CARBON MONOXIDE PROVISIONS

FOR PROVO

Section IX, Part C.6

Adopted by the Air Quality Board
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IX.C.6 Carbon Monoxide Provisions for Provo

a. INTRODUCTION

The State of Utah requests that the U.S. Environmental Protection Agency (EPA) approve a new attainment demonstration and maintenance plan for Provo and redesignate Provo to attainment status for the National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO). Provo has not violated the standard since 1993, and with the approved attainment demonstration and maintenance plan, the area is now eligible for redesignation. Provo refers to the area within the geographic boundaries of the city of Provo, the area addressed by this Plan.

The Attainment Demonstration, which is being submitted for inclusion in Utah's federally enforceable State Implementation Plan (SIP), demonstrates that Provo had attained the NAAQS for carbon monoxide by the year 2000.

The Maintenance Plan, which is being submitted for inclusion in Utah's federally enforceable SIP, provides for maintenance of the NAAQS standard for carbon monoxide in Provo through the year 2015.

(1) National Ambient Air Quality Standards for Carbon Monoxide

The National Ambient Air Quality Standards (NAAQS) for carbon monoxide are found in 40 CFR Part 50.8. The EPA has promulgated two standards for carbon monoxide:

- The eight-hour non-overlapping 9 ppm average not to be exceeded more than once per year. The rounding convention in the standard specifies that values of 9.5 ppm or greater exceed the standard. High values that occur within eight hours following the first one are exempted, using "non-overlapping averages."

- The one-hour concentration of 35 ppm is not to be exceeded more than once per year. This standard has never been violated in Utah.

A violation occurs when two or more exceedances of the 8-hour standard are recorded at the same monitoring station during a calendar year. To be in attainment, an area must meet the NAAQS for two consecutive years and carry out air quality monitoring during the entire time.

The primary source of CO is the incomplete combustion of fuels such as gasoline. Local weather conditions and the number of vehicles and vehicle miles traveled in the area influence CO levels. The largest emissions contribution comes from on-road motor vehicles. Other significant CO sources may include woodburning stoves, incinerators and industrial sources.

(2) Provo Attainment/Maintenance Area

Provo is situated at the base of the Wasatch Mountains in north central Utah about 50 miles south of Salt Lake City, and is the seat of Utah County. In 2003, about 105,000 people lived in Provo. Population in Provo increased more than twenty percent during the 1990s, but has remained relatively stable over the past three years. Because Provo is nearly surrounded by

mountains and other cities, not much growth within Provo's municipal boundaries is likely to occur in future years.

Provo occasionally encounters strong wintertime inversions that can trap pollutants, including carbon monoxide, in the valley. As pollutants are emitted into the stagnant air, concentrations may increase and in the past have exceeded the 8-hour national air quality standards.

(3) Provo Carbon Monoxide Designation History

During the SIP development process in 1993-94, it was determined through modeling that the only areas in the county where violations were potentially occurring were in Provo and Orem. The CO SIP that was submitted to EPA for approval on July 11, 1994, classified Provo and Orem as a moderate non-attainment area for CO with a design value of 15.8 ppm and a mandatory attainment date of December 31, 1995. On September 20, 2002 (67 FR 59165), EPA published a determination that the Provo nonattainment area had attained the NAAQS for CO by December 31, 1995. EPA never approved the 1994 SIP submittal, although they did approve the vehicle Inspection and Maintenance (I/M) program and the 2.7% and 3.1% oxygenated fuels programs.

Projections of vehicle miles traveled (VMT) were provided for the 1994 CO SIP submittal by the local metropolitan planning organization, Mountainland Association of Governments (MAG), and the Utah Department of Transportation (UDOT) to demonstrate that the state was making reasonable further progress towards attaining the NAAQS. MAG estimated that the VMT would be expected to grow at a rate of about 4.1% across the Utah County modeling domain, compounded annually from 1992 through 1996. In the 1994 CO SIP submittal, the state committed to provide EPA with a report of actual VMT for the area of nonattainment for the preceding year by September 30 of each year. In 1995, the actual VMT figures exceeded the VMT forecasts and the contingency measures were triggered in 1996, increasing the oxygen content of gasoline sold in Utah County from 2.7% to 3.1%. In September 2001, the oxygenate concentration under State law was reduced to 2.7% after MOBILE6 modeling runs demonstrated that the NAAQS could be met with the lower concentration of oxygenate; EPA approved the revision on September 20, 2002 (67 FR 59165).

With the submittal of this revised Attainment Demonstration and Maintenance Plan, Utah withdraws its submittal of the 1994 Attainment Demonstration and SIP Revision. However, for informational purposes, the 1994 submittal is contained in Volume 1, Section 2 of the TSD and is referred to frequently in this document.

b. CARBON MONOXIDE MONITORING NETWORK

(1) Attainment of the Carbon Monoxide Standard

The current carbon monoxide ambient air monitoring network in the Provo area consists of two State and Local Air Monitoring Stations (SLAMS) in Provo that are operated by the UDAQ Air Monitoring Center (AMC). During the development of the 1994 SIP, modeling demonstrated a potential hot spot in south Orem, and a monitoring site was also established there to verify attainment of the NAAQS in the area; however, no exceedances of the NAAQS were ever monitored at the South Orem monitoring site.

The monitoring sites are listed in Table 1, and Figure 1 on the following page shows the geographical distribution of the monitors.

Table 1. Monitoring Site Locations

Site	Site Code	Site Address	AIRS Code
North Provo	NP	1355 N. 200 W. Provo	49-049-0002
University Ave. #3	U3	363 N. University Ave., Provo	49-049-0005
South Orem	SO	1580 S. State St. Orem	49-049-5005

With the implementation of emission control programs aimed at reducing automobile, truck and wood burning emissions, carbon monoxide concentrations decreased. In 1983 (54 FR 9796), the EPA approved the first CO SIP for Utah County as required by the 1977 Amendments to the Clean Air Act. This SIP included the first vehicle inspection and maintenance program for Utah County. On November 6, 1991, EPA the designation of Provo as nonattainment for CO with a "moderate" classification and a design value greater than 12.7 ppm. The remainder of Utah County was designated as unclassifiable/attainment.

During the SIP development process in 1994, it was determined through modeling that the only areas in the county where violations could be occurring were in Provo and Orem. In response to that modeling, a monitor was installed in Orem, but no violations were found there. The CO SIP that was submitted to EPA for approval on July 11, 1994, classified Provo and Orem as a moderate non-attainment area for CO with a design value of 15.8 ppm and a mandatory attainment date of December 31, 1995. However, EPA did not approve that SIP submittal, and therefore the federally-defined nonattainment area is Provo only. On September 20, 2002 (67 FR 59232), EPA published a determination that the Provo nonattainment area had attained the NAAQS for CO by December 31, 1995.

Oxygenated gasoline at 2.7% was introduced in Utah County in November 1992. As noted in Subpart (3) above, the percentage oxygenate was increased to 3.1% in 1996 due the failure of Utah County to implement the federally-required test-only vehicle emission inspection and maintenance program. Oxyfuel returned to 2.7% in 2001 under state law, and EPA approved the revision on September 20, 2002 (67 FR 59165).

