

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



*Revisions to the Maintenance Plan adopted by:*

*The Colorado Air Quality Control Commission, December 19, 2002*

*The North Front Range Transportation and Air Quality Planning Council,  
December 12, 2002*

*Redesignation Request and Maintenance Plan originally adopted by:*

*The Colorado Air Quality Control Commission, September 19, 1996*

*Original Redesignation Request and Maintenance Plan approved by:*

*The U.S. Environmental Protection Agency, March 10, 1999*



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## **1. Background**

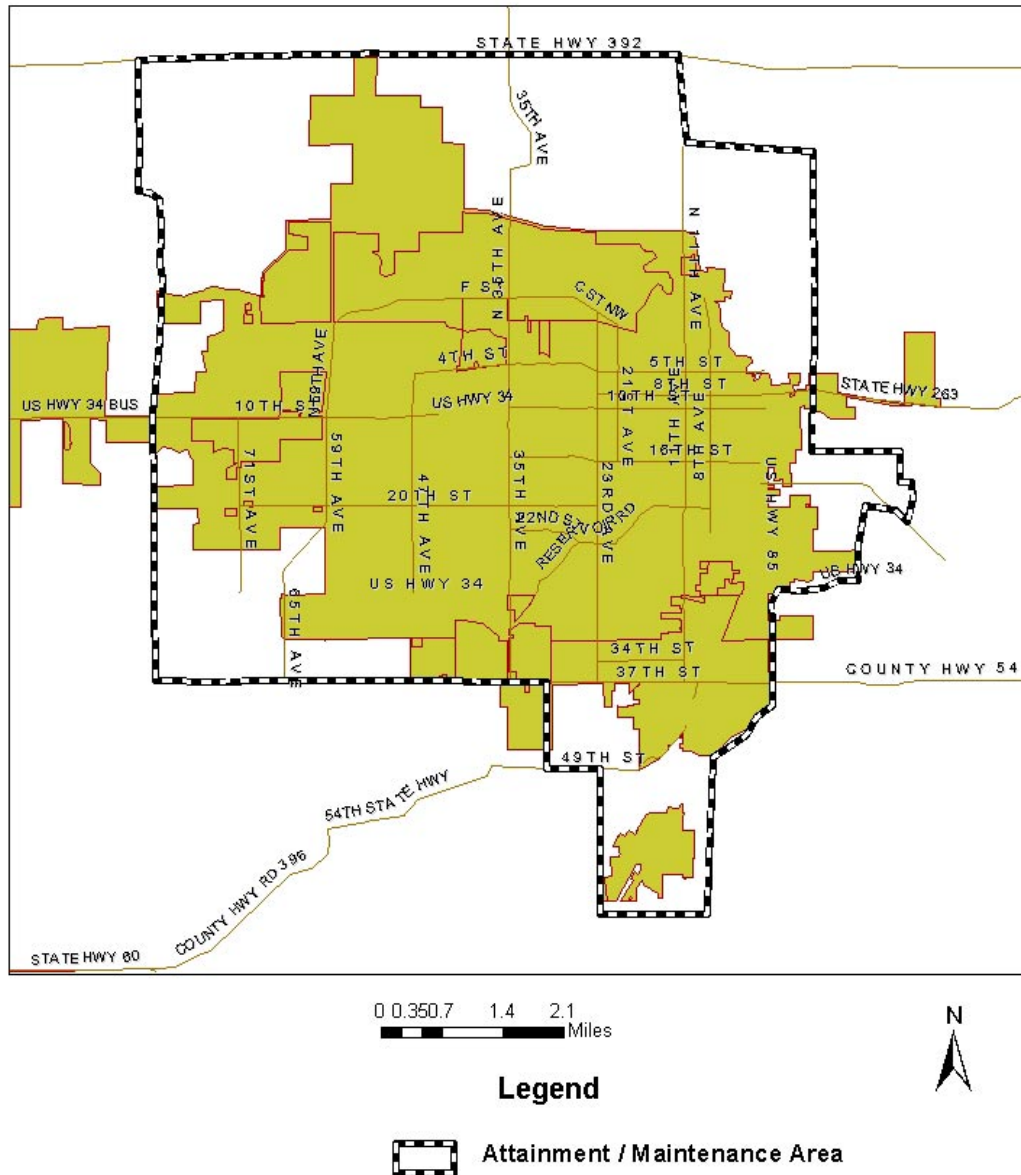
The Environmental Protection Agency (EPA) approved a carbon monoxide (CO) redesignation request and maintenance plan for the Greeley area on March 10, 1999 (64 FR 11775), which became effective on May 10, 1999. The Greeley redesignation request and maintenance plan, which was adopted by the Colorado Air Quality Control Commission (AQCC) on September 19, 1996, established an attainment year of 1995, provided for the continuation of the inspection and maintenance program and the oxygenated gasoline program in the Greeley area, and established a contingency plan in the event a violation of the CO National Ambient Air Quality Standards (NAAQS) was measured.

