

Revised Carbon Monoxide Maintenance Plan Fort Collins Attainment/Maintenance Area

Attainment/Maintenance Plan Revision for Second 10-year Maintenance Period:

- Approved by the U.S. EPA – Pending
- Adopted by the Colorado Air Quality Control Commission – December 16, 2010

Original Redesignation Request and Attainment/Maintenance Plan:

- Adopted by The Colorado Air Quality Control Commission, July 18, 2002
- Approved by The U.S. Environmental Protection Agency, July, 22, 2003



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Background

The purpose of this revision to the Fort Collins carbon monoxide (CO) attainment/maintenance plan is to show continued attainment of the federal CO standard for a second ten-year term (from 2013 through 2023) as required by the federal Clean Air Act and the U.S. Environmental Protection Agency (EPA).

The Fort Collins area was originally designated as nonattainment for CO in 1979 under provisions of the 1977 Clean Air Act (CAA). This designation was reaffirmed by the 1990 CAA, and Fort Collins was designated as a “moderate” CO nonattainment area with a design value of less than 12.7 parts per million, effective November 15, 1990 (56FR 56694, Nov. 6, 1991).

The EPA approved a CO redesignation request and maintenance plan for the Fort Collins area on July 22, 2003 (Federal Register Notice: 68 FR 43316). That plan established an attainment year of 1992, and showed continued maintenance through 2015. The plan removed three control measures from the federally enforceable SIP effective January 1, 2004:

1. Oxygenated Fuels Program
2. Basic motor vehicle inspection/maintenance (I/M) program
3. Contingency measures included in the 1982 attainment SIP element.

The oxygenated fuels program and the basic I/M 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.

The contingency measures in the 1982 attainment SIP were removed because attainment areas are not required to have pre-selected contingency measures.

History

1979: Fort Collins designated nonattainment for CO under provisions of the Clean Air Act

1981: Motor vehicle inspection/maintenance program begins.

1982: First State Implementation Plan element for Fort Collins adopted by the Colorado Air Quality Control Commission to bring area into attainment by 1987.

1987-88: Attainment was not reached, and EPA notified Colorado of need to correct SIP deficiencies.

1988: Oxyfuels program begins.

1991: Fort Collins designated a “moderate” nonattainment area under the Clean Air Act revisions of 1990 and required to attain the CO NAAQS by December 31, 1995.

1992: Fort Collins attained the CO NAAQS and has shown declining levels of CO since that time.

1997-2000: Emission inventories updated and submitted to EPA as required by the 1990 CAAA.

2001: Clean Screen pilot program begins in 2001, with full testing implemented in 2002. The program is not a SIP control measure, but rather a local voluntary control effort to screen clean vehicles out of the mandatory emissions inspection program.

- 2002: The AQCC approves a request to EPA to redesignate Fort Collins as an attainment area. The redesignation request and maintenance plan is approved by EPA in 2003. The I/M and oxyfuels programs are removed as a federally-required SIP control measure effective 2004, but continue as local control programs after 2004.
- 2005: AQCC votes to discontinue I/M and oxyfuels effective January 1, 2007, allowing a phase out period.
- 2008: While not part of a carbon monoxide strategy nor part of this CO SIP, an ozone action plan is adopted by the AQCC which includes an enhanced I/M program in parts of Larimer and Weld Counties as a state-only requirement to control ozone. The program is scheduled to begin by November 2010.
- 2010: AQCC considers revised CO attainment/maintenance plan that shows continued attainment of the CO standard through a second ten-year period through 2023.

Limited Maintenance Plan Option

Colorado is using the Limited Maintenance Plan option in preparing this second ten-year revision. 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). Fort Collin's design value in this plan revision is just 3.0 ppm (33 percent of CO NAAQS). The design value was determined by using the highest second-highest maximum 8-hour value of eight consecutive quarters. This value is referred to as "the highest of the second highs" in a June 18, 1990 EPA memo from Willam G. Laxton that describes how to establish design values for both carbon monoxide and ozone.

