Revised Carbon Monoxide Maintenance Plan for the Longmont Attainment/Maintenance Area

Second Revision to the Maintenance Plan adopted by:
The U.S. Environmental Protection Agency, approved Aug. 17, 2007, effective Oct. 16, 2007
The Colorado Air Quality Control Commission, December 15, 2005
Longmont City Council, September 6, 2005

First Revision to the Maintenance Plan adopted by:
The U.S. Environmental Protection Agency, November 29, 2004
The Colorado Air Quality Control Commission, December 18, 2003
The Longmont City Council, September 9, 2003

Redesignation Request and Maintenance Plan approved by:
The U.S. Environmental Protection Agency, September 24, 1999

Redesignation Request and Maintenance Plan originally adopted by:
The Colorado Air Quality Control Commission, December 18, 1997

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Background

This is the second revision to the carbon monoxide maintenance plan for the Longmont Attainment/Maintenance Area. The Environmental Protection Agency (EPA) first approved a carbon monoxide (CO) redesignation request and maintenance plan for the Longmont area on September 24, 1999 (64 FR 51694), which became effective on November 23, 1999.

The Longmont redesignation request and maintenance plan, which was adopted by the Colorado Air Quality Control Commission (AQCC) on December 18, 1996, established an attainment year of 1993, provided for the continuation of the enhanced inspection and maintenance program and the oxygenated gasoline program in the Longmont area. The plan established a carbon monoxide emission budget of 27 tons per day for mobile sources (to be utilized in transportation conformity determinations), and established a contingency plan in the event a violation of the carbon monoxide National Ambient Air Quality Standards (NAAQS) was measured.

The 27 tons per day emission budget was not approved by EPA due to a calculation error, and EPA established a default budget of 16.76 tons per day when the maintenance plan was approved in the Federal Register.

This maintenance plan supercedes and replaces the 1999 maintenance plan, as revised in 2004. The 2004 revised plan updated the emissions inventories using the latest EPA-approved tools (including the MOBILE6.2 on-road mobile sources emissions model). The 2004 plan also revised the CO emission budget from 16.76 to 41 tons per day for the years 2010 through 2014 and for 2015 and beyond. The control measures were not revised with the 2004 plan. EPA approved the revised plan on November 29, 2004.

In this second revision, two control measures are being removed from the plan including the AQCC Regulation No. 11, inspection and maintenance; and AQCC Regulation No. 13, oxygenated gasoline. The plan continues to show attainment of the NAAQS for CO through 2020. This latest revision also revises the CO emission budget from 41 to 43 tons per day for the years 2010 through 2014, 43 tons per day for 2015 through 2019, and 43 tons per day for 2020 and beyond.

A. Continued Attainment of the Carbon Monoxide Standard

Attainment of the national ambient air quality standard for carbon monoxide is demonstrated when two consecutive years of 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. Monitoring data for 1999-2004 demonstrates that Longmont continues to attain/maintain the national standard for carbon monoxide as required by 40 CFR 50.8. Data from 1999 through 2004 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 Longmont).

The monitoring data presented in Tables 1 and 2 verify that Longmont continues to attain the national standards for carbon monoxide. Data recovery rates for the monitor exceeded the 75% 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 Longmont.

Figure 1, Historical Monitoring Data for the CO NAAQS, shows the long term monitoring record for the monitoring site since it was installed in 1989. The figure demonstrates that Longmont has been in attainment with the National Ambient Air Quality Standards for carbon monoxide since 1989 and that there has been a continuous downward trend in carbon monoxide.

Table 1

1999-2004, 1-Hour Carbon Monoxide Summary for Longmont

Standards: 1-hour = 35 ppm*; 8-hour = 9 ppm**

	1-Hour 1st Maximum (ppm)					
Site Name	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Longmont, 440 Main St.	6.0	6.2	8.7	4.8	5.1	5.3
	1-Hour 2nd Maximum (ppm)					
Site Name	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Longmont, 440 Main St.	5.7	4.5	6.4	4.5	4.2	4.3

* Due to mathematical rounding, a value of 35.5 ppm or greater is necessary to exceed the standard.

