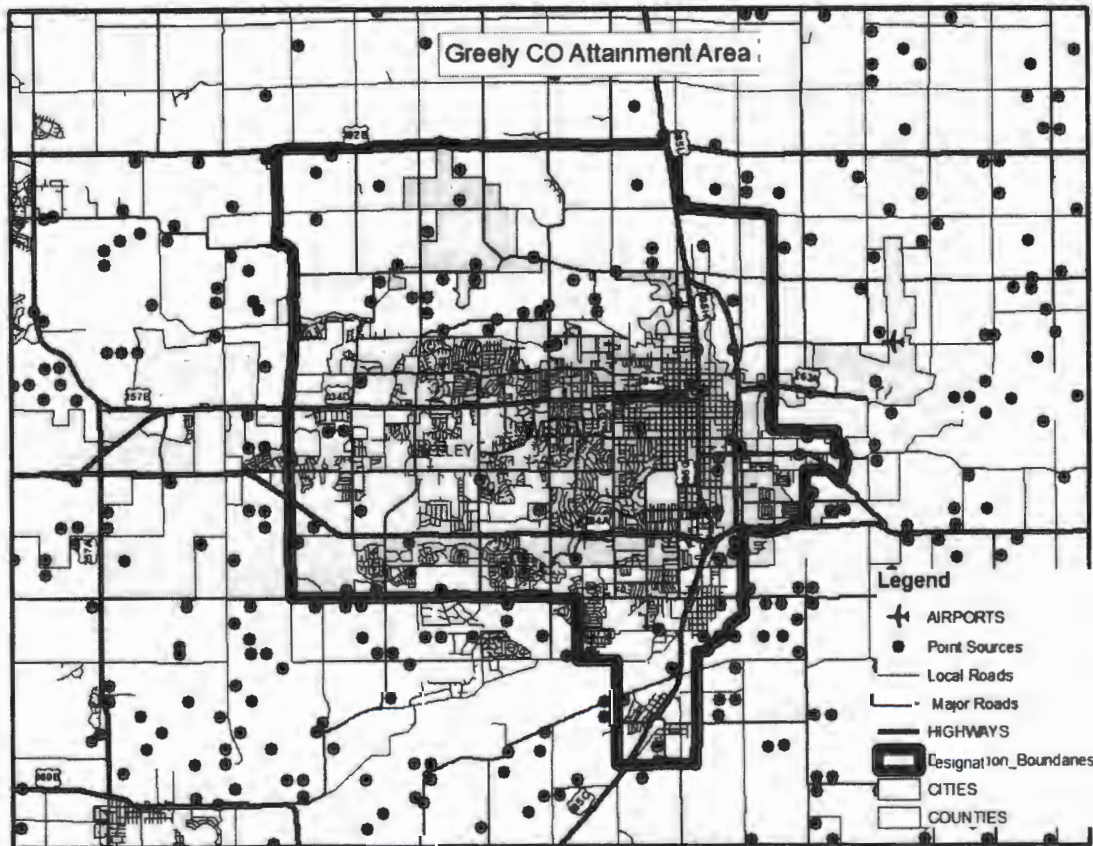
Site Name	8-Hour 2 <sup>nd</sup> Maximum (ppm)			
	1999	2000	2001	2002
Greeley, 811 15 <sup>th</sup> St.	3.4	3.8	3.7	3.4

Site Name	8-Hour 2 <sup>nd</sup> Maximum (ppm)					
	2003	2004	2005	2006	2007	2008
Greeley, 905 10 <sup>th</sup> St.	3.3	3.7	2.8	3.3	2.4	2.2

\* Due to mathematical rounding, a value of 9.5 ppm or greater is necessary to exceed the standard.

**Figure 1. Greeley Attainment Area**





## Emission Inventories

This maintenance plan revision utilizes 2007 as an attainment year for emission inventories, which is the same year from which the 2.4 ppm design value was derived. Emission inventories for a typical winter day are presented in Table 2 for the 2007 attainment year. Each inventory accounts for the emission control programs effective during that period.

The modeling domain consists of the Greeley attainment area, which encompasses the City of Greeley and surrounding areas (see figure 1). The inventories were developed using EPA-approved emissions modeling methods, including the MOBILE6 emissions model, and the latest transportation data from the Colorado Department of Transportation (CDOT) and demographic data from the State Demographers Office.