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 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.

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. Fort Collins 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 Fort Collins since 1991.

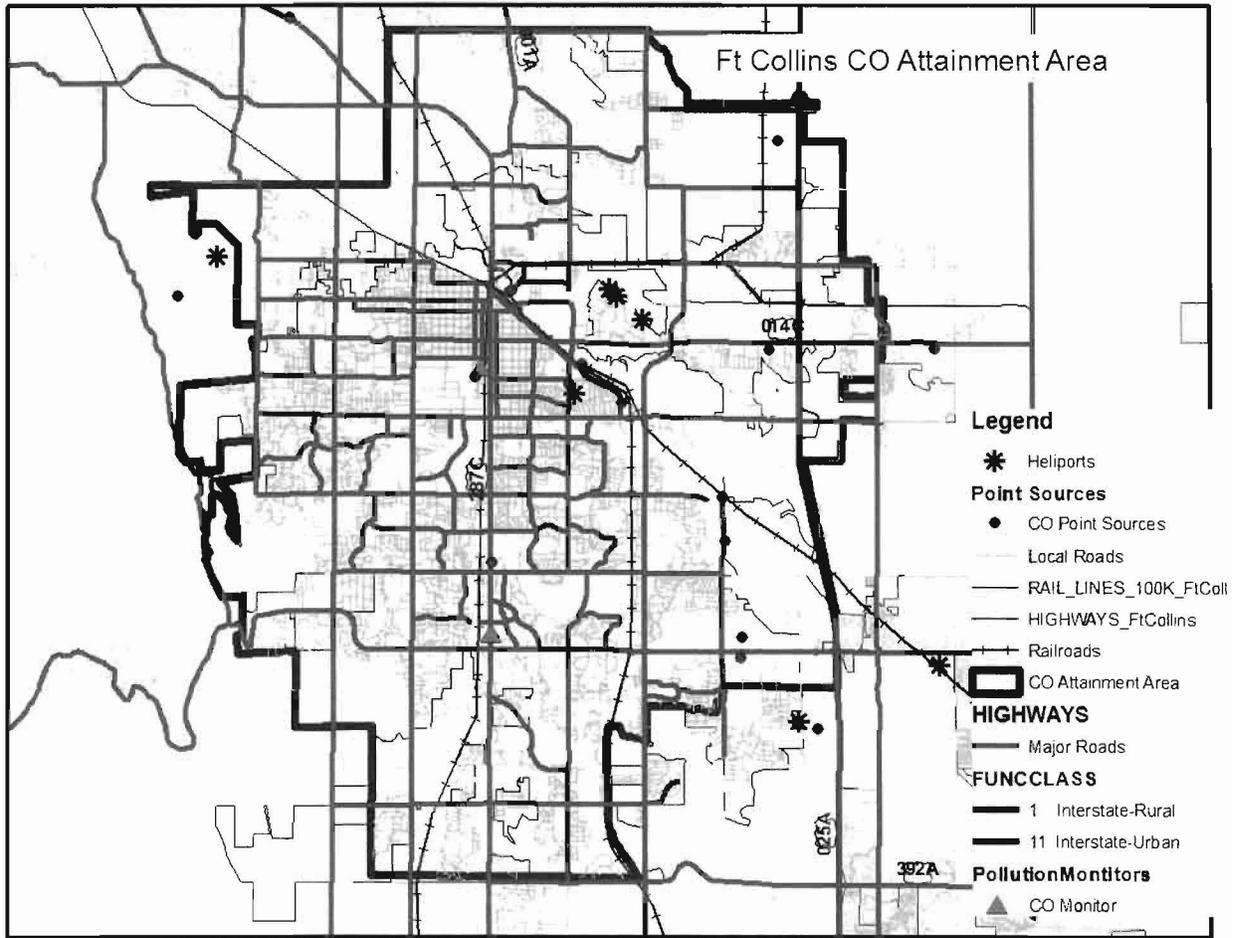
Monitoring data for 2002-2009 demonstrates that Fort Collins continues to attain/maintain the national standard for carbon monoxide as required by 40 CFR 50.8. Data from 2002 through 2009 are provided to demonstrate continual attainment/maintenance since the redesignation to attainment was promulgated in 2003. This demonstration is based on quality assured monitoring data representative of the location of expected maximum concentrations of carbon monoxide in the area (708 S. Mason St. in central Fort Collins). 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 Fort Collins 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 Fort Collins.