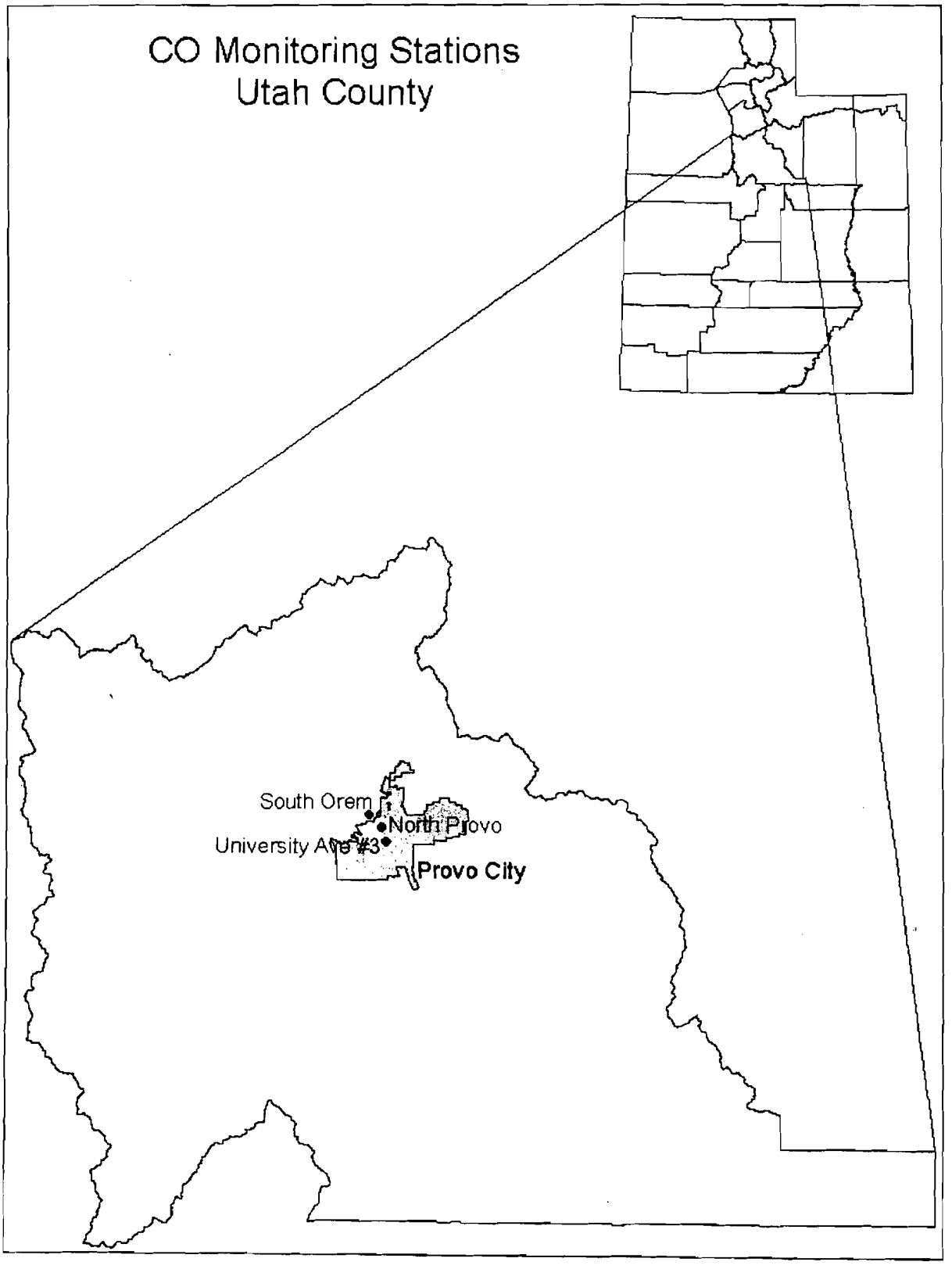
The last recorded violation of the eight-hour standard occurred in 1993. Provo has never exceeded the 1-hour NAAQS for CO.

(2) Monitoring Results and Attainment Demonstration

The 1994 SIP Submittal contained in Volume 1, Section 2 of the TSD contains a discussion and analysis of the monitoring data used to classify Provo as a nonattainment area.

Since the 1994 CO SIP submittal, the monitoring data for the area shows two exceedances of the CO standard. One occurred in 1994 at the University Avenue #2 site and the second occurred in 1996 at the University Avenue #3 site. (The monitoring site was moved one block in 1996.) Exceedances of the CO standard have not occurred since 1996 and the magnitudes of the eight-hour concentrations have dramatically decreased. The improvement is attributed to a combination of newer, cleaner operating cars and the implementation of control strategies. Although vehicle miles traveled (VMTs) are increasing, no exceedances of the CO standard have been monitored. As stated above, no exceedances of the CO NAAQS have ever been recorded at the South Orem monitoring site.

Figure 1. Utah County's Carbon Monoxide Monitors



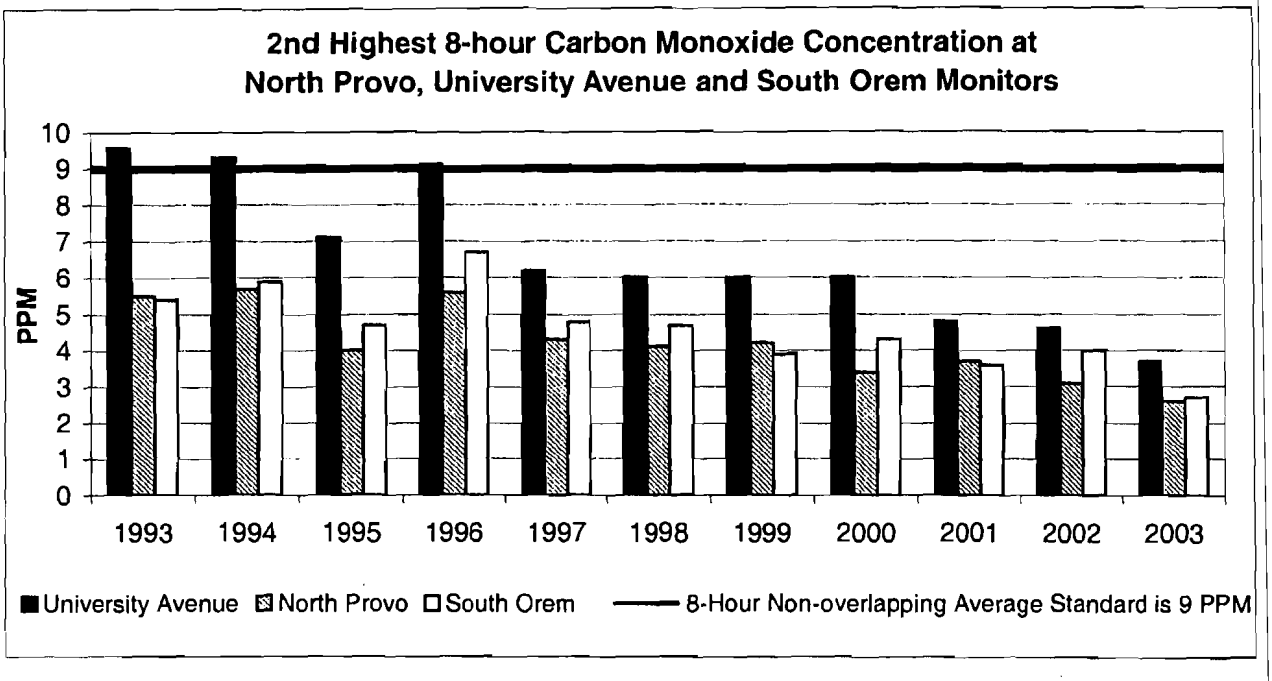
Monitored data is found in EPA's Aerometric Information and Retrieval System (AIRS) database. Table 2 displays the monitored high and 2nd-high values at the CO monitors in Provo from 1994 through 2001. Figure 2 is a graph of the history of CO second-high eight-hour average concentrations and displays a comparison of the measured concentrations with the NAAQS.

Table 2. **1st and 2nd High 8-hour CO Concentrations (ppm) at Utah County Monitoring Stations**

	University Avenue #2		North Provo		South Orem	
	1st High	2nd High	1st High	2nd High	1st High	2nd High
1994	9.9	9.3	6.1	5.7	6.0	5.9
1995	7.6	7.1	4.4	4.0	5.3	4.7
1996	10.2	9.1	6.7	5.6	7.6	6.7
	University Avenue #3*		North Provo		South Orem	
	1st High	2nd High	1st High	2nd High	1st High	2nd High
1995	7.2	6.3	4.4	4.0	5.3	4.7
1996	10.2	8.0	6.7	5.6	7.6	6.7
1997	6.6	6.2	4.4	4.3	5.5	4.8
1998	6.9	6.0	4.1	4.1	4.9	4.7
1999	6.9	6.0	4.9	4.2	3.9	3.9
2000	6.6	6.0	3.6	3.4	4.3	4.3
2001	7.5	4.8	4.4	3.7	3.6	3.6
2002	5.0	4.6	3.6	3.1	5.4	4.0
2003	4.1	3.7	3.0	2.6	2.8	2.7

* The monitoring site at 240 University Avenue (#2) was replaced with a monitor at 363 University Avenue (#3).

Figure 2. 2nd Highest 8-hour Carbon Monoxide Concentration at the Provo & South Orem Monitors



(3) Quality Assurance Program

Carbon monoxide data for Provo and Utah County 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." All of the monitoring data for the State of Utah is contained in the AIRS database. In addition, DAQ has verified that the integrity of the air quality monitoring network has been preserved. The precision and accuracy results for the Provo area monitoring network are summarized in the technical support document (Volume 12, Section 4) for this redesignation request and maintenance plan. The calculated 95 percent probability limits for the precision checks and accuracy audits demonstrate that the sites were meeting acceptable quality assurance limits for repeatability and accuracy.

(4) Monitoring Network

Information concerning CO monitoring in Utah is included in the Monitoring Network Review (MNR). Since the early 1980's, the MNR has been updated annually and submitted to EPA for approval. EPA personnel have concurred with the annual network reviews, and have agreed that the network remains adequate.