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

Table 2

1999-2004, 8-Hour Carbon Monoxide Summary for Longmont

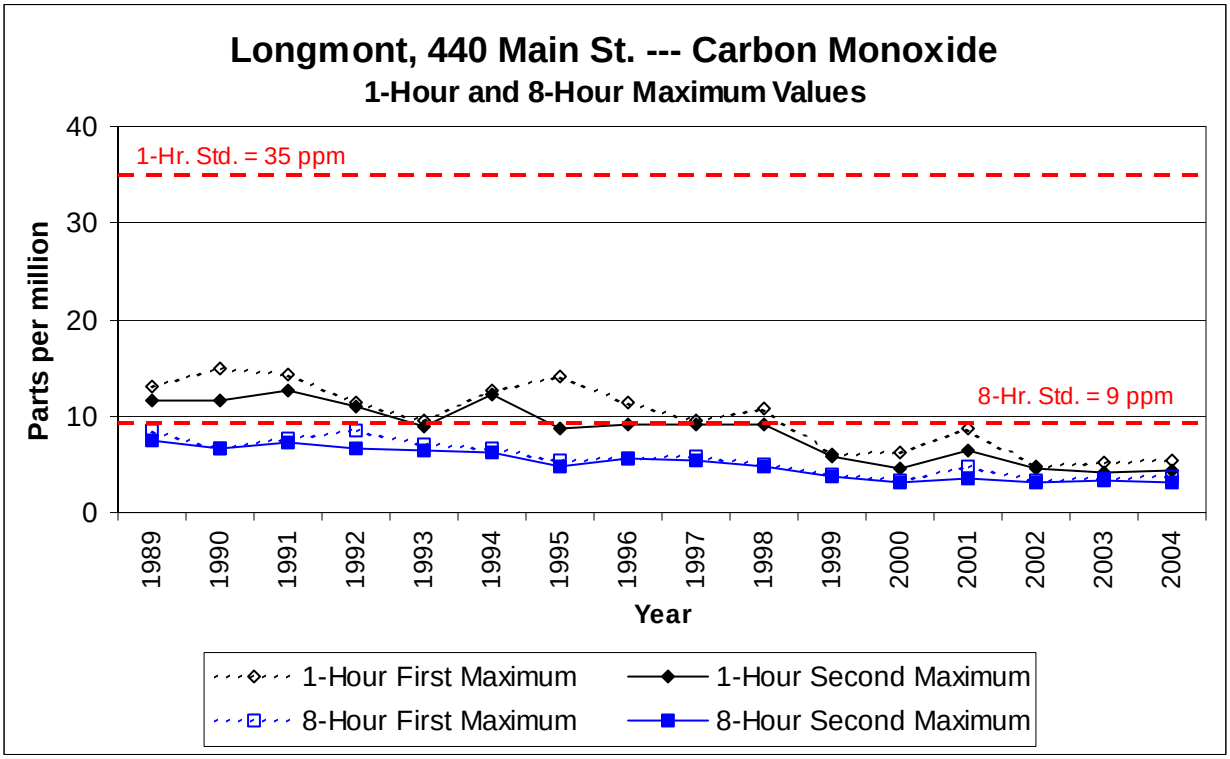
Standards: 1-hour = 35 ppm*; 8-hour = 9 ppm**

	8-Hour 1st Maximum (ppm)					
Site Name	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Longmont, 440 Main St.	3.9	3.4	4.7	3.3	3.5	3.7
	8-Hour 2nd Maximum (ppm)					
Site Name	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**
Longmont, 440 Main St.	3.7	3.1	3.5	3.2	3.3	3.2

* Due to mathematical rounding, a value of 35.5 ppm or greater is necessary to exceed the standard.

