PM10 Maintenance Plan For Cañon City

Approved by:
Colorado Air Quality Control Commission
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Chapter 1, *Introduction*, is provided as background information only and is not to be construed to be part of the federally-enforceable State Implementation Plan.

Chapter 2, *Continued Maintenance of the PM10 NAAQS,* describes the PM10 monitoring network and demonstrates with monitored data the continued maintenance of the PM10 NAAQS.

Chapter 3, *Maintenance Plan*, presents the emissions inventories, control measures and other requirements to ensure maintenance of the PM10 standard through the year 2020. This submittal demonstrates maintenance of the PM10 standard for the 2nd ten-year period beyond 2000, the year EPA formally redesignated Cañon City to attainment.

Chapter 1: Introduction

The State of Colorado is submitting to the U.S. Environmental Protection Agency (EPA), in accordance with CAAA Section 176A(b), a revised PM10 Maintenance Plan for Cañon City that demonstrates continued attainment/maintenance of the 24-hour PM10 National Ambient Air Quality Standard (NAAQS) through 2020.

Cañon City was redesignated to attainment status by the EPA (65 FR 34399) on May 30, 2000 (effective date, July 31, 2000). Colorado submitted a redesignation request and attainment maintenance plan on September 22, 1997. The plan demonstrated attainment/maintenance of the PM10 NAAQS through 2015 in accordance with CAAA Section 176A(a). This maintenance plan, which is being submitted for inclusion in the State's federally-enforceable State Implementation Plan (SIP), provides for maintenance of the national standard for PM10 in Cañon City for the second ten-year period beyond the year of redesignation to attainment (2000). This Maintenance Plan was approved by the Colorado Air Quality Control Commission (AQCC) on November 20, 2008, and complies with all federal requirements.

Colorado Air Quality Control Commission

The Colorado Air Quality Control Commission (AQCC) is a regulatory body with responsibility for adopting air quality regulations consistent with State statute. This includes the responsibility and authority to adopt State Implementation Plans (SIPs) and their implementing regulations. The Commission takes action on SIPs and regulations through a public rule-making process. The Commission has nine members who are appointed by the Governor and confirmed by the State Senate.

National Ambient Air Quality Standards for PM10

In 1971, the EPA set National Ambient Air Quality Standards (NAAQS) for several air pollutants, including total suspended particulates (TSP), defined as particles with an aerodynamic diameter of less than 40 microns. In 1987, the EPA changed the particulate matter standard to include only those particles with an aerodynamic diameter of less than or equal to 10 microns (commonly referred to as PM10). The current PM10 NAAQS allow for a maximum 24-hour average of 150 ug/m^3. The 24-hour PM10 NAAQS may not be exceeded more than three times over any three-year period.

An annual average of 50 micrograms per cubic meter (ug/m^3) was revoked by the EPA in 2006 due to a lack of evidence linking long-term exposure to health problems.

There are both primary and secondary air quality standards. The primary standards are set to protect human health, with a margin of safety to protect the more sensitive persons in the population, such as the very young, elderly and the ill. Secondary standards are set to protect property, materials, aesthetic values and general welfare. For PM10, the national primary and secondary standards are the same. The numerical levels of the standard are subject to change, based on new scientific evidence summarized in air quality criteria documents.

In general, demonstrating attainment requires collecting representative air monitoring data and using approved measuring instruments and procedures, with adequate quality assurance and quality control. The three most recent years are examined, during which the average annual number of exceedances must be less than or equal to one.

Air quality measurements in Cañon City satisfy this requirement, as shown in Section 2 "Attainment of the PM10 standard."

Cañon City Nonattainment Area Classification History

In 1987, based on relatively high TSP levels, Cañon City was designated by the EPA as a "Group I" non-attainment area of concern, *i.e.*, an area with a strong likelihood of violating the PM10 NAAQS and requiring a substantial SIP revision. Cañon City was redesignated a "moderate" non-attainment area in 1990 pursuant to section 107(d)(4)(B) of the CAAA.

EPA approved the Cañon City PM10 element of Colorado's SIP on December 23, 1993 (58 FR 68036). PM10 contingency measures for the area were developed separately and were approved on December 14, 1994 (59 FR 64332).

