

Carbon Monoxide Maintenance Plan  
Provo Area

State Implementation Plan Section IX, Part C.6  
Revision

2018



UTAH DEPARTMENT *of*  
ENVIRONMENTAL QUALITY

**AIR  
QUALITY**

## **1. Background**

In 1993-94, it was determined through modeling that the only areas in Utah County where carbon monoxide (CO) violations were potentially occurring were in Provo and Orem. The Provo and Orem areas were subsequently classified as one moderate non-attainment area. On September 20, 2002 (67 FR 59165), the Environmental Protection Agency (EPA) published a determination that the Provo nonattainment area had attained the CO national ambient air quality standard (NAAQS) by December 31, 1995. EPA subsequently approved a vehicle inspection and maintenance (I/M) program and an oxygenated fuels program. On November 2, 2005, the EPA approved the Provo CO redesignation request to attainment and the first 10-year maintenance plan (70 FR 66264).

The purpose of this revision to the Provo Area CO Attainment-Maintenance Plan is to:

1. Show continued attainment of the CO NAAQS for a second 10-year term, as required by the Clean Air Act; and
2. To adopt an alternative CO monitoring method that does not utilize the traditional gaseous analyzer to determine compliance with the NAAQS. The alternative monitoring method will utilize an annual review of the traffic volume near the current location of the North Provo monitoring station.

## **2. Limited Maintenance Plan Option**

Utah is using the Limited Maintenance Plan (LMP) option in preparing this second 10-year revision. EPA provides this less rigorous approach in developing a maintenance plan for CO attainment-maintenance areas that have a design value at or below 7.65 ppm. The design value for the Provo area is 2.1 ppm. The design value was determined by using the highest second-highest maximum 8-hour value from 2015 through 2016. This value is referred to as “the highest of the second highs” in a June 18, 1990 EPA memo from William G. Laxton that describes how to establish design values for CO.

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).

## **3. Transportation Conformity**

Once EPA approves this Plan, there will no longer be a need to demonstrate conformity with any motor vehicle emission budget for the Provo CO maintenance area, for the reasons described in EPA’s LMP guidance. From that point forward, all actions that require conformity determinations for the Provo CO maintenance area under EPA’s conformity rule provisions will be considered to have already satisfied the regional emissions analysis and “budget test” requirements in 40 CFR 93.118.

However, since LMP areas are still maintenance areas, certain aspects of transportation conformity determinations still will be required for transportation plans, programs and projects. Specifically, regional transportation plans, transportation improvement programs and transportation projects will need to continue to demonstrate that they are fiscally

constrained (40 CFR 93.108) and meet the criteria for consultation and transportation control measure implementation (as appropriate) as noted in EPA’s conformity rule provisions (40 CFR 93.112 and 40 CFR 93.113, respectively). In addition, projects in LMP areas still will be required to meet the applicable criteria for CO hot spot analyses to satisfy “project level” conformity determinations (40 CFR 93.116 and 40 CFR 93.123), which must also incorporate the latest planning assumptions and models available (40 CFR 93.110 and 40 CFR 93.111, respectively).