(5) Ongoing Review of Monitoring Sites

The State commits to continue operating the existing CO monitoring sites according to the requirements of 40 CFR Part 58 and will gain EPA approval before any changes are made to the Utah County CO monitoring network. The State will reevaluate the site location annually to

determine whether new monitoring sites are needed or whether existing monitoring sites should be removed or relocated.

c. ATTAINMENT PLAN

(1) Required Components of an Attainment Demonstration

The Clean Air Act in Section 187(a) sets forth the requirements for a SIP for carbon monoxide nonattainment areas that are designated as moderate under Section 186(a)(1). These requirements are set forth in Table 3.

Table 3. Requirements of a State Implementation Plan for Moderate Carbon Monoxide Nonattainment Areas

Category	Requirement	Reference	Addressed in Part
Base-Year Inventory	The SIP must include an inventory of actual emissions from all sources.	CAA 187(a)(1), CAA 172(c)(3)	IX.C.6.c(2)-(3)
VMT Forecast	For any area with a design value >12.7 ppm at the time of classification, the SIP shall include a forecast of vehicle miles traveled in the nonattainment area for each year prior to the year in which attainment is forecast. Annual updates shall be submitted to EPA.	CAA 187(a)(2)(A)	Volume 1, Section 2, TSD – 1994 SIP Submittal – Table IX.C.14
Contingency Measures	For any area with a design value >12.7 ppm at the time of classification, the SIP shall provide for implementation of specific contingency measures if the VMT forecast is exceeded or the area fails to attain the standard by the standard attainment date. Such measures shall take effect without further action by the Administrator of EPA or the State.	CAA 187(a)(3)	IX.C.6.c(5)
Basic I/M	The SIP must include a basic inspection and maintenance program.	CAA 187(a)(4), CAA 182a(a)(2)(B)	IX.C.6.c(4)(c)
Inventory Every 3rd Year	The SIP must include a commitment to submit an inventory by Sept 30, 1995, and every third year thereafter until the area is redesignated to attainment.	CAA 187(a)(5), CAA 187(a)(1), CAA 172(c)(3)	IX.C.6.c(4)(d)
Enhanced I/M	For any area with a design value >12.7 ppm at the time of classification, the SIP shall provide for implementation of an enhanced vehicle emissions inspection and maintenance program	CAA 187(a)(6), CAA 182a(c)(3)	IX.C.6.c(4)(c)
Attainment Demonstration and Control Strategies	A SIP must be submitted by November 15, 1992, showing that the area will attain the standard by the attainment date of December 31, 1995.	CAA 187(a)(7)	IX.C.6.c(4)

(2) Monitoring Data Analysis and Design Value Determination

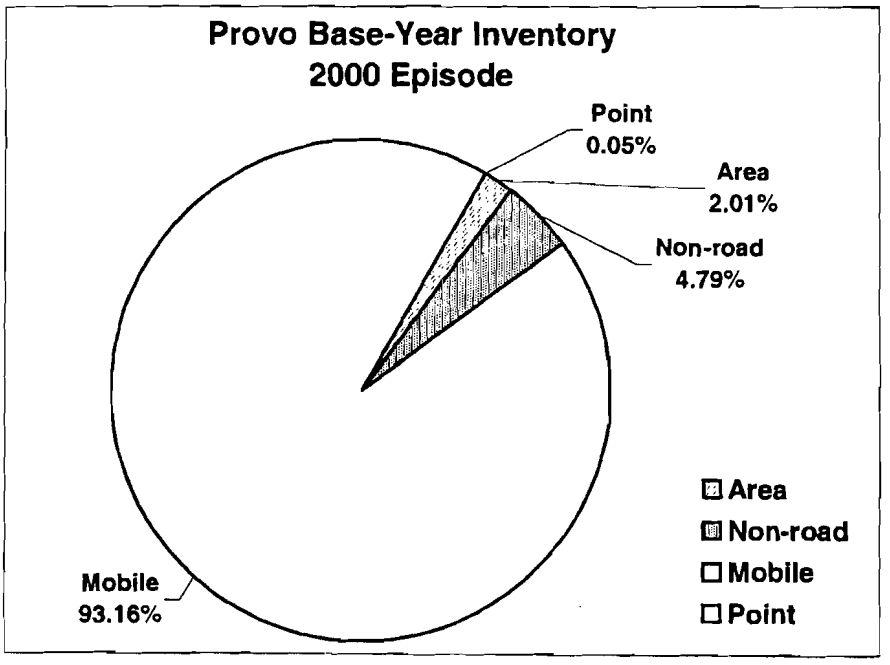
The monitoring data analysis used to establish the Design Value is contained in the 1994 SIP Submittal contained in Volume 1, Section 2 of the TSD.

(3) Attainment (Base-Year) Emissions Inventory

The State is basing this attainment demonstration on data for calendar year 2000, and specifically on the winter-time episode when the high value for the year occurred. The selection of that episode is contained in the Episode Selection Document contained in Volume 12, Section 4.b.ii of the TSD. The following is a discussion of the emissions inventory used for that episode. This data was collected and analyzed according to the Inventory Preparation Plan (IPP) contained in Volume 9, Section 3.a of the TSD.

The emissions inventory identifies CO emissions from different sources in Provo. Maximum CO concentrations occur during winter temperature inversions; therefore the inventories used in this attainment demonstration reflect emissions on an average winter day. Mobile sources generate approximately 93 percent of the carbon monoxide (CO) emitted in Provo. Figure 3 illustrates the distribution of daily CO emissions in Provo for the attainment episode in 2000.

Figure 3. Provo 2000 Base-Year Episodic Inventory



The attainment year episodic emissions inventory is divided into three major sections: point sources, area sources, and mobile sources. A discussion of each of these three sections follows. Table 4 below shows peak CO daily emissions from each category in tons/winter day for Provo.

Table 4. 2000 Provo Attainment-Episode Inventory

Provo (Tons per Day)	
	2000
Mobile	59.44
Point	0.03
Area	1.28
Non-Road	3.05
Total	63.80

(a) Point Sources

Provo is a moderate CO nonattainment area, and there are no major point sources of CO within the municipal boundaries. During the development of the 1994 SIP submittal, two major sources of CO existed in Utah County outside the Provo municipal boundaries. That version of the SIP, contained in Volume 1, Section 2 of the TSD, contains an analysis demonstrating that those two sources do not have a significant impact on the nonattainment area. Because Provo was classified as a moderate CO nonattainment area, hotspot modeling for point sources using ISCST3 is not required in the Clean Air Act. However, emissions from all point sources within the modeling domain were input into the UAM-AERO model, and the mobile modeling results from CAL3QHCR were paired in time and space with the output from UAM-AERO.

(b) Area Sources

The area source inventory for Provo was derived from the UAM-AERO model using a grid-based allocation of emissions within the Provo municipal boundaries.

(c) Mobile Sources

Mountainland Association of Governments (MAG) provided the mobile source inventory using the MOBILE6.1 emission model and applicable transportation data. The analysis is found in Volume 10, Section 3.b.i, Provo/Utah County On-Road Mobile Sources, of the TSD.

(4) Attainment Demonstration

(a) Modeling Analysis

The modeling analysis using UAM-AERO and CAL3QHCR for the nonattainment area was done as described in the Modeling Protocol contained in Volume 12, Section 4.b.i of the TSD.

The technical analysis of CO concentrations in the Provo/Orem area completed in 1994 and contained in the 1994 SIP submittal in Volume 1, Section 2 of the TSD concluded that the CO problem was occurring primarily at one particular intersection on University Avenue in Provo. The application of source specific modeling of two large industrial sources, Geneva Steel and Pacific States Cast Iron Pipe, indicated that the elevated CO concentrations at specific intersections were not influenced by emissions from these sources. In addition, detailed meteorological analysis of both the observation record and prognostic modeling showed that very specific meteorological conditions accompanied elevated CO concentrations. An analysis of the CO monitoring database for the Provo/Orem area, combined with the meteorological

record over the last decade, indicates that the conclusions reached in the 1994 analysis--i.e., that the CO problem occurred primarily at a single intersection in Provo, and that elevated concentrations at specific intersections are not influenced by emissions from point sources--continue to be valid today. Section 2 of the Episode Selection Document describes in detail the analysis used to select the base year modeling episodes, and the 2000 episode was used as the attainment year for this attainment demonstration. Detailed discussion of episode selection is found in the Episode Selection Document in Volume 12, Section 4.b.ii of the TSD.

(b) Episode Modeling

The CO Modeling (Volume 12, Section 4.a, UAM-CAL3QHCR Modeling, of the TSD) describes in detail the suite of models used for this analysis. A combination of the CAL3QHCR traffic model and the UAM-AERO regional model were used to capture the effects of the local contribution to CO from automobiles at intersections and the more generalized contribution to background CO. As required by EPA, the intersections studied included the three with the highest VMT counts and the three with the lowest level of service (LOS) in the nonattainment area. The results of these two models are summed to derive an estimate of the total CO concentration that can be expected at "hot spot" intersections where CO is expected to be the highest.