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

Figure 1
Historical Monitoring Data for the CO NAAQS



B. Maintenance Plan Control Measures

The Inspection Maintenance (AQR No.11) and Oxygenated Fuels (AQR No.13) programs will be eliminated from Longmont CO SIP effective December 31, 2007. Longmont will continue to rely on the control programs contained in the Maintenance Plan approved by EPA on November 29, 2004 to demonstrate maintenance of the carbon monoxide standards through 2019.

No emission reduction credit has been taken in the maintenance demonstration for any other current State or local control programs and no other such programs, strategies, or regulations shall be incorporated or deemed as enforceable measures for the purposes of this maintenance demonstration.

The specific enforceable control measures that continue to be a part of the Maintenance plan until December 31, 2007 are listed below:

1. Air Quality Control Commission Regulation No. 11 -- covering the Automobile Inspection and Readjustment (A.I.R.) Program. This Maintenance plan removes this regulation from the Longmont SIP effective December 31, 2007. A corresponding

revision to the Denver metro area CO maintenance plan is being made by separate submittal.

2. Air Quality Control Commission Regulation No. 13 -- covering the oxygenated gasoline program. This Maintenance plan, together with a corresponding revision to the Denver CO maintenance plan, removes this regulation from the federally enforceable SIP effective December 31, 2007.

The specific enforceable control measures that continue to be a part of the Maintenance plan through 2019 are listed below:

1. Federal tailpipe standards and regulations, including those for small engines and non-road mobile sources. Credit is taken for these federal requirements but they are not part of the Colorado SIP.

2. Air Quality Control Commission Regulation No. 4 -- covering residential wood burning control programs. The Maintenance plan makes no revisions to residential wood burning control programs.

3. Air Quality Control Commission Regulations No. 3, No. 6 and Common Provisions – covering industrial source control programs. The Common Provisions, and Parts A and B of Regulation No. 3, are already included in the approved 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 Maintenance plan makes no revisions to these regulations. This reference to Regulation No. 6 and Part C of Regulation No. 3 shall not be construed to mean that these regulations are included in the SIP.

4. In accordance with State and federal regulations and policies, the State and federal nonattainment New Source Review (NSR) requirements in effect for Longmont reverted to the State and federal attainment Prevention of Significant Deterioration (PSD) permitting requirements once EPA approved the redesignation request and maintenance plan. This maintenance plan revision makes no changes to these PSD permitting requirements.