**Table 2.**  
**Greeley Attainment Area Emissions Inventory (Tons Per Day)**

<b>Source Category</b>	<b>2007</b>
Biogenic	0.00
Commercial Cooking	0.05
Fuel Combustion	0.55
Highway Vehicles	55.36
Non O&G Point Sources	0.58
Non-Road	17.81
O&G area	0.02
O&Gpoint	0.03
Railroads	0.04
Structure Fires	0.03
Woodburning	6.75
<b>TOTAL</b>	<b>81.23</b>

Note: Results are reported with two decimal place precision to provide representation of smaller source categories. This level of precision is not intended to suggest a level of accuracy.

## Enforceable Control Measures for the Maintenance Period

- Federal Motor Vehicle Emissions Control tailpipe standards and regulations, including those for small engines and non-road mobile sources. Credit is taken for these federal requirements, but they are part of a federally administered program and not a state commitment of the Colorado SIP.

- Air Quality Control Commission (AQCC) Regulation No. 3, Air Pollution Emission Notices - Permits
- AQCC Regulation No. 4, Wood Stove Standards
- AQCC Regulation Number 6, New Source Performance Standards
- AQCC Common Provisions Rule

The Common Provisions and Regulation No. 6 delineate industrial source control programs. The Common Provisions, and Parts A and B of Regulation No. 3, are already included in the approved Colorado SIP. Regulation No. 6 and Part C of Regulation No. 3 implement the federal standards of performance for new stationary sources and the federal operating permit program. The revised Greeley maintenance plan makes no changes to these regulations.

### **Maintenance Demonstration**

This maintenance plan utilizes EPA's Limited Maintenance Plan option, as explained above. The Limited Maintenance Plan approach can be utilized when an area has a design value at or below 7.65 ppm (85 percent of the CO NAAQS). The design value for the Greeley CO maintenance area is 2.4 ppm (27 percent of CO NAAQS), which is the highest second maximum concentration for the 2007-2008 monitoring period.

### **Transportation Conformity Determination**

Under the limited maintenance plan approach, transportation conformity is demonstrated by showing that transportation plans are consistent with any existing emissions budgets. When any existing budgets expire, conformity is then presumed and regional analyses and emission budget tests for transportation conformity are no longer necessary. The guidance for limited maintenance plans states that emissions budgets may be treated as essentially non-constraining for transportation conformity because it is unreasonable to expect that such an area will experience so much growth during the maintenance period that a violation of the CO NAAQS would result. Therefore, the "budget test" of the transportation conformity rule is met, according to the guidance.

For the Greeley maintenance area, the EPA-approved emission budgets are 63 tons of CO per day (2005-2009), 62 tons per day (2010-2014), and 60 tons per day (2015 and beyond). According to the Limited Maintenance Plan guidance, these budgets are to remain in place, and conformity with these budgets must be demonstrated, through the year 2015. Beginning in 2016, the budgets expire.

Once the Greeley CO attainment/maintenance area under the Limited Maintenance Plan option is not subject to the budget test, the area remains subject to other transportation conformity requirements.

## **Monitoring Network / Verification of Continued Attainment**

The Air Pollution Control Division (APCD) will continue to operate an appropriate air quality monitoring network in accordance with 40 CFR Part 58 to verify the continued attainment of the CO NAAQS. If measured mobile source parameters (e.g., vehicle miles traveled, congestion, fleet mix, etc.) change significantly over time, the APCD will perform the appropriate studies to determine whether additional and/or re-sited monitors are necessary. An annual review of the NAMS/SLAMS air quality surveillance system will be conducted in accordance with 40 CFR 58.10 to determine whether additional and/or re-sited monitors are necessary and to determine whether the system continues to meet the monitoring objectives presented in Appendix D of 40 CFR Part 58.

## **Contingency Plan**

Section 175A(d) of the CAA requires that the maintenance plan contain contingency provisions to assure that the State will promptly correct any violation of the CO NAAQS which occurs in the Greeley attainment/maintenance area.

The contingency plan must ensure that the contingency measures are adopted expeditiously once the need is triggered. The primary elements of the contingency plan involve the tracking and triggering mechanisms to determine when contingency measures are needed and a process for implementing appropriate control measures.