The episode was modeled with the control strategies in place at the time, including use of oxygenated gasoline in Utah County. Since the selected intersections showed no exceedance of the CO NAAQS, any intersections with lower traffic volumes and less congestion would have less ambient air impacts. There were no modeled exceedances of the CO NAAQS within the modeling domain. Therefore, attainment of the carbon monoxide standard is demonstrated for the year 2000. Further information about the episodic modeling strategy and results is available in the Modeling Protocol contained in Volume 12, Section 4.b.i of the Technical Support Document. Results are displayed in Table 5.

TABLE 5. 2000 EPISODE: 8-HOUR MAXIMUM CO CONCENTRATIONS (PPM)

Location	Concentration
University Ave University Parkway	8.3
1230 North University Ave	7.1
1230 North 500 West	7.7
500 West Center St.	8.5
500 North University Ave & Center St.	8.6

(c) Control Strategies to Attain the NAAQS

(i) Oxygenated Gasoline Program

The requirements for the Oxygenated Gasoline Program in effect in Utah County in 2000 and used to attain the NAAQS provide:

- a winter season control period from November 1 through the end of February each year; and
- addition of a minimum of 3.1% oxygen content by weight to gasoline sold in Utah County during the control period.

(ii) Gasoline Vehicle Emissions Inspection and Maintenance (I/M) Program

Model year 1968 through 1995 cars and trucks fueled with gasoline, propane and natural gas and owned by residents of Utah County, including Provo, are subject to an annual, two-speed idle program. Vehicles 1996 and newer undergo On-Board Diagnostics (OBD) inspection. The local Utah County Health Department, under the direction of the Utah County Commission, manages the program, and the program is primarily a decentralized, test-and-repair program. The program has an active covert compliance program to minimize potential fraudulent testing. While the county will issue waivers under limited circumstances, these are seldom granted and require a reduction in carbon monoxide emissions. EPA has verified that Utah County's I/M program is equivalent to a test-only program (67 FR 57744, September 12, 2002).

Students attending colleges and universities in the area are required to comply with vehicle emission testing prior to registering their vehicles on campus, whether or not they are domiciled in Utah County.

Utah County also maintains a limited remote sensing capability. While not mandated by the SIP, this capability was used to help quantify program effectiveness and may enhance future program flexibility.

A complete description of the Utah County I/M program is found in Section X, Parts A and D, of the Utah State Implementation Plan.

(A) Basic Inspection and Maintenance Program

As a result of the Clean Air Act Amendments of 1990, EPA promulgated minimum requirements for Basic and Enhanced Inspection and Maintenance (I/M) programs in 40 CFR Part 51. Under Section 182 of the Act, the state was required to implement a vehicle emissions inspection and maintenance program in Utah County that is at least as effective as the EPA's Basic Performance Standard. The State added Section X, Basic Automotive I/M, to the Utah SIP to meet those requirements.

(B) Enhanced Inspection and Maintenance Program

At the time the CO SIP was developed in 1994, EPA assumed only 50% credit for a decentralized test-and-repair I/M program. In order to qualify for 100% credit, an enhanced vehicle emissions inspection and maintenance program was identified as a control strategy in the SIP with an implementation date of July 1, 1995. On January 25, 1995, the Utah County Commissioners adopted Ordinance No. 1995-02, which specified the requirements of the Enhanced and Basic Vehicle Emission Inspection and Maintenance Program Rules and Regulations. The ordinance also specified that the rules and regulations would be implemented only if the County Commission was unable to implement equivalent emission reduction strategies as required by the Carbon Monoxide SIP.

Utah County pursued approval of equivalent emission reduction strategies by demonstrating its decentralized I/M program with enhancements would provide equal or greater emission reductions than a centralized test-only program. Following the provisions of Section 348 of the National Highway System Designation Act of 1995 (NHSDA), Utah County performed additional testing and analysis using methodology developed by the Environmental Council of the States (ECOS), State and Territorial Air Pollution Program Administrators (STAPPA) and EPA I/M Workgroup in response to the NHSDA requirements.

Utah County's NHSDA analysis was submitted to EPA on May 27, 1999. On September 12, 2002 (67 FR 57775), EPA published approval of the Utah County I/M program, including approval of the demonstration of full emissions reduction credit for the program. This allowed Utah County to claim 100% emissions test-only credit for its I/M program and to meet the federal requirements, as modified by the NHSDA for an enhanced program.

(iii) Wood-burning Controls

Controls on wood-burning stoves and fireplaces were included in the 1994 SIP revision; complete details of the program are found in the 1994 SIP submittal in Volume 1, Section 2 of the TSD at IX.C.6(j)(2)(c) and in R307-302-3. "Red" (mandatory no-burn) status is called when ambient CO concentrations reach 6.0 ppm and when forecasted meteorological conditions indicate that carbon monoxide levels may continue to rise. There were four red days for carbon monoxide in Provo-Orem in the 1995-96 winter season, but none have been called since that time.

(d) Tri-Annual Emissions Inventory

The state will continue to upload the tri-annual emissions inventory into the National Emissions Inventory database as required by the Consolidated Emissions Reporting Rule (67 FR 39602, June 10, 2002).

(5) Contingency Plan

The 1994 SIP at IX.C.6.f, included in Volume 1, Section 2 of the TSD, identified increasing the oxygenate in gasoline sold in Utah County in the winter season from 2.7% to 3.1% as the contingency measure to be implemented if the projected VMTs were exceeded, or if Utah County failed to implement an enhanced inspection and maintenance program by July 1, 1995.

d. MAINTENANCE PLAN

(1) Required Components of a Maintenance Plan and Redesignation Request

Section 107(d)(3)(D) and (E) of the Clean Air Act define the criteria an area must meet before being redesignated to attainment and maintenance status. With the submittal of this Maintenance Plan, Provo meets all these criteria. Table 6 identifies the prerequisites for a Redesignation Request. Table 7 identifies the prerequisites for a Maintenance Plan.

Table 6. Prerequisites to Redesignation			
Category	Requirement	Reference	Addressed in Section
Attainment of Standard	The State must provide two complete, consecutive calendar years of quality-assured monitoring data in accordance with 40 CFR 58.	CAA: Sec. 107(d)(3)(E)(i)	IX.C.6.e(1)
Section 110 and Part D Requirements	The state must verify that the area has met all requirements applicable to the area under Section 110 and Part D.	Sec. 107(d)(3)(E)(v); Sec. 110(a)(2); and Sec. 171 of CAA	Completeness Memo in Administrative Documentation
Oxygenated Gasoline Program	In a CO nonattainment area that is redesignated as attainment for CO, the requirements of this subsection shall remain in effect to the extent such program is necessary to maintain the standard thereafter in the area.	CAA: Sec. 211(m)(6)	IX.C.6.e(4)
State Implementation Plan Approval	The state must verify that a fully approved SIP is in place for the area under section 110(k) of CAA.	Sec. 107(d)(3)(E)(ii) and Sec. 110(k) of CAA	IX.C.6.c(4)
Permanent and Enforceable Emissions Reductions	The state must verify that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from enforcement of the SIP, federal regulations, and other permanent and enforceable regulations.	Sec. 107(d)(3)(E)(iii) of CAA	IX.C.6(d)(2)
Maintenance Plan	To be redesignated to attainment, the State must have a fully approved maintenance plan in place.	Sec. 107(d)(3)(E)(iv)	

Table 7. Requirements of a Maintenance Plan			
Category	Requirement	Reference	Section
Maintenance Demonstration	Provide for maintenance of the relevant NAAQS in the area for at least 10 years after redesignation. Demonstration is made by modeling to show that the future mix of sources and emission rates will not cause a violation of the NAAQS.	Sec. 175A(a) of CAA and Calcagni memo, Sept. 4, 1992	IX.C.6.e(3)
Verification of Continued Maintenance	The maintenance plan must indicate how the State will track the progress of the maintenance plan.	Calcagni memo, Sept 4, 1992	IX.C.6.e(6)
Revise in 8 years	The State must commit to revising the maintenance plan 8 years after redesignation.	Sec. 175A(b) of CAA	IX.C.6.e(6)(d)
Contingency Measures	Areas seeking redesignation from nonattainment to attainment are required to develop contingency measures that include State commitments to implement additional control measures in response to future violations of the NAAQS.	Sec. 175A(d) of CAA, Calcagni memo, Sept. 4, 1992	IX.C.6.e(5)

(a) Existing Controls

The controls necessary to attain the NAAQS are outlined in Section c.4 (Control Strategies) of the Attainment Plan in this revision of the SIP, and include a requirement for the sale of 2.7% oxygenated fuel in Utah County, and vehicle Inspection/Maintenance (I/M) program, and controls on wood-burning devices during no-burn periods in Utah County.