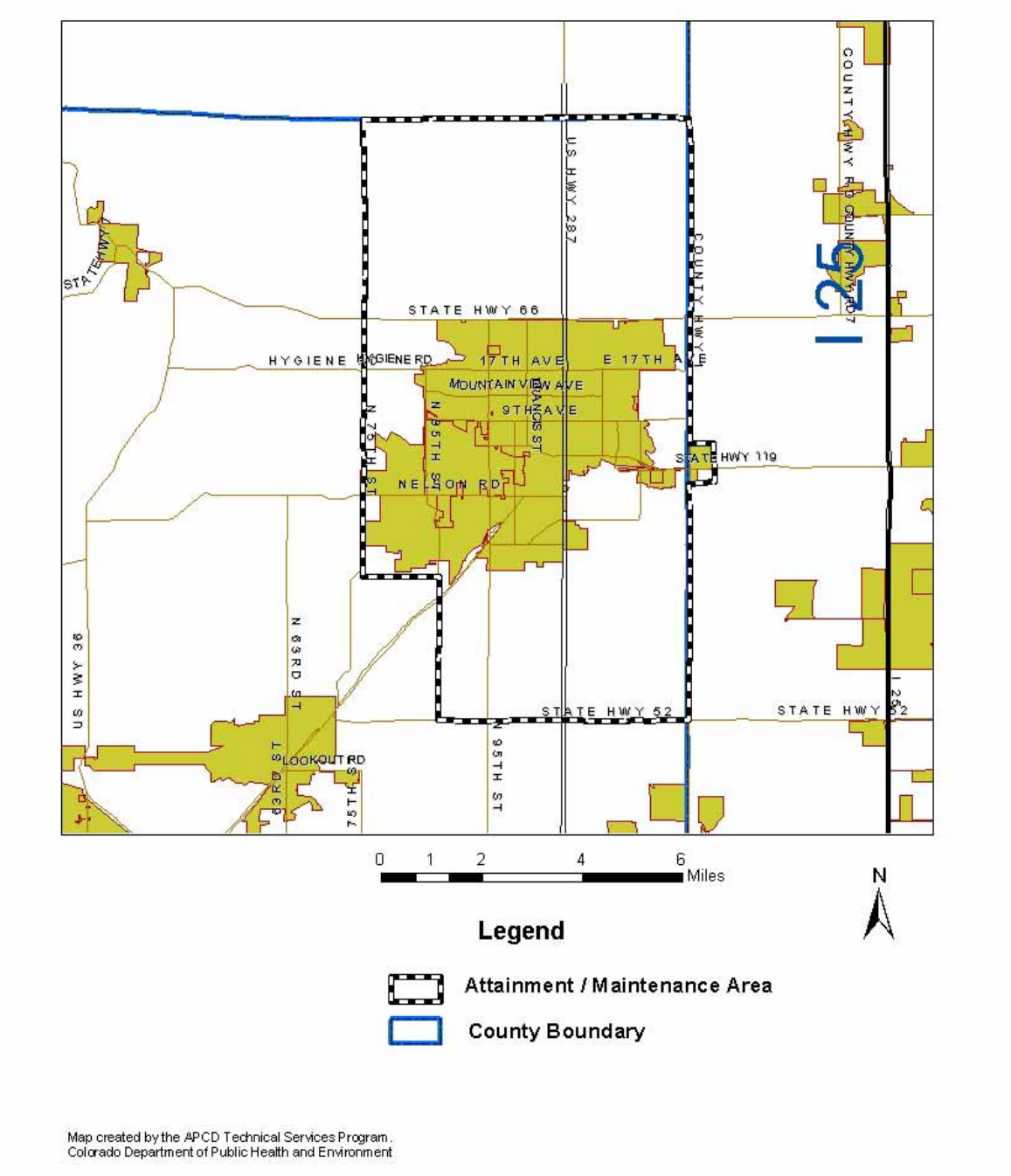
C. Emission Inventories and Maintenance Demonstration

The area shown in Figure 1 below represents the boundaries of the Longmont attainment maintenance area and the modeling domain used to determine the emission inventories. The emission inventories for the 1993 attainment year, the 2009 and 2010 interim years, and the 2015 and 2020 maintenance years are presented in Table 1. Each inventory accounts for the emission control programs effective during that period. As shown, emissions for all future years are less than emissions for the 1993 attainment year. Therefore, maintenance of the CO NAAQS is demonstrated.

The 1993 attainment year inventory is based on the actual control levels in place at that time. The 2009 through 2020 inventories incorporate the maintenance plan control measures described above in Section B. For purposes of the demonstration of maintenance of the CO NAAQS, the I/M 240 program and the oxygenated fuel program are assumed to terminate on January 1, 2008. The phase-out of residual I/M 240 program benefits is estimated in the 2009 and 2010 analysis years. January 1, 2009 will have half the benefit of a biennial I/M 240 program and January 1, 2010 will have no residual benefit due to the I/M 240 program.

The inventories provide emissions estimates for a weekday during the winter CO season (November through February). The modeling domain consists of the Longmont attainment/maintenance area, which encompasses the City of Longmont and surrounding communities. The inventories were developed using EPA-approved emissions modeling methods, including the MOBILE6.2 emissions model and the latest transportation and demographic data from the Denver Regional Council of Governments (DRCOG). The technical support document for this maintenance plan contains detailed information on model assumptions and parameters for each source category corresponding to each inventory year. The technical support document for this maintenance plan describes in detail the assumptions and methodologies used for all modeling work.