Because the Greeley area had been previously classified as a “Not Classified” nonattainment area for CO, the redesignation request and maintenance plan was developed utilizing EPA’s limited maintenance plan policy. This policy does not require a demonstration of long-term maintenance of the CO NAAQS or the establishment of emission budgets (to be utilized in transportation conformity determinations) as long as existing control strategies were maintained. Because the two control strategies, I/M and oxygenated gasoline, are being eliminated with this revised maintenance plan, a demonstration of long-term maintenance of the CO NAAQS through 2015 and mobile source emissions budgets are included in this revised maintenance plan. The attainment year is also revised to 1992.

## **2. Emission Inventories and Maintenance Demonstration**

The emission inventories for the 1992 attainment year, 1998, 2004, 2005 and 2010 interim years, and the 2015 maintenance year are presented in Tables 1. and 2. Each inventory accounts for the emission control programs effective during that period. As shown in these tables, emissions for all future years are less than emissions for the 1992 attainment year. Therefore, maintenance of the CO NAAQS is demonstrated.

**Figure 1. Greeley Attainment/Maintenance Area**



Map created by the APCD Technical Services Program.  
Colorado Department of Public Health and Environment

**Table 1.**

**1992-2015 Greeley Attainment/Maintenance Area  
Carbon Monoxide Emission Inventories**

<b>Year</b>	<b>Vehicle Miles Traveled</b>	<b>Fleet Avg. Emission Rate (grams/mile)</b>	<b>Mobile Sources (tons/day)</b>	<b>Area/ Non-Road Sources (tons/day)</b>	<b>Total Emission (tons/day)</b>	<b>Strategies</b>
1992	1,071,930	50.2	59.3	16.4	75.7	Idle I/M 1992 oxy level
1998	1,369,412	31.6	47.7	17.7	65.4	Idle I/M 1998 oxy level
2004	1,778,877	30.1	59.0	12.0	71.0	No controls
2005	1,859,000	27.6	56.5	12.2	68.7	No controls
2010	2,147,150	20.0	47.3	13.2	60.5	No controls
2015	2,479,960	16.9	46.1	14.3	60.4	No controls

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

The inventories provide emissions estimates for a weekday during the winter CO season (November through February). The modeling domain consists of the Greeley attainment/maintenance area, which encompasses the City of Greeley and surrounding communities. The inventories were developed using EPA-approved emissions modeling methods, including the MOBILE6 emissions model, and the latest transportation and demographic data from the North Front Range Transportation and Air Quality Planning Council (NFRTAQPC). The technical support document for this maintenance plan contains detailed information on model assumptions and parameters for each source category. The technical support document for this maintenance plan describes in detail the assumptions and methodologies used for all modeling work.

**Table 2.**

**1992-2015 Greeley Attainment/Maintenance Area  
Carbon Monoxide Emission Inventories (tons/day)**

<b>Source Category</b>	<b>1992</b>	<b>1998</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>
Commercial Heating	0.025	0.039	0.054	0.065	0.076
Residential Heating	0.167	0.182	0.219	0.246	0.272
Agriculture Non-road	0.008	0.009	0.009	0.009	0.010
Commercial Non-road	2.536	3.166	3.920	4.607	5.259
Construction Non-road	0.828	0.816	0.693	0.711	0.759
Industrial Non-road	1.559	1.574	1.667	1.708	1.754
Commercial Lawn & Garden	0.280	0.304	0.346	0.377	0.412
Residential Lawn & Garden	0.100	0.115	0.129	0.140	0.153
Recreational Non-road	0.003	0.003	0.003	0.004	0.004
Railroad Non-road	0.004	0.005	0.005	0.005	0.005
Railroad Locomotives	0.119	0.135	0.128	0.135	0.145
Residential Wood Burning	8.967	9.558	2.908	2.933	2.958
Point Sources	1.850	1.838	2.101	2.287	2.474
<b>Subtotal</b>	<b>16.4</b>	<b>17.7</b>	<b>12.2</b>	<b>13.2</b>	<b>14.3</b>
On-Road Mobile	59.3	47.7	56.5	47.3	46.1
<b>TOTAL</b>	<b>75.7</b>	<b>65.4</b>	<b>68.7</b>	<b>60.5</b>	<b>60.4</b>

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

**3. Control Measures to be Removed for the Maintenance Period**

As of January 1, 2004, the oxygenated gasoline program and the basic I/M program will not be part of the federally enforceable SIP for the Greeley attainment/maintenance area. No emission reduction credit has been taken in the maintenance demonstration for these or any other current State or local control programs.

The federally enforceable basic I/M program included in the SIP for this area through December 31, 2003 does not include on-board diagnostics (OBD) testing because modeling demonstrates that maintenance of the NAAQS can be achieved without it. For the period prior to January 1, 2004, maintenance is achieved with basic I/M without OBD testing. For the period beginning January 1, 2004, maintenance is achieved for the remainder of the maintenance period without an I/M program.

Although the basic I/M program is being removed from the SIP by December 31, 2003, the AQCC and the Air Pollution Control Division (APCD) commit to implementing an I/M program in the Greeley attainment/maintenance area by January 1, 2026 to help assure the conformity determination for 2030 and those thereafter (see Section 5. below for an explanation of the conformity process). The I/M program shall include any federally required on-board diagnostic tests.