(b) Monitoring Network / Data Analysis

The monitoring network is discussed in Section b (Monitoring Network) of this revision of the SIP.

(2) Improvement in Air Quality Due to Permanent & Enforceable Emission Reductions

Under the provisions of the Clean Air Act section 107(d)(3)(E)(iii), the State must verify that the improvement in air quality is due to permanent and enforceable reductions in emissions. Emission data must be examined for evidence of temporary reduction in emission rates (e.g. reduced production or shutdown due to temporary adverse economic conditions) or unusually favorable meteorology that may have contributed to attainment, and, if appropriate, the State must assure that recovery from the above conditions will not jeopardize continued maintenance of the standard.

(a) Permanent and Enforceable Emission Reductions

Reductions in carbon monoxide emissions in the Provo nonattainment area have primarily resulted from implementation of the following programs:

- the Federal Motor Vehicle Emission Control Program
- Utah County's Vehicle Emissions Inspection and Maintenance Program

Because these controls have been federally approved, the resulting CO emission reductions are federally enforceable and permanent. This plan incorporates Utah's commitment to continue to enforce all applicable requirements of the State Implementation Plan, except for changes identified in Subpart e(4)(a) below, after Provo is redesignated to attainment. The emission benefits from these controls (as modified in Subpart 3(4)(b)) have been accounted for in the CO emission inventory projections for the maintenance provisions of this plan.

Continued reductions in carbon monoxide emissions through the year 2015 are anticipated as a result of the Tier II federal vehicle emission standards promulgated on February 10, 2000 (65 FR 6698). In addition, Utah County Health Department will continue to operate its vehicle inspection program.

(b) Meteorology and Ambient Conditions

For redesignation of the Provo nonattainment area to attainment, it is important to show that reductions in ambient carbon monoxide concentrations are due to permanently enforceable emission reductions, and not to reductions resulting from year-to-year meteorological variations.

The air pollution potential for Provo continues to exist due to the ongoing presence of stagnation periods (inversions) prevalent in the area. For reference, the most recent violation year was 1993, and 1994 - 2002 were non-violation years for CO in Utah County.

Historically, elevated CO values in Utah County have been associated with inversion episodes during the autumn and winter. Inversions are characterized by strong positive temperature gradients with height, low wind speeds, and minimal atmospheric mixing. The inversions are strongest and most persistent in the autumn and winter months when solar heating is at a minimum. Minimum CO levels were recorded during the time of maximum solar heating.

A Clearing Index (CI) has been developed to quantitatively assess the intensity of inversion periods. The CI is a numerical, non-dimensional value ranging from less than 50 in the worst stagnant conditions to more than 1000 during the least stagnant conditions. A value of 250 or less indicates inversion conditions. The CI is based on two variables: 1) the vertical diffusion of pollutants (the mixing depth), and 2) the wind speed in this mixing depth that results in horizontal transport of pollutants. The CI is calculated as follows:

CI = Surface Wind (knots) X Mixing Height (feet) / 100

Radiosonde data of the vertical structure of winds, temperature, and humidity are the primary source of specific data used in determining CIs for Utah County. Radiosondes are released twice daily by the National Weather Service (NWS) located at the north end of Geneva Steel plant property in Utah County.

As shown in Table 8 below, violations of the eight-hour NAAQS for carbon monoxide occur during high or moderate stagnation periods with very low CIs (150 or less). The values contained in this table were taken from NWS data collected at the Geneva Steel plant property and UDAQ monitoring records.

Table 8. Monitored Carbon Monoxide Violations (8-hour avg.) and Clearing Indices for Utah County, 1993

Monitor Site	Date	Hour	Monitored Conc. (ppm)	CI	Wind Sp. (mph)
North Provo	12/14/93	2300-2400	10	150	2.7
North Provo	11/29/93	2300-2400	10	150	2.7

Three exceedances of the standard occurred between 1994 and 1996. These exceedances were reviewed (see Table 9) for similarity with the violations that occurred during 1993 (see Table 8).

Table 9. Monitored Carbon Monoxide Exceedances (8-hour avg.) and Clearing Indices (CIs) for Utah County, 1994-1996.

Monitor Site	Date	Hour	Monitored Conc. (ppm)	CI	Wind Sp. (mph)
University #2	1/22/94	0000-0100	10	80	2.3
University #2	2/9/96	0000-0100	10	25	2.3
University #3	2/9/96	0000-0100	10	25	2.3

Table 10 indicates the number of days with a Clearing Index (CI) equal to or below 250 for the period from 1990 through 2002. A yearly breakdown of this table appears in the Technical Support Documentation (Section 5, CD-ROM).

Table 10. Total Inversion Days (Clearing Index<250)

Year	0-100 CI	101-250 CI	0-250 CI
1990	19	36	55
1991	49	43	92
1992	39	42	81
1993	35	53	88
1994	17	29	46
1995	20	40	60
1996	24	29	53
1997	24	46	70
1998	30	36	66
1999	55	44	99
2000	53	45	98
2001	48	44	92
2002	55	43	98

Meteorology for Utah County over the past 10 years confirms this area continues to experience wintertime inversion periods. These periods are equal in severity and frequency to that which occurred during the early 1990s time period. However, no violations of the CO standard have occurred since 1993. This demonstrates that meteorological variables did not significantly influence the reduction in ambient CO concentrations in Provo. This position is further substantiated by information and analyses contained in the Episode Selection Documentation in Volume 12, Section 4.b.ii of the Technical Support Document.

(c) Emissions Have Not Been Influenced by Temporary Economic Conditions

The State is required to demonstrate that point source carbon monoxide emissions for Provo have not been reduced due to temporary economic conditions. The only significant point sources for carbon monoxide that could impact the Provo nonattainment area were the Geneva Steel sinter plant and the cupola at Pacific States Cast Iron Pipe Company (Pacific States). During the

development of the 1994 SIP, these sources were both modeled and demonstrated to have insignificant impact on the NAAQS.

Other demographic factors clearly are not responsible for the improvement in ambient carbon monoxide levels in Provo. Over the last ten years, the area has experienced strong growth in vehicle miles traveled, as displayed in Table 11, while concurrently achieving a significant reduction in monitored carbon monoxide levels.

Table 11. Vehicle Miles Traveled in Provo and Utah County, 1990-2001

Annual Average Daily Traffic (AADT) **Vehicle Miles Traveled** (VMT)		
Year	Provo	Utah County
1993	1,220,412	5,656,533
1994	1,286,466	6,012,331
1995	1,316,015	6,356,477
1996	1,342,453	6,733,700
1997	1,488,093	7,216,446
1998	1,536,750	7,537,532
1999	1,615,785	8,008,574
2000	1,629,763	8,272,574
2001	1,629,978	8,628,699

Source: Utah Department of Transportation (UDOT)

e. MAINTENANCE DEMONSTRATION

(1) Base Year Emissions Inventories

The annual emissions inventory identifies CO emissions from different sources in Utah County. Maximum CO concentrations occur during winter temperature inversions; therefore the inventories used in this attainment demonstration reflect emissions on an average winter day. Mobile sources generate approximately 93 percent of the carbon monoxide (CO) emitted in Utah County. Figure 4 illustrates the distribution of daily CO emissions in Provo for the base-year episode in 2000, and Figure 5 illustrates the distribution of daily CO emissions in Provo for the base-year episode in 2001.