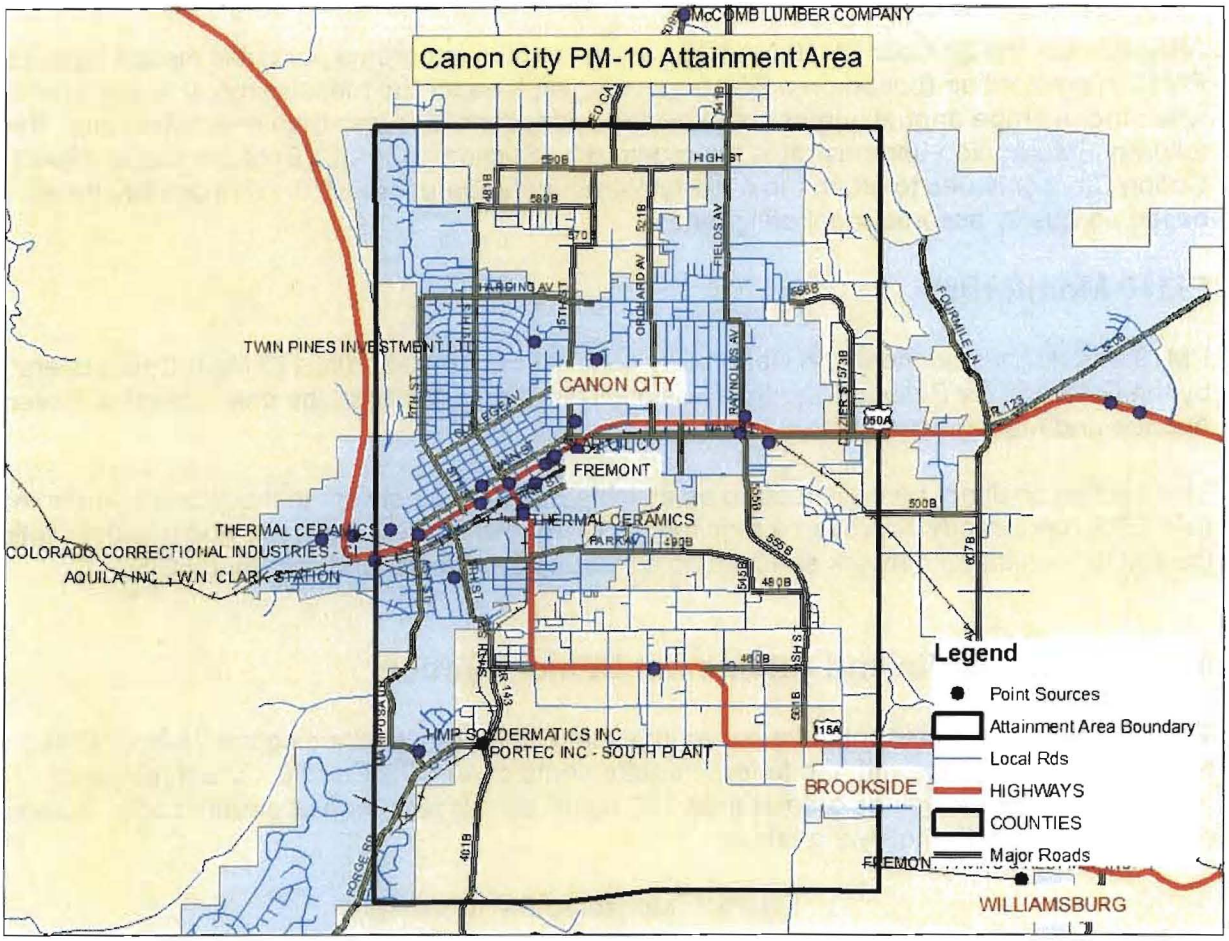
Cañon City was redesignated to attainment status effective July 31, 2000, after the EPA approved the PM10 Redesignation Request and Maintenance Plan.

Cañon City PM10 Attainment/Maintenance Area

The Cañon City/Fremont County PM10 attainment/maintenance boundaries are defined by the Air Quality Control Commission as follows:

> *Township 18S, range 70 W, all of sections 21, 22, 27, 28, 33 and 34; the E ½, NENW, NESW, SENW, SESW quarters of sections 20, 29, 32; and the W ½ of sections 23, 26 and 35;*
>
> *Township 19S, Range 70W, all of sections 3, 4, 9, 10; E ½ NENW, NESW, SENW, SESW quarters of sections 5 and 8; W ½ sections 2 and 11.*

This area essentially includes the city of Cañon City and its suburbs. However, the nearby cities of Florence and Williamsburg are excluded.



Continued Attainment of the PM10 Standard

Chapter Two presents the most recent five years (2003-07) of monitored data, and shows that Cañon City has maintained attainment of the standard since the redesignation was approved.