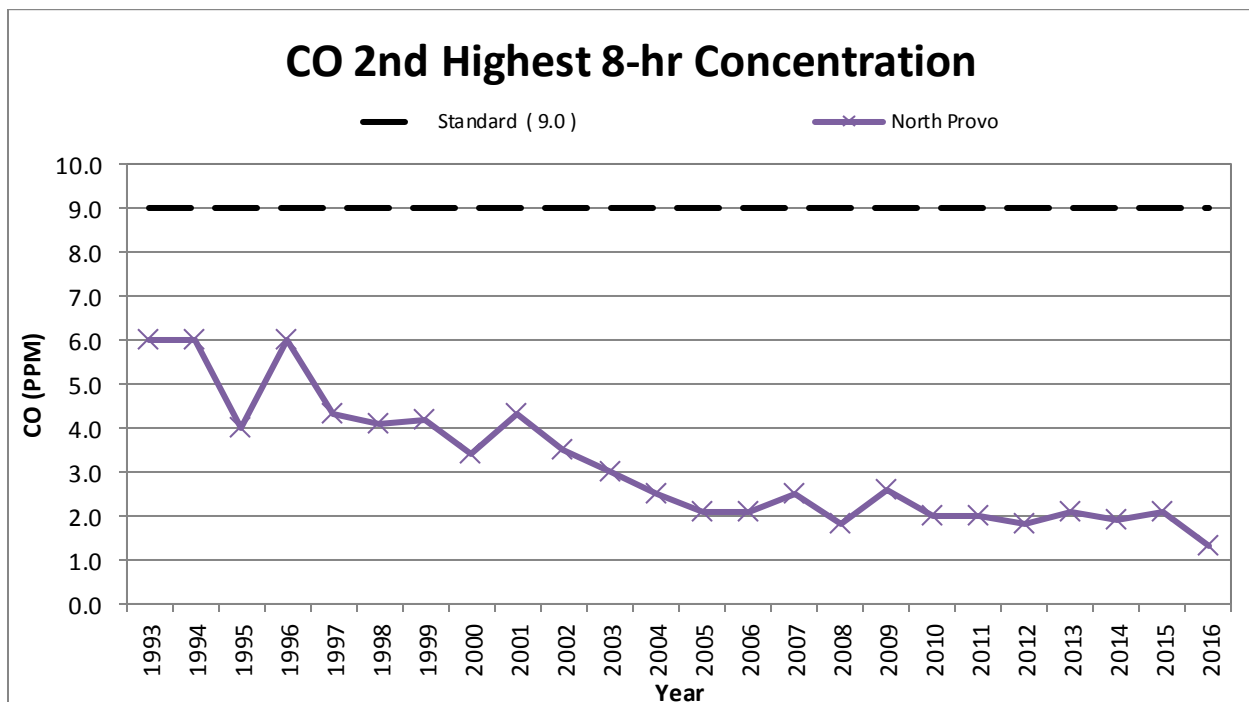
#### 4. Maintenance Demonstration

Under the EPA's LMP option, the maintenance demonstration is considered to be satisfied if the monitoring data shows 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 Provo CO Attainment/Maintenance Area is 2.1 ppm,(23 percent of the CO NAAQS), which is the highest second maximum concentration for the 2015-2016 monitoring period. Therefore, the maintenance demonstration is satisfied.

### Continued Attainment of the Carbon Monoxide Standard

#### Air Quality Monitoring

Due primarily to improvements in motor vehicle technology, the Provo area monitor data shows that the area has been in compliance with the CO standard since 1993, as shown in the graph below. Since a monitor must not exceed the NAAQS of 9.0 ppm more than once a year, the second highest 8-hour value each year is the indicator of attainment.



#### Vehicle Inspection and Maintenance (I/M) Program

The IM program in place in Utah County consists of the following:

- New vehicles are exempt for two years;
- On-board diagnostics (OBD) henceforth every other year for vehicles less than six years old;
- Subsequently, OBD every year for vehicles of model years 1996 and newer (except for vehicles less than six years old); and
- Two Speed Idle test for vehicles of model years 1968-1995.

## 5. Emission Inventory

This plan revision utilizes the 2016 emissions inventory, which is the most current CO inventory that covers the period in which the design value was derived. The emission inventory for Utah County is for a typical winter day.

<b>Emission Inventory Summary</b>	<b>CO (tons/day)</b>
Point Sources	0.901
Onroad Mobile	94.827
Nonroad Mobile	27.769
Railroads	0.255
Wood Burning	6.454
Commercial Cooking	0.137
Nat. Gas Fuel Combustion	3.144
<b>TOTAL</b>	<b>133.488</b>

Ninety two percent of the CO is derived from mobile sources; consequently, we can focus the Maintenance Plan on mobile sources in the Provo Area. The Utah Department of Transportation (UDOT) provided the Utah Division of Air Quality (UDAQ) with Provo-specific vehicle mileage for the winter months of November through February, when CO levels are at their highest concentration. The MOVES2014a model was used to calculate average winter day CO levels in tons per day for years 2011, 2014 and 2016.

<b>Year</b>	<b>Vehicle Miles Traveled/Winter Day in Provo City</b>	<b>Average CO Tons/Day In Provo City</b>
2011	1,255,778	16.53
2014	1,312,491	14.46
2016	1,497,156	13

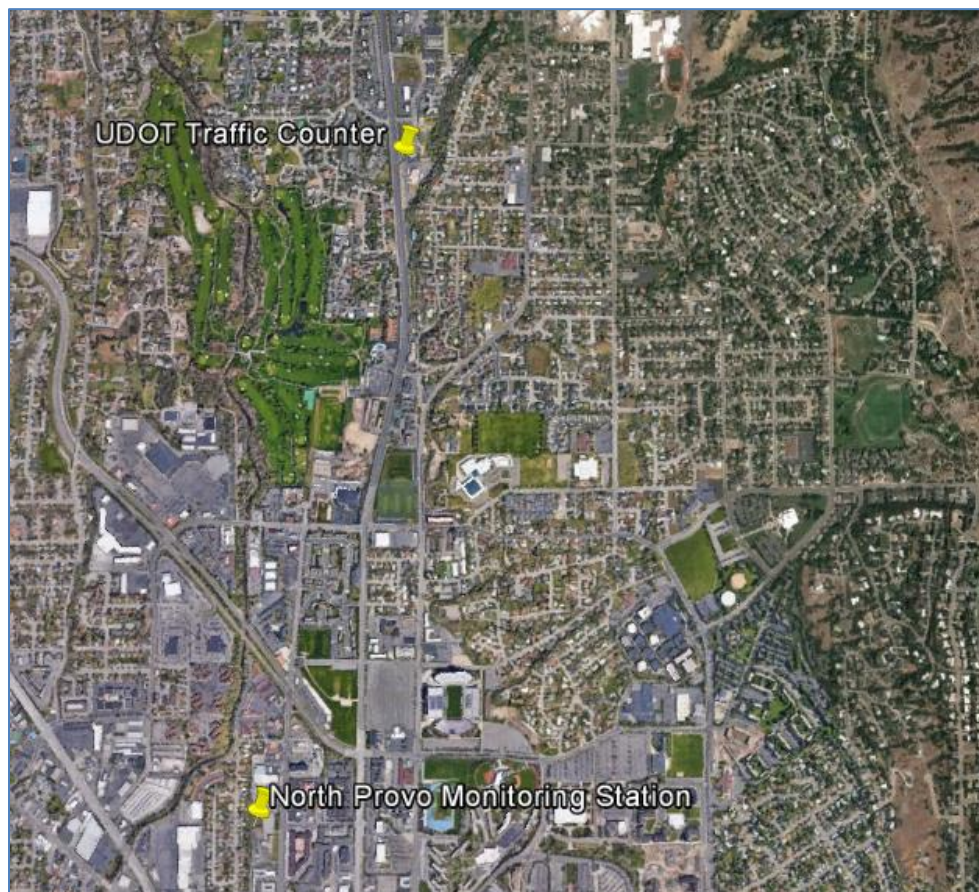
CO levels have declined while vehicles miles have increased. This is attributed to cleaner vehicles. Under the Tier 2 Motor Vehicle Emission Standards, which were phased in between 2004 and 2009, the average new vehicle had a full useful life CO emission standard of 4.2 grams/mile. Under the Tier 3 Motor Vehicle Emission Standards, phased in