Figure 4. Provo 2000 Base-Year Inventory

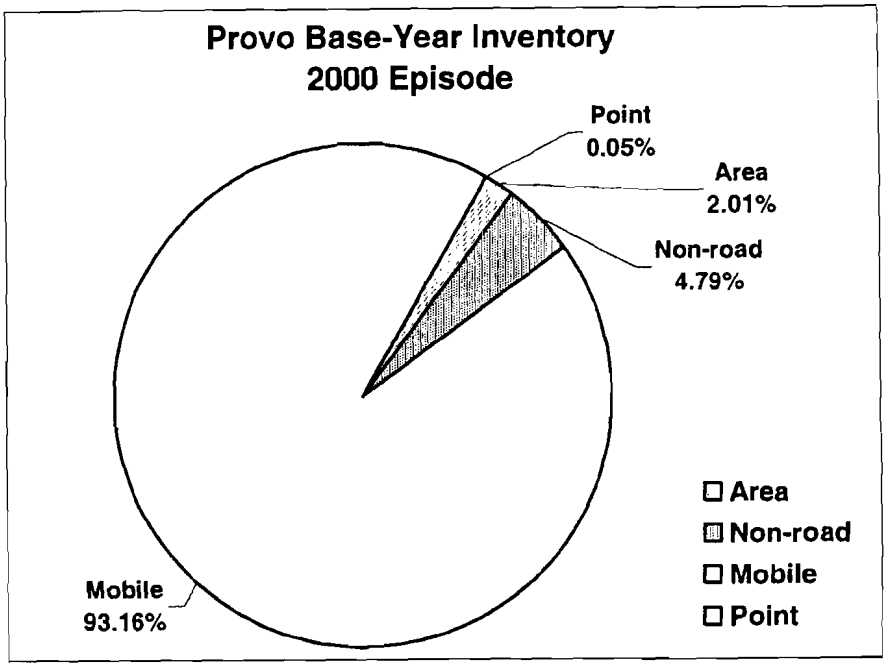
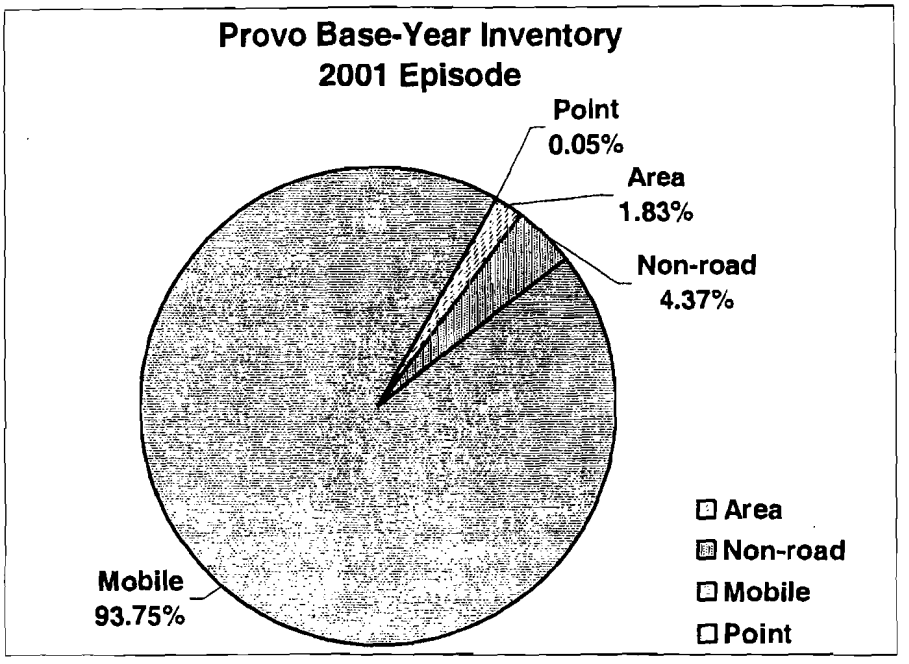


Figure 5. Provo 2001 Base-Year Inventory



The base-year episodic emissions inventories are divided into four major sections: point sources, area sources, non-road sources, and mobile sources. A discussion of each of these three sections follows. Table 12 below shows peak CO daily emissions from each category in tons/day for Provo for each base-year episode.

Table 12. 2000 and 2001 Provo Base-Year Inventories

Provo (Tons per Day)		
	2000	2001
Mobile	59.44	65.38
Point	0.03	0.03
Area	1.28	1.28
Non-Road	3.05	3.05
Total	63.80	69.74

(a) Point Sources

Since Provo is a moderate CO non-attainment area, hotspot modeling for point sources using ISCST3 is not required. Emissions from point sources were input to the UAM-AERO model, and the mobile modeling results from CAL3QHCR were paired in time and space with the output from UAM-AERO.

(b) Area Sources

The area source inventory for Provo was derived from the UAM-AERO model using a grid-based allocation of emissions within the Provo municipal boundaries.

(c) Mobile Sources

Mountainland Association of Governments (MAG) provided the mobile source inventory using the current MOBILE emission model and applicable transportation data. The analysis is found in Volume 10, Section 3.b.i, Provo/Utah County On-Road Mobile Sources, TSD.

(2) Modeling Demonstration

(a) Episode Selection

The technical analysis of CO concentrations in the Provo/Orem area completed in 1994 concluded that the CO problem was probably occurring primarily at one particular intersection on University Avenue in Provo. The application of source specific modeling of two large industrial sources, Geneva Steel and Pacific States Cast Iron Pipe, indicated that the elevated CO concentrations at specific intersections were not influenced by emissions from these sources. In addition, detailed meteorological analysis of both the observation record and prognostic modeling showed that very specific meteorological conditions accompanied elevated CO concentrations. An analysis of the CO monitoring database for the Provo/Orem area, combined with the meteorological record over the last decade, indicates that the conclusions reached in the previous analysis--i.e., that the CO problem occurs primarily at a single intersection in Provo, and that elevated concentrations at specific intersections are not influenced by emissions from point sources-- continue to be valid today. Section 2 of the Episode Selection Document describes in detail the analysis used to select the base year modeling episodes. Detailed discussion of episode selection is found in the Episode Selection Document in Volume 12, Section 4.b.i of the TSD.

(b) Episode Modeling

The CO Modeling Protocol (UAM-CAL3QHCR Modeling Results, Volume 12, Section 4.a of the TSD) describes in detail the suite of models used for this analysis. A combination of the CAL3QHCR traffic model and the UAM-AERO regional model were used to capture the effects of the local contribution to CO from automobiles at intersections and the more generalized contribution to background CO. The results of these two models are summed to derive an estimate of the total CO concentration that can be expected at "hot spot" intersections where CO is expected to be the highest.

The episodes were modeled with the control strategies in place at the time, including use of oxygenated gasoline in Utah County. In addition, the model was run for the projection years with future control measures discussed in Subpart (4) below, i.e., eliminating oxygenated fuel and incorporating the recently revised Utah statute 41-6-163.6 providing for biennial I/M vehicle emissions testing for vehicles six years old and newer. Table 13 displays the inventory used in the modeling.

Table 13. Carbon Monoxide Emission Inventories for the Provo Modeling Domain

Provo (Tons per Day)						
Source	**2005**	**2006**	**2008**	**2011**	**2014**	**2015**
Mobile	70.44	72.10	59.69	55.75	52.88	52.46
Point	0.04	0.04	0.04	0.04	0.05	0.05
Area	1.18	1.17	1.10	1.03	0.97	0.96
Non-Road	3.05	3.03	2.97	2.90	2.86	2.87
Total	74.71	76.34	63.80	59.72	56.76	56.34

Only one intersection, 500 N. University Avenue and Center Street, shows an exceedance of the standard in 2001 (Table 14). The highest monitored value in Provo in 2001 was 7.5 ppm (See Table 2), at a monitor that is only 3 blocks from the modeled intersection. Given that the monitored data for 2001 indicates no exceedances, and that projected values for all future years are lower than the standard, the modeled exceedance in 2001 is an indication that the model is conservative in its projections. Further information about the episodic modeling strategy and results is available in the modeling documentation contained in Volume 12, Section 4.b.ii of the Technical Support Document. Results are displayed in Tables 14 and 15 and are shown graphically in Figures 6 and 7.

TABLE 14. 2000 EPISODE AND PROJECTIONS: 8-HOUR MAXIMUM CO CONCENTRATIONS (PPM)

Location	2000	2004	2005	2006	2007	2008	2011	2014	2015
University Ave University Parkway	8.3	7.9	7.9	8.1	6.5	6.5	6.0	5.6	5.5
1230 North University Ave	7.1	6.6	6.6	6.8	5.5	5.5	5.0	4.7	4.6
1230 North 500 West	7.7	7.2	7.2	7.3	5.9	5.9	5.4	5.0	4.9
500 West Center St.	8.5	8.0	8.0	8.2	6.5	6.5	6.1	5.6	5.6
500 North University Ave & Center St.	8.6	8.4	8.3	8.5	6.9	6.9	6.3	5.9	5.8