Maintenance Plan

Chapter Three contains the core elements EPA has established as necessary for approval of maintenance plans:

1. Description of the control measures for the maintenance period
2. Emission inventories for current and future years
3. Maintenance demonstration
4. Mobile source emissions budget
5. Approved monitoring network
6. Verification of continued attainment
7. Contingency plan
8. Subsequent maintenance plan revisions

CHAPTER 2: CONTINUED MAINTENANCE OF PM10 NAAQS

Attainment of the 24-hour PM10 NAAQS, which is 150 micrograms per cubic meter (ug/m^3) of PM10 in ambient air (based on a 24-hour averaging time for the measurement) is demonstrated when the average annual number of expected exceedances is less than or equal to one. The following information demonstrates, as required by Section 107(d)(3)(E) of the Clean Air Act, that Cañon City continues to attain the national 24-hour standard for PM10. This demonstration is based on quality assured monitoring data.

PM10 Monitoring

PM10 ambient air monitoring in Cañon City consists of one station at 128 Main Street operated by the Colorado Air Pollution Control Division. This station replaced the one located at Seventh Avenue and Macon Street in 2004.

This section shall not be construed to establish a monitoring network in the federally-enforceable SIP. EPA has already approved a monitoring SIP for the State of Colorado and this description of the PM10 monitoring network shall not be construed to amend such monitoring SIP.

Monitoring Results and Attainment Demonstration

The monitoring data presented below verifies that Cañon City is attaining the 24-hour PM10 NAAQS, in accordance with the federal requirements of 40 CFR Part 58. The three-year average of expected values greater than 150 ug/m^3 ppm is less than or equal to one. Summary data are shown in the following tables.

Figure 1. Monitored PM10 Values

24-hour maximum PM10 values
micrograms per cubic meter (ug/m^3)
(PM10 NAAQS = 150 ug/m^3)

	2001	2002	2003	2004	2005	2006	2007
128 Main	NA	NA	NA	17	33	56	31
7th Ave. and Macon	40	42	30	32	NA	NA	NA

Quality Assurance Program

PM10 monitoring data for Cañon City have been collected and quality-assured in accordance with 40 CFR, Part 58, Appendix A, EPA's "Quality Assurance Handbook for Air Pollution Measurement Systems, Vol. 11; Ambient Air Specific Methods", the APCD's Standard Operating Procedures Manual, and Colorado's Monitoring SIP which EPA approved in 1993. The data are

recorded in EPA's AIR QUALITY SYSTEM (AQS) and are available for public review at the APCD and through EPA's AQS database.

CHAPTER 3: MAINTENANCE PLAN

This maintenance plan is a SIP revision and provides for maintenance of the relevant NAAQS in the area for the second ten-year period (through 2020) after redesignation to attainment/ maintenance by EPA effective July 31, 2000.

The EPA has established the core elements listed below as necessary for approval of maintenance plans:

- Description of the control measures for the maintenance period
- Emission inventories for current and future years
- Maintenance demonstration
- Mobile source emissions budget
- Approved monitoring network
- Verification of continued attainment
- Contingency plan
- Subsequent maintenance plan revisions

Maintenance Plan Control Measures

Control Measures Included in the Maintenance Plan

Cañon City will rely on the control programs listed below to demonstrate maintenance of the 24-hour PM10 standard through 2020. 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 maintenance plan takes credit for the following federally-enforceable control measures, which, except where otherwise noted, are included in the SIP:

Federal fuels and tailpipe standards and regulations

Credit is taken in this maintenance plan for current federal regulations concerning motor vehicles, fuels, small engines, diesels, and non-road mobile sources. While credit is taken for these federal requirements, they are not part of the Colorado SIP.

Woodburning

Air Quality Control Commission Regulation No. 4 covers wood stoves, conventional fireplaces and woodburning on high pollution days, as approved by EPA as part of the federal SIP in 1997. This maintenance plan makes no changes to Regulation No. 4.

All of these requirements remain effective, until they are removed or revised by a future SIP revision.

Stationary Sources

Emissions from stationary sources of pollution are regulated by several Air Quality Control Commission Regulations:

1) Regulation No. 1 regulates emissions of particulates, smoke, sulfur dioxide, and nitrogen oxides and establishes limits on these pollutants from covered sources. Sections I-IV, Sections VI-IX, and Appendices A and B are already included in the approved SIP. This maintenance plan incorporates the regulatory limits in calculations of maximum allowable emissions for stationary sources. No additional revisions are made to Regulation No. 1 as part of the maintenance plan revision.

2) Regulation No. 3 lays out provisions of the State of Colorado's stationary source permitting program. Parts A and B of Regulation No. 3 are already included in the approved SIP. Part C implements the federal operating permit program and this reference to Part C of Regulation No. 3 shall not be construed to mean that these regulations are included in the SIP.