Table 1
2002-2009, 2nd Maximum 8-Hour Carbon Monoxide Summary for Fort Collins
Standard: 2nd Maximum 8-Hour = 9 ppm

Year	2002	2003	2004	2005	2006	2007	2008	2009
CO parts per million	2.9	2.5	3.1	2.4	2.7	2.4	3.0	1.8

Figure 1. Fort Collins Attainment/Maintenance Area



The Fort Collins attainment/maintenance area and the Fort Collins urban growth area are one and the same. The Fort Collins Urban Growth Area Boundary was adopted by the City of Fort Collins and the Larimer County Commissioners and has been in effect since July 30, 1991.

Emission Inventories

This attainment/maintenance plan revision utilizes 2008 as an attainment year for emission inventories, which is the same year from which the 3.0 ppm design value was derived. Emission inventories for a typical winter day are presented in Table 2 for the 2008 attainment year. Each inventory accounts for the emission control programs effective during that period.

The APCD developed the 2008 emission inventory in 2010 using U.S. Environmental Protection Agency (EPA) approved emissions modeling methods, including EPA's MOVES2010 model and local VMT data for on-road mobile source emissions, EPA's non-road model, local demographic information for area and off-road sources, and reported actual emissions for point sources. The inventory represents average daily winter emissions. The MOVES2010 and non-road model inputs represent these average daily winter conditions. Heating and wood burning emissions were apportioned from annual emission estimates by heating degree day data from the Western Regional Climate Center. Other source categories were apportioned from annual to daily by dividing by 365.

For more detailed information about inventory development, please see the Technical Support Document included as an appendix to this maintenance plan.

Table 2.
Fort Collins 2008 Attainment/Maintenance Area Emissions Inventory
(Tons Per Day)

Emission Inventory Summary	CO (tons/day)
HELIPORT	0.009
Commercial Cooking	0.041
Fuel Combustion	0.428
Non-Road	14.161
Structure Fires	0.026
Woodburning	7.642
Highway Vehicles	64.624
Biogenic	0.275
Railroads	0.006
Point Sources	0.503
TOTAL	87.715

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.

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 Fort Collins attainment/maintenance plan makes no changes to these regulations.

Maintenance Demonstration

This maintenance plan utilizes EPA's Limited Maintenance Plan option, as explained above. 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). The design value for the Fort Collins CO attainment/maintenance area is 3.0 ppm (33 percent of CO NAAQS), which is the highest second maximum concentration for the 2008-2009 monitoring period. Therefore, the maintenance demonstration is satisfied.

Transportation Conformity

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 Fort Collins attainment/maintenance area, the EPA-approved emission budgets are 99 tons of CO per day (2005-2009), 98 tons per day (2010-2014), and 94 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.

Under EPA's Limited Maintenance Plan (LMP) policy, once EPA approves the revised Fort Collins attainment/maintenance LMP the area is no longer subject to the motor vehicle emissions budget (MVEB) test after 2015. However, the area will remain subject to other transportation conformity requirements found in 40 CFR 93.

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 Fort Collins 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 Fort Collins 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 four 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 Fort Collins 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 Fort Collins CO attainment/maintenance plan. By placing an enhanced I/M program in the Fort Collins CO attainment/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 was approved by EPA in 2003 and showed attainment through 2015.

The purpose of this final revision is to demonstrate maintenance for a second 10-year period after the first 10-year period since redesignation, (through 2023). This plan utilizes the Limited Maintenance Plan option to demonstrate continued maintenance through a second ten-year period by showing that CO levels are below 85% of the CO NAAQS.

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.