Figure 6. 2000 Episode CAL3QHCR + UAM AERO

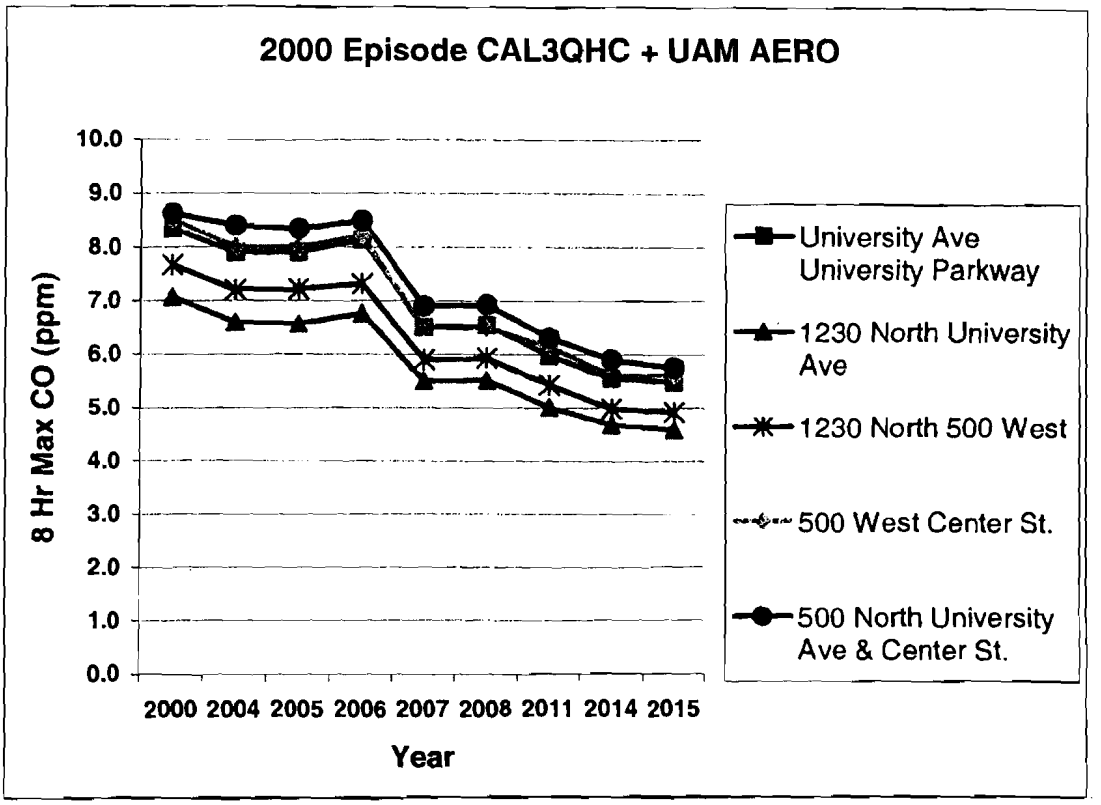
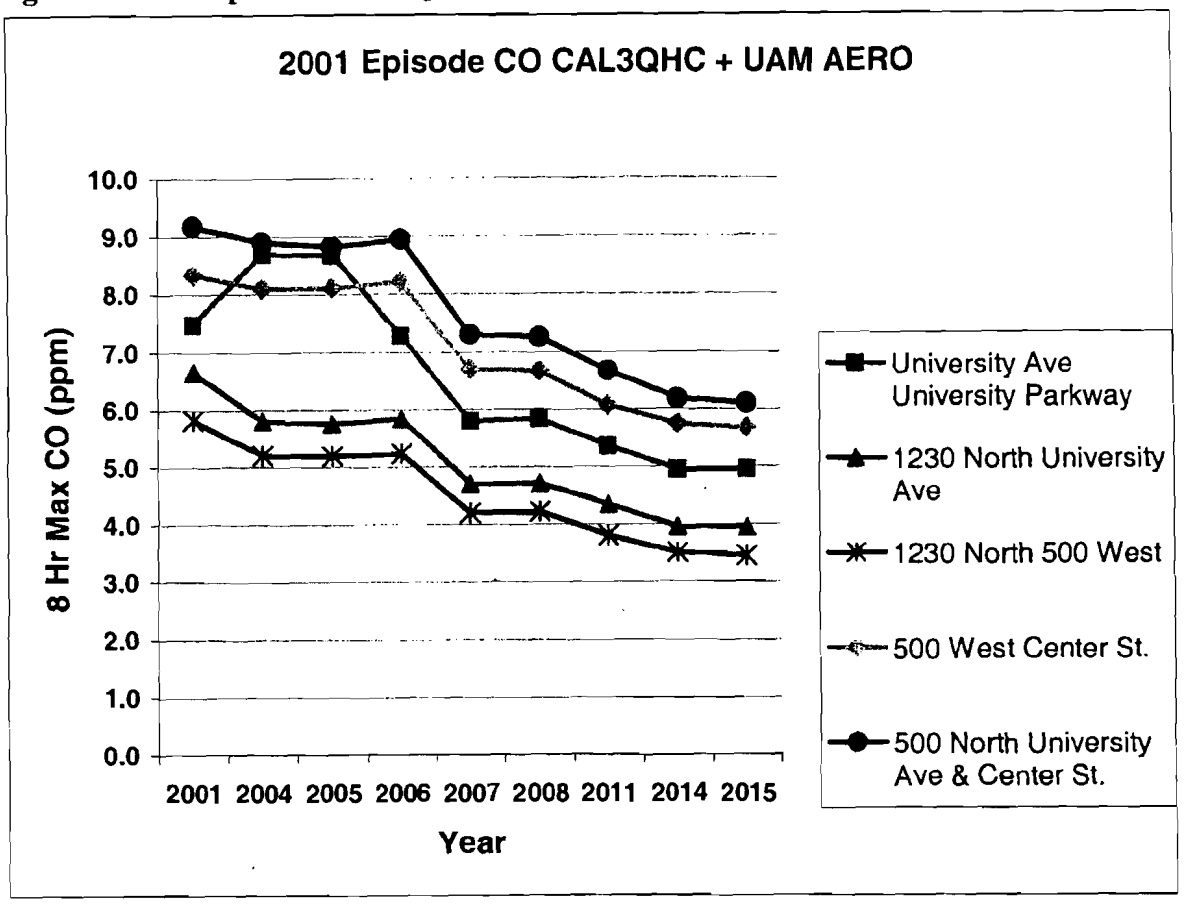


TABLE 15. 2001 EPISODE AND PROJECTIONS: 8-HOUR MAXIMUM CO CONCENTRATIONS (PPM)

Location	2001	2004	2005	2006	2007	2008	2011	2014	2015
University Ave University Parkway	7.5	8.7	8.7	7.3	5.8	5.8	5.4	4.9	4.9
1230 North University Ave	6.7	5.8	5.8	5.8	4.7	4.7	4.3	4.0	3.9
1230 North 500 West	5.8	5.2	5.2	5.2	4.2	4.2	3.8	3.5	3.4
500 West Center St.	8.3	8.2	8.1	8.2	6.7	6.7	6.1	5.7	5.7
500 North University Ave & Center St.	9.2	8.9	8.8	8.9	7.3	7.3	6.7	6.2	6.1

Figure 7. 2001 Episode CAL3QHCR + UAM AERO



(3) Revisions in Existing Control Measures

(a) Oxygenated Gasoline

As a result of cleaner cars in the fleet, emission projections in Tables 15 and 16 show that it is possible to revise the current carbon monoxide control program as early as November 2004 while continuing to maintain compliance with the carbon monoxide standard through 2015.

The modeling analysis conducted for this maintenance plan included modifications to the area's control measures, i.e., elimination of oxygenated gasoline and revising Utah County's vehicle emission I/M program.

The analysis completed for this Maintenance Plan also indicates that at this time it is not possible to eliminate routine vehicle maintenance testing in Utah County while ensuring compliance with the National Ambient Air Quality Standard for carbon monoxide. Realizing the benefits of OBD technology, low failure rates, significantly lower emissions and increased durability of newer vehicles, however, it is possible to reduce test frequency for vehicle model years six years and newer from an annual inspection to a biennial (every two years) inspection cycle.

Provo will rely on the control programs listed below to demonstrate maintenance of the carbon monoxide standards through 2015. 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 enforceable measures for the purposes of this maintenance demonstration.

Specific programs and requirements that will cease to be part of the State Implementation Plan are:

- Oxygenated Gasoline
- Annual I/M testing of vehicle model years six years or newer will be replaced with biennial testing of those vehicles. Older vehicles will continue to be tested annually.

(b) Enforceable Control Measures

The following control measures will remain in force after redesignation to attainment.

- 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 Provo plan;
- Utah County Vehicle Emissions Inspection and Maintenance Program. Program requirements are documented in SIP Section X, Parts A and D;
- Winter Wood Burning Control Program (R307-302-3);
- Utah State Implementation Plan, Section IX, Control Strategies for Area and Point Sources, Part C, Carbon Monoxide, Salt Lake City, Ogden City and Utah County, last amended in 2004;
- Prevention of Significant Deterioration regulations (R307-405) will apply in Provo.

(4) Contingency Plan

Section 175A(d) of the Act requires that maintenance plans assure prompt action to correct any violation of the standard that occurs after the area is redesignated to attainment. Additional controls are to be implemented to achieve sufficient CO emission reductions to eliminate any future CO violations. The triggering of contingency measures does not automatically require a revision to the SIP or redesignation to nonattainment.