3) Regulation No. 6 implements the federal standards of performance for new stationary sources. This maintenance plan makes no changes to this regulation. This reference to Regulation No. 6 shall not be construed to mean that these regulations are included in the SIP.

4) The Common Provisions Regulation contains general provision applicable to all emission sources in Colorado. This maintenance plans makes no changes to this regulation.

The emission inventories for stationary sources supporting the maintenance demonstration have followed all relevant EPA rules and guidance documents for calculating such emissions.

As an attainment/maintenance area since July 31, 2000, the State and federal attainment PSD permitting requirements remain in affect in Cañon City. This program requires the application of Best Available Control Technology when constructing new or modified major stationary sources.

Emission Inventories

This section presents emission inventories for the maintenance plan.

All of the inventories were developed using EPA-approved emissions modeling methods and updated transportation and demographics data. The PM_{10} maintenance plan Technical Support Document contains detailed information on model assumptions and parameters for each source category.

Figure 2. Emission Inventories

Canon City 2006 PM10 Inventory (Pounds Per Day)

Area and Mobile Sources		PM-10 (Lbs/day)
	Agriculture	20.2
	Highway Vehicle Exhaust	22.8
	Railroads	0.3
	Road Dust	1237.4
	Commercial Cooking	27.4
	Construction	590.6
	Fuel Combustion	0.8
	Non-Road	33.7
	Structure Fires	1.3
	Woodburning	143.1
	TOTAL	**2078**
Point Sources		
site_id	**facility_n**	
0004	COLO DEPT OF CORRECTIONS - CTCF,CTA	7.8
0050	COLORADO QUARRIES INC CANON CITY YARD	19.1
0068	PORTEC INC - SOUTH PLANT	0.3
0074	HUMANE SOCIETY OF FREMONT CNTY	3.1
0141	CANON INDUSTRIAL CERAMICS, LLC	17.4
0142	THERMAL CERAMICS	23.3
	TOTAL	71
	Grand TOTAL	**2149**

Canon City 2020 PM10 Inventory (Pounds Per Day)

Area and Mobile Sources		PM-10 (Lbs/day)
	Agriculture	20.2
	Highway Vehicle Exhaust	30.4
	Railroads	0.3
	Road Dust	1582.7
	Commercial Cooking	35.1
	Construction	755.4
	Fuel Combustion	1.0
	Non-Road	25.0
	Structure Fires	1.6
	Woodburning	183.1
	TOTAL	**2634.7**
Point Sources		
site_id	**facility_n**	
0004	COLO DEPT OF CORRECTIONS - CTCF,CTA	9.0
0050	COLORADO QUARRIES INC CANON CITY YARD	27.6
0068	PORTEC INC - SOUTH PLANT	0.7
0074	HUMANE SOCIETY OF FREMONT CNTY	5.6
0141	CANON INDUSTRIAL CERAMICS, LLC	25.2
0142	THERMAL CERAMICS	33.8
	TOTAL	101.8
	Grand TOTAL	**2736.6**

Maintenance Demonstration

This maintenance plan provides for maintenance of the NAAQS through the year 2020, the 20-year period after the 2000 redesignation.

Because there have never been exceedances of the annual standard in Cañon City, an analysis for maintenance of the annual standard was not prepared. Protection of the 24-hour standard should be sufficient to protect the annual standard since the 24-hour standard has always been the standard of concern.

A design day concentration of 56 ug/m^3 has been selected as a conservative value that represents the highest 24-hour maximum PM10 value recorded in Cañon City between 2005-2007. This 56 ug/m^3 concentration occurred on April 17, 2006. No reduction for background values has been taken into account for the design day value, making the 56 ug/m^3 a conservative estimate of PM10 ambient air concentrations in Cañon City, meaning that the design value likely overstates the actual amount of PM10.

The emissions inventory data presented in this report is used to determine the growth in PM10 emissions from the 2006 base year to the 2020 maintenance year. The emissions inventory shows an increase in PM10 from 2149 pounds per day in 2006 to 2736.6pounds per day in 2020. This represents an increase of 27.3percent in emissions:

2736.6/ 2149 =1.273, or 27.3 percent.

The design day concentration of 56 ug/m^3 of PM10 is then increased 27.3 percent to "roll forward" to the 2020 attainment year. This roll-forward modeling shows a 2020 concentration of 71.3 ug/m^3:

56 ug/m^3 x 1.273 = 71.3 ug/m^3

Since 71.3 ug/m^3 is below the 150 ug/m^3 standard, maintenance is demonstrated through 2020.