## **Tracking**

The tracking plan for the Greeley area consists of continuous carbon monoxide monitoring and analysis of CO concentrations by the APCD. The APCD will notify the EPA, the AQCC, the NFRMPO and local governments of any exceedance of the CO standard within 30 days of occurrence. The ongoing regional transportation planning process carried out by the NFRMPO in coordination with the CDOT, the APCD, the AQCC, and the EPA, will serve as another means of tracking mobile source CO emissions into the future. Since revisions to the regions' transportation improvement programs are prepared every two years, which must go through a transportation conformity determination, a process is in place to periodically review the vehicle miles traveled (VMT) and mobile source emissions of CO presented in this maintenance plan.

## **Triggering and Response**

Triggering of the contingency plan does not automatically require a revision of the SIP, nor is the area necessarily redesignated once again to nonattainment. Instead, the State will have an appropriate time-frame to correct a violation by implementing one or more adopted contingency measures. In the event that violations continue to occur after contingency measures have been implemented, additional contingency measures will be implemented until the violations are corrected.

An exceedance of the CO NAAQS (any value over 9.5 ppm) may trigger a voluntary, local process by the NFRMPO and APCD to identify and evaluate potential contingency measures. However, the only federally enforceable trigger for mandatory implementation of contingency



measures shall be a violation of the CO NAAQS. Specifically, this would be a second value of 9.5 ppm or higher at the same monitor during any calendar year.

The State will move forward with mandatory implementation of contingency measures under the SIP if a violation of the CO NAAQS occurs. No more than 60 days after being notified by the APCD that a violation occurred, the NFRMPO, in conjunction with the APCD, the AQCC and local governments, will initiate a subcommittee process to begin evaluating potential contingency measures. The subcommittee will present recommendations within 120 days of notification, and the recommended contingency measures will be presented to the AQCC within 180 days of notification.

The AQCC will then hold a public hearing to consider the recommended contingency measures, along with any other contingency measures the AQCC believes may be appropriate to effectively address the violation. The necessary contingency measures will be adopted and implemented within one year after a violation occurs.

### **List of Potential Contingency Measures**

The NFRMPO and the APCD may choose one or more of the following measures to recommend to the AQCC for consideration. The measures will be designed to bring the area quickly back into compliance with the CO NAAQS.

- An enhanced vehicle inspection and maintenance (I/M) program as set forth in AQCC Regulation No. 11, with the addition of any on-board diagnostics components required by federal law. While an enhanced inspection and maintenance program is already required in Greeley through the Ozone Action Plan, the program is “state-only” and as such is not federally enforceable and could be eliminated in the future without regard to the Greeley CO maintenance plan. By placing an enhanced I/M program in this Greeley CO maintenance plan, and making any adjustments to achieve maximum carbon monoxide benefits, the program would become a federally enforceable contingency measure.
- A 2.7% oxygenated gasoline program as set forth in AQCC Regulation No. 13 as of September 2009.
- Re-establishing nonattainment new source review permitting requirements for stationary sources.
- In addition to these potential contingency measures, the State may evaluate other potential strategies, including but not limited to, transportation control measures and mandatory wood burning restrictions, in order to address any future violations in the most appropriate and effective manner possible.

### **Subsequent Maintenance Plan Revisions**

The Clean Air Act requires that a maintenance plan revision be submitted to EPA demonstrating that the CO standard will be maintained for a second ten-year period. The initial maintenance plan approved by EPA in 1999 was completed under the “Limited Maintenance Plan Option for Nonclassifiable CO Nonattainment Areas” and, as such, was not required to project emissions over a maintenance period as long as control measures were maintained. Since two control measures were removed from the maintenance plan in the state’s 2002 revision (I/M and oxygenated fuels), that revision projected emissions through a 2015 maintenance period.

This final revision demonstrates maintenance for a second 10-year period after the first 10-year period since redesignation (through 2019) utilizing the Limited Maintenance Plan option to demonstrate continued maintenance through the 2019 time period.

No additional revisions of this maintenance plan are anticipated at this time. If future changes in mobile source models or other unforeseen considerations raise potential issues with the conformity process, the State will address the need to revise the maintenance plan at that time.