#### **4. Enforceable Control Measures for the Maintenance Period**

- AQCC Regulation No. 11, Inspection/Maintenance, through 12/31/03
- AQCC Regulation No. 13, Oxygenated Gasoline, through 12/31/03
- 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.
- AQCC Regulation No. 3
- AQCC Regulation No. 4, Wood Stove Standards
- AQCC Regulation Number 6
- 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.

#### **5. Transportation Conformity and Mobile Source Carbon Monoxide Emissions Budgets**

The transportation conformity provisions of Section 176(c)(2)(A) of the CAA require regional transportation plans and programs to show that emissions expected from implementation of plans and programs are consistent with estimates of emissions from motor vehicles and necessary emissions reductions contained in the applicable state

implementation plan. The establishment of mobile source emission budgets in this maintenance plan assures that transportation plans and their resulting emissions will conform with the emission projections and the demonstration of long-term maintenance of the CO NAAQS documented in this maintenance plan.

The Greeley attainment/maintenance area mobile source emission budgets are **63 tons/day for 2005 through 2009**, **62 tons/day for 2010 through 2014**, and **60 tons/day for 2015 and beyond**. These budgets were derived by taking the difference between the base year (1992) total emissions and the 2005, 2010, and 2015 total emissions, and then subtracting one ton. This difference is the “safety margin”, and the safety margin is added to future year mobile sources emissions to determine the budgets.

2005-2009:  $75.7 - 68.7 = 7.0$  tons  
 $7.0 - 1 = 6.0$  tons (safety margin)  
 $6.0 + 56.5 = 62.5$  or **63 tons/day emissions budget**

2010-2014:  $75.7 - 60.5 = 15.2$  tons  
 $15.2 - 1 = 14.2$  tons (safety margin)  
 $14.2 + 47.3 = 61.5$  or **62 tons/day emissions budget**

2015 and beyond:  $75.7 - 60.4 = 15.3$  tons  
 $15.3 - 1 = 14.3$  tons (safety margin)  
 $14.3 + 46.1 = 60.4$  or **60 tons/day emissions budget**

These budgets allow for flexibility for mobile source growth beyond projected levels for future years.

Typically, emission budgets are the level of mobile source emissions in future years. For Greeley, the budgets could have been 56.5 tons per year for 2005-2009, 47.3 tons per year for 2010-2014, and 46.1 tons per year for 2015 and beyond. As stated above, the NFRTAQPC has elected to add the margin of safety to the budgets in order to maximize the flexibility for determining conformity in future years.

Because projections indicate that the 2015 and beyond emission budget may be equaled or possibly exceeded by mobile source emissions in the 2030, the AQCC and the APCD commit to re-implementing the basic I/M program in 2026. The I/M program shall include any federally required on-board diagnostic tests.

This commitment to implement an I/M program in 2026 is included in the maintenance plan for purposes of 40 CFR Part 93.122(a)(3)(iii), which provides that emissions reduction credit from such programs may be included in the emissions analysis required by the federal transportation conformity rule, if the maintenance plan contains

such a written commitment. This commitment is included in the maintenance plan solely for the purpose of authorizing such emission reduction credits for transportation conformity determinations and shall not be construed to extend the maintenance period beyond the year 2015.

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

The 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. Annual review of the NAMS/SLAMS air quality surveillance system will be conducted in accordance with 40 CFR 58.20(d) to determine whether additional and/or re-sited monitors are necessary. Annual review of the NAMS/SLAMS air quality surveillance system will be conducted in accordance with 40 CFR 58.20(d) to determine whether the system continues to meet the monitoring objectives presented in Appendix D of 40 CFR Part 58.

## **7. 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.

### **A. 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 NFRTAQPC 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 NFRTAQPC in coordination with the Colorado Department of Transportation (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.



## **B. 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 NFRTAQPC 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 NFRTAQPC, 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.

## **C. List of Potential Contingency Measures**

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

- A basic vehicle inspection and maintenance program as set forth in AQCC Regulation No. 11, prior to modifications made as of December 19, 2002, with the addition of any on-board diagnostics components required by federal law.
- A 2.7% oxygenated gasoline program as set forth in AQCC Regulation No. 13, prior to modifications made as of December 19, 2002.

In addition to these potential contingency measures, the State may evaluate other potential strategies, including but not limited to, enhanced I/M, transportation control measures and mandatory wood burning restrictions, in order to address any future violations in the most appropriate and effective manner possible.

## **8. Subsequent Maintenance Plan Revisions**

It is required that a maintenance plan revision be submitted to EPA eight years after the original redesignation request/maintenance plan is approved. The purpose of this revision is to provide for maintenance of the NAAQS for an additional ten years following the first ten-year period. The State of Colorado commits to submit a revised maintenance plan eight years after redesignation to attainment, as required by the CAA and EPA.

**Attachment A**

**"Ambient Air Quality Standards" Regulation**

**Attachment B**  
**Regulation No. 11**

**Attachment C**  
**Regulation No. 13**