Figure 2. Longmont Carbon Monoxide Attainment/Maintenance Area



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

Table 3. 1993-2020 Longmont CO Attainment Area Emissions (Tons per Day)					
Source Category	**1993**	**2009**	**2010**	**2015**	**2020**
Aircraft	0.745	0.823	0.823	0.823	0.823
Commercial Cooking	0.025	0.033	0.033	0.036	0.038
Fuel Combustion	0.150	0.343	0.347	0.366	0.387
Railroads	0.030	0.031	0.032	0.035	0.038
Structure Fires	0.013	0.017	0.017	0.018	0.019
Residential Wood Combustion	2.540	1.701	1.704	1.722	1.743
Agricultural Equipment	0.003	0.003	0.003	0.002	0.002
Commercial Equipment	2.797	3.919	4.157	4.315	4.555
Construction and Mining Equipment	0.630	0.429	0.427	0.399	0.361
Industrial Equipment	1.530	0.900	0.772	0.292	0.196
Lawn and Garden Equipment (Commercial)	1.170	0.586	0.594	0.665	0.715
Lawn and Garden Equipment (Residential)	0.210	0.030	0.031	0.032	0.034
Other Oil Field Equipment	0.003	0.005	0.005	0.005	0.005
Railroad Equipment	0.010	0.008	0.008	0.008	0.008
Recreational Equipment	0.007	0.103	0.105	0.111	0.112
Points Sources	0.180	0.053	0.055	0.059	0.066
Subtotal	10.043	8.986	9.113	8.889	9.102
Mobile Sources	43.255	39.952	40.452	36.459	35.456
Grand Total	**53.298**	**48.938**	**49.565**	**45.348**	**44.558**

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

D. Transportation Conformity and Mobile Source Carbon Monoxide Emission 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.

Typically, emissions budgets are the level of mobile source emissions in future years. The Longmont attainment/maintenance area mobile source emission budgets are as follows: a 2010 budget of **43 tons/day** that will be used for any conformity analysis completed for the years 2010 through 2014, a 2015 budget of **43 tons/day** that will be used for any conformity analysis completed for the years 2015-2019, and a 2020 budget of **43 tons/day** that will be used for any conformity analysis completed for the years 2020 and beyond. These budgets were derived by taking the difference between the base year (1993) total emissions and the 2010, 2015 and 2020 total emissions, then subtracting one ton.

This difference is the "safety margin", and the safety margin is added to the 2010, 2015 and 2020 mobile sources emissions to determine the budget.

2010-2014: 53.298 - 49.565 = 3.733tons
3.733 - 1 = 2.733 tons (safety margin)
2.733 + 40.452 = 43.185 **or 43 tons/day emission budget**

2015 -2019: 53.298 - 45.348 = 7.95 tons
7.95 - 1 = 6.95 tons (safety margin)
6.95 + 36.459 = 43.409 **or 43 tons/day emission budget**

2020 and beyond: 53.298 - 44.558 = 8.74
8.74 - 1 = 7.74 (safety margin)
7.74 + 35.456 = 43.196 **or 43 tons/day emission budget**

E. 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.

F. Contingency Provisions

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 Longmont 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.

1. Tracking

The tracking plan for the Longmont area consists of continuous carbon monoxide monitoring and analysis of CO concentrations by the APCD. The APCD will notify the EPA, the AQCC, DRCOG and the City of Longmont of any exceedance of the CO standard within 30 days of occurrence. The ongoing regional transportation planning process carried out by DRCOG 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 region's 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.

2. 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 normally 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 DRCOG, the City of Longmont 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 City of Longmont and DRCOG, in conjunction with the APCD and the AQCC, will initiate a subcommittee process to begin evaluating potential contingency measures, including a vehicle inspection and maintenance program and an oxygenated gasoline program. 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.

3. List of Potential Contingency Measures

The City of Longmont, DRCOG 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.

- An enhanced vehicle inspection and maintenance program as described in AQCC Regulation No. 11 prior to the modifications adopted by the AQCC on January 10, 2000, with the addition of any onboard diagnostic components as required by Federal law.
- A 3.1% oxygenated gasoline program from November 8 through February 7, with 2.0% oxygen content required from November 1 through November 7.
- Nonattainment New Source Review permitting requirements.