(a) Determination of Contingency Action Level

Within 30 days after any monitored exceedance of the carbon monoxide standard, DAQ will complete validation and quality-assurance of the data. The contingency action level will be triggered on the date that either of the following conditions is met:

- the second, non-overlapping 8-hour average ambient CO measurement exceeds 9 parts per million (ppm) at a single monitoring site during one calendar year; or

- the second one-hour average ambient CO measurement exceeds 35 ppm at a single monitoring site during one calendar year.

(b) If the Action Level Is Exceeded

Under the State-EPA Performance Partnership Agreement, the Utah Air Monitoring Center notifies EPA within days of any exceedance of any standard. This is raw data, and Utah will not trigger implementation of contingency measures until quality-assured monitoring data indicates it is necessary. Under 40 CFR 58.35, the State is required to submit to EPA the quality-assured monitoring data within 90 days after the end of each calendar quarter.

If the contingency action level, as validated by appropriate quality-assurance procedures, is exceeded, the Executive Secretary will take the following actions within 30 days following the trigger date in (a) above:

- begin steps to implement the CO Contingency Measures that are included in Subpart (c) below; and

- prepare a report that outlines the recorded ambient measurements of the CO standard, the causes of the violation, and the actions that have been taken to implement contingency measures, including a schedule of future actions needed to implement contingency measures. This report will be submitted to the Air Quality Board within 45 days following the trigger date in (5)(a) above, and to EPA within 15 days after it is sent to the Board.

The Board will hold a public meeting to consider the recommended contingency measures, along with any other contingency measures the Board believes may be appropriate to effectively address the causes of the violation. The Board will adopt and implement the necessary contingency measures before the November 1 beginning of the next winter season.

Implementation of the oxygenated gasoline program will require a rule-making action by the Air Quality Board, as well as some lead time for the refiners to order and receive the oxygenate. Implementation of annual vehicle inspections for all vehicles also will require Board action to adopt a SIP revision, and inspection stations will need to expand their capacity to accommodate the increased inspection load. Exactly how much lead time will be needed will be part of the Executive Secretary's investigations and recommendations to the Board.

(c) Contingency Measures

The State will implement contingency measures under this Plan if the contingency action level in Subpart e(5)(a) is exceeded. As required by Section 175A of the Act, the contingency measures to be implemented are:

- implementation of 2.7% oxygenated gasoline in Utah County from November 1 through the end of February, beginning within one year after it has been determined that the action level has been exceeded: and

- a return to annual vehicle emissions inspections.

(5) Verification of Continued Attainment

(a) Tracking System for Verification of Emission Inventory

Continued maintenance of the CO standard in the Provo maintenance area depends in large measure upon the ability of the state to track CO emissions in future years. As demonstrated in Subpart e(1) above, mobile source emissions are the largest source of CO emissions in Provo. By July 1 of 2006, 2007, 2009, 2012, 2015, and 2016, the State will use available inventory data to verify that the emissions inventory contained in Table 14 of this plan is not exceeded.

(b) Analyze Ambient CO Monitoring Data

The State will analyze the ambient CO monitoring data with respect to the level of the CO standard and log the data into AIRS. Any exceedance of the standard will be reported to EPA within 30 days, and quality-assured data will be reported as required under 40 CFR Part 58.

(c) Annual Review of the CO Monitoring Network

The State will continue to evaluate the ambient CO monitoring network to ensure that the network meets all applicable federal regulations and guidelines. The results of this evaluation will be submitted to EPA by June 1st of each year in the annual Network Review.

(d) Provisions for Revising the Maintenance Plan

The State will revise this Plan as necessary in response to revisions of the national primary ambient CO standard. The State will also revise the Plan as necessary to comply with any EPA finding that the Plan is inadequate to attain or maintain the national ambient standard, and eight years after redesignation to attainment, in compliance with Section 175A of the Act.

(e) Provisions for Prohibiting Emissions That Interfere With Attainment In Other States

The State will take steps as necessary to prohibit emissions within the state that have been shown to interfere with attainment or maintenance of a NAAQS in another state.

(f) Subsequent Maintenance Plan Revisions

The Clean Air Act requires that a maintenance plan revision be submitted to the EPA no later than eight years after promulgation of the original redesignation. 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 Utah commits to submit a revised maintenance plan eight years after redesignation to attainment, as required by the Act.

f. CONFORMITY

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 implementation plan..."

EPA=s transportation conformity regulation (40 CFR 93.118, August 15, 1997) also requires that motor vehicle emission budgets must be established for the last year of the maintenance plan, and may be established for any years deemed appropriate. If the maintenance plan does not establish motor vehicle emissions budgets for any years other than the last year of the maintenance plan, the conformity regulation requires a Ademonstration of consistency with the motor vehicle emissions budgets must be accompanied by a qualitative finding that there are not factors which would cause or contribute to a new violation or exacerbate an existing violation in the years before the last year of the maintenance plan.≅ The normal interagency consultation process required by the regulation shall determine what must be considered in order to make such a finding.

For transportation plan analysis years after the last year of the maintenance plan (in this case 2015), a conformity determination must show that emissions are less than or equal to the maintenance plan=s motor vehicle emissions budget(s) for the last year of the implementation plan. EPA=s conformity regulation (40 CFR 93.124) also allows the implementation plan to quantify explicitly the amount by which motor vehicle emissions could be higher while still demonstrating compliance with the maintenance requirement. The implementation plan can then allocate some or all of this additional Asafety margin≅ to the emissions budgets for transportation conformity purposes.

Provo Mobile Source CO Emissions Budgets, in Tons/Day (tpd), for 2014 and 2015 and Beyond:

With this maintenance plan, the State is establishing transportation conformity motor vehicle emission budgets (MVEB) for 2014 and for 2015 and beyond as follows.

CO Emissions Budget for 2014

As presented in Table 13, emissions from point sources of 0.05 tpd, emissions from area sources of 0.97 tpd, emissions from non-road emissions of 2.86 tpd, and emissions from mobile sources of 52.88 tpd were modeled with UAM-AERO and CAL3QHC. These values predicted maintenance of the CO standard at the evaluated intersections as presented in Tables 14 and 15. For transportation conformity purposes, the State is using the same point, area, and non-road tons per day emission figures for 2014 and increasing the mobile source emissions to 70.44 tpd. These higher mobile source emission figures were then re-modeled and also showed predicted maintenance of the CO standard at the evaluated intersections. These results are presented in Tables 16 and 17. By modeling mobile source emissions at 70.44 tpd, this effectively produced a Asafety margin≅ of 17.56 tpd. This maintenance plan estimates the available Asafety

margin≅at 17.56 tpd and allocates all this Asafety margin≅ to the transportation MVEB for 2014 for a total of 70.44 tpd.

CO Emissions Budget for 2015 and Beyond

As presented in Table 13, emissions from point sources of 0.05 tpd, emissions from area sources of 0.96 tpd, emissions from non-road emissions of 2.87 tpd, and emissions from mobile sources of 52.46 tpd were modeled with UAM-AERO and CAL3QHC. These values predicted maintenance of the CO standard at the evaluated intersections as presented in Tables 14 and 15. For transportation conformity purposes, the State is using the same point, area, and non-road tons per day emission figures for 2015 and increasing the mobile source emissions to 72.10 tpd. These higher mobile source emission figures were then re-modeled and also predicted maintenance of the CO standard at the evaluated intersections. These results are presented in Tables 16 and 17. By modeling mobile source emissions at 72.10 tpd, this effectively produced a Asafety margin≅ of 19.64 tpd. This maintenance plan estimates the available Asafety margin≅at 19.64 tpd and allocates all this Asafety margin≅ to the transportation MVEB for 2015 and beyond for a total of 72.10 tpd.

The MVEB of 70.44 tpd for 2014 and 72.10 tpd for 2015 and beyond will be used to determine whether plans, programs, and projects comply with the SIP in applicable horizon years. These new MVEB will take effect for future transportation conformity determinations upon approval of this Maintenance Plan or upon a finding of adequacy by EPA, whichever comes first.

TABLE 16. 2000 EPISODE CONFORMITY BUDGET PROJECTIONS: 8-HOUR MAXIMUM CO CONCENTRATIONS (PPM)

Location	2014	2015 and Beyond
University Ave University Parkway	6.3	6.3
1230 North University Ave	5.4	5.4
1230 North 500 West	5.7	5.8
500 West Center St.	6.3	6.3
500 North University Ave & Center St.	6.6	6.5

TABLE 17. 2001 EPISODE CONFORMITY BUDGET PROJECTIONS: 8-HOUR MAXIMUM CO CONCENTRATIONS (PPM)

Location	2014	2015 and Beyond
University Ave University Parkway	5.2	5.3
1230 North University Ave	4.4	4.4
1230 North 500 West	3.8	3.8
500 West Center St.	5.9	5.9
500 North University Ave & Center St.	6.6	6.6