between 2017 and 2025, the average new vehicle will have a CO emission standard of 1 gram/mile. This represents a 76.2 % reduction in CO for the average new light-duty vehicle. As CO emissions will continue to decline, it is unlikely that a violation of the 8-Hour CO standard will occur.

Local air monitoring has shown that the CO levels have been steady for the past 11 years. This would suggest that the current traffic count near the monitoring station can be used as a proxy monitoring method.

### 6. Mobile Counts

A UDOT counter located near 3200 North University Avenue (coordinates 40.275905, -111.657356) is located approximately 1.7 miles from the North Provo monitoring station. The Google Earth map shows the locations of the monitoring station and the counter.



The daily average traffic (DAT) during November through February at the counter:

Year	November	December	January	February	Averages
2013-2014	27,223	24,881	27,361	28,679	27,036
2014-2015	28,453	27,156	29,056	30,682	28,837

2015-2016	29,582	27,518	30,452	32,301	29,963
					28,612

Source: Nicolas Virgen, UDOT Traffic Analyst Supervisor

## 7. Verification of Continued Attainment

The alternative CO monitoring method will comprise of obtaining the ADT from the UDOT counter to monitor mobile source growth. If the counter is relocated or taken out of service, UDAQ will advise EPA to determine the appropriate action, which may include identifying an alternative counter.

If the rolling 3-year ADT value is 25% higher than the average value of 28,612 from the 2013–2016 baseline period, UDAQ will reinstitute gaseous monitoring within the maintenance area. The monitoring will be conducted the following winter from November to February, and the results evaluated to determine if the levels of CO emissions in the area appear to be rising commensurate with the increase in traffic counts. If the monitored 2nd maximum value for that time period has not increased from the baseline mean by an equal or greater rate at which the traffic counts have increased and the monitor values remain at or below 50% of the CO NAAQS (2nd max concentration  $\leq 2.1$  ppm currently), the monitor may again be removed and the traffic counts resumed.

## 8. Enforceable Control Measures for the Maintenance Period

- Utah Administrative Rule R307-401, New and Modified Sources. BACT analysis required for all NAAQS.
- Utah Administrative Rule R307-302-4, Solid Fuel Burning Devices. Establishes no-burn periods for CO.

## 9. Contingency Plan

Section 175A(d) of the Clean Air Act requires that maintenance plans assure prompt action to correct any violation of the standard that occurs after the area is re-designated 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 re-designation to nonattainment. Contingency measures typically have several steps for action depending on the severity of air quality. The following apply to this LMP.

1. If the ADT grows by more than 25% over a rolling 3-year average as described in Section 7 of this plan, UDAQ will reinstitute gaseous monitoring within the maintenance area. The monitoring will be conducted the following winter from November to February and the results evaluated to determine if the levels of CO emissions in the area appear to be rising commensurate with the increase in traffic counts.
2. Once monitoring is reinstated, if the highest measured 8-hour CO concentration in a given year exceeds the LMP eligibility level of 7.65 ppm, UDAQ will evaluate the cause of the CO increase. Within 6 months of the validated 7.65 ppm concentration, UDAQ will present the Utah Air Quality Board with a recommended strategy to either prevent or correct any violation of the 8-hour CO standard.

3. If a violation of the CO standard occurs (2 exceedances of 9 ppm in the same calendar year), the Utah Air Quality Board, in consultation with the UDAQ, will hold a public meeting to consider the prior contingency measures that helped to bring the Provo area into attainment such as a mandatory 2.7% oxygen fuels program and annual IM tests. These measures would be considered in addition to any other potential measures to help the Provo area to reduce CO emissions. The Utah Air Quality Board would then adopt and require the implementation of the selected contingency measure(s) by November 1st of the next winter season.