In addition to these potential contingency measures, the State may evaluate other potential strategies in order to address any future violations in the most appropriate and effective manner possible.

G. CAAA Section 110(l) Analysis

Section 110(l) of the CAAA prevents the EPA from approving a plan revision if the revision would interfere with any applicable requirement concerning attainment of a standard and reasonable further progress, or any other applicable requirement of the CAAA. This maintenance plan revision removes two specific enforceable control measures from the Longmont area CO SIP as discussed above. Discussion and analysis of the 110(l) impacts for each of the removed enforceable control measures follows:

1. Air Quality Control Commission Regulation No. 11 – covering the Automobile Inspection and Readjustment (A.I.R.) Program. The A.I.R. Program will remain part of the Colorado SIP through the EPA approved Early Action Compact Ozone Action Plan for the 8-hour ozone standard (70 FR 48652, August 19, 2005) and the 1-hour Ozone Redesignation Request and Maintenance Plan for the Denver Metropolitan Area (66 FR 48798, September 11, 2001). Since the A.I.R. program remains in the Colorado SIP, removal of the A.I.R. Program from the Longmont Maintenance Plan does not interfere with any applicable requirements concerning other pollutants or other requirements of the Clean Air Act. This maintenance plan, together with the corresponding revision to the Denver maintenance plan, obviate the need for any showings under 110(l) concerning carbon monoxide if the State makes any further revisions to the A.I.R. Program contained in the Colorado SIP.

2. Air Quality Control Commission Regulation No. 13 – covering the oxygenated gasoline program. As is described below, the removal of the oxygenated gasoline program from the federally enforceable SIP will not interfere with attainment of the 8-

hour ozone and $PM_{2.5}$ standards, or interfere with maintenance of the 1-hour ozone or PM_{10} standards:

> Ozone standards. The oxygenated fuels program is strictly a winter-time program and therefore has no impact on the ozone standards. Moreover, the oxygenated fuels program is not included in the approved maintenance plan for the 1-hour ozone standard or the Ozone Action Plan for the 8-hour ozone standard.
>
> PM_{10} standard. The oxygenated fuels program has already been removed from the current PM_{10} maintenance plan. The PM_{10} Redesignation Request and Maintenance Plan for the Denver Metropolitan Area was adopted by the Colorado Air Quality Control Commission April 19, 2001; submitted by the Governor, July 30, 2001; approved by EPA, 40 CFR 52.332(l). The 2001 maintenance plan demonstrated that the oxygenated fuels program is not necessary for maintenance of the PM_{10} NAAQS.
>
> $PM_{2.5}$. Based on MOBILE6.2, the oxygenated fuels program does not receive any credit for reduction of tailpipe emissions of particulate matter. Moreover, even if a small benefit does occur as noted in some studies, the Denver and Longmont areas are well below the PM2.5 NAAQS. For the 2002 through 2004 three-year period, the average of the 98th percentile of 24-hour concentrations at the CAMP station in downtown Denver was 24.6 *u*g/cubic meter, and in downtown Longmont was 29.1 *ug*/cubic meter – well below the 65 *u*g/cubic meter NAAQS. For the same period, the annual average at the Commerce City station (the monitor showing the highest annual readings) was 10.2 *u*g/cubic meter, and in downtown Longmont was 8.9 *u*g/cubic meter – well below the 15 *u*g/cubic meter NAAQS. The oxygenated fuels program will not interfere with any applicable requirement to demonstrate attainment of the $PM_{2.5}$ NAAQS.

H. Subsequent Maintenance Plan Revisions

It is required that a maintenance plan revision be submitted to the EPA demonstrating that the CO standard will be maintained for a second ten-year (the original redesignation request and maintenance plan demonstrates attainment for an initial 10-year period through 2009). The purpose of this revision is to provide for maintenance of the NAAQS for the second ten years (through 2019) following the first ten-year 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.