Emissions Budget for PM10

Federal "transportation conformity" regulations provide for the use of mobile source emission budgets in making conformity determinations in the area. The emission budget serves as a ceiling on mobile source emissions that federally funded or approved transportation projects must comply or "conform" with.

This maintenance plan establishes an emission budget for the area of 1,613 pounds of PM10 per day for 2020 and beyond for the Cañon City area. This budget is the total of the 2020 mobile source PM10 emissions presented in table 2 above, which includes emissions from vehicle exhaust and road dust. This budget has been adopted in the AQCC's "Ambient Air Quality Standards for the State of Colorado" regulation.

Monitoring Network / Verification of Continued Attainment

The APCD will continue to operate an appropriate air quality monitoring network of NAMS and SLAMS monitors in accordance with 40 CFR Part 58 to verify the continued attainment of the PM10 NAAQS. 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.

The State will also track and document measured mobile source parameters (e.g., vehicle miles traveled, congestion, fleet mix, etc.) and new and modified stationary source permits. If these and the resulting emissions change significantly over time, the APCD will perform the appropriate studies to determine 1) whether additional and/or re-sited monitors are necessary and 2) whether mobile and stationary source emission projections are on target.

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 PM10 NAAQS standard which occurs after redesignation to attainment. Attainment areas are not required to have preselected contingency measures, just a list of measures that could be considered for future implementation.

The contingency plan must also ensure that the contingency measures are adopted expeditiously once the need is triggered. The primary elements of the contingency plan are: 1) the list of potential contingency measures; 2) the tracking and triggering mechanisms to determine when contingency measures are needed; and 3) a description of the process for recommending and implementing the contingency measures.

The 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 amount of time to correct the violation by implementing one or more contingency measures as necessary. 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.

Potential Contingency Measures

Section 175A(d) of the CAA requires the Maintenance Plan to include as potential contingency measures all of the control measures contained in the SIP before redesignation which were relaxed or modified through the Maintenance Plan. For the Cañon City area, there were no control measures relaxed or modified.

The State may evaluate potential strategies in order to address any future violations in the most appropriate and cost-effective manner possible. Potential measures appropriate for the Cañon City area include, but are not limited to:

- Increased street sweeping requirements
- Expanded, mandatory use of alternative de-icers
- More stringent street sand specifications
- Road paving requirements
- Woodburning restrictions
- Re-establishing new source review permitting requirements for stationary sources
- Other emission control measures appropriate for the area based on the consideration of cost-effectiveness, PM10 emission reduction potential, economic and social considerations, or other factors that the State deems appropriate.

Tracking and Triggering Mechanisms

Tracking

The primary tracking plan for Cañon City consists of continuous PM10 monitoring by APCD as described above. APCD will notify EPA, the AQCC, the Colorado Department of Transportation (CDOT) and the Cañon City government of any exceedance of the 24-hour NAAQS within 45 days of occurrence.

Triggering Contingency Measures

An exceedance of the 24-hour PM10 NAAQS may trigger a voluntary, local process by Cañon City 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 NAAQS. Specifically, the three-year average of expected exceedances at a monitoring site would have to be greater than 1.0 for a violation to occur.

Process for Recommending and Implementing Contingency Measures

The State will move forward with mandatory implementation of contingency measures under the SIP if a violation of the PM10 NAAQS occurs.

No more than 60 days after being notified by the APCD that a violation of the 24-hour PM10 NAAQS has occurred, Cañon City, in coordination with the APCD,AQCC and CDOT will initiate a process to begin evaluating potential contingency measures.

The AQCC will then hold a public hearing to consider the contingency measures recommended by Cañon City, APCDand CDOT along with any other contingency measures the Commission 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.

Subsequent Maintenance Plan Revisions

The previously approved maintenance plan addressed the period 1997 through 2015 and demonstrated, as required in CAAA 175A(a), that the PM10 standard will be maintained for the initial ten-year period (through 2010) after redesignation in 2000. In accordance with CAA 176A(b) it is required that a maintenance plan revision be submitted to the EPA within eight years after the original redesignation to address maintenance of the standard for a second ten-year period beyond redesignation. The purpose of this maintenance plan revision is to provide for maintenance of the PM10 standard for the additional ten years (through 2020) following the first ten-year period.

No additional revisions of the PM10 Maintenance Plan are anticipated at this time. If future changes in mobile source models or other unforeseen considerations raise potential issues with maintaining the PM10 standard, the State will address the need to revise the maintenance plan at that time.