TECHNICAL SUPPORT DOCUMENT

NOTICE OF PROPOSED RULEMAKING

ON THE

CARBON MONOXIDE SIP ATTAINMENT PLAN FOR LAS VEGAS VALLEY

January 2003

Air Division
U.S. Environmental Protection Agency – Region 9

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The Rulemaking Docket

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Technical Support Document
Las Vegas Valley Serious Area CO Attainment Plan

Table of Contents

SECTION 1 - INTRODUCTION

A. Purpose

This technical support document (TSD) provides the basis for actions on the carbon monoxide (CO) State Implementation Plan (SIP) for Las Vegas Valley being proposed in the Federal Register. The area is designated as nonattainment for CO, and is subject to certain planning requirements under the Clean Air Act. This TSD outlines these requirements, the State's response to them and our evaluation of the State's submittal (CO plan).

In this TSD document, we

- Document our completeness determination on the serious area CO SIP submittal of August 2000,
- Document our finding on the adequacy of the transportation conformity budgets in the serious area CO SIP submittal of August 2000,
- Summarize the statutory and policy requirements for serious area CO nonattainment plans and for SIPs in general,
- Describe our analysis of the revised Las Vegas Valley CO plan and the control measures and programs relied on in that plan, including any revisions to those programs included in the CO plan, and
- Provide our proposed conclusions on the approvability of the serious area CO SIP submittal and the related emission budgets and the control measures and programs they rely on.

B. Description of Area

The population of the Las Vegas Valley nonattainment area is approximately 1.4 million residents. The valley, located in southern Nevada, includes the City of Las Vegas, the City of North Las Vegas, and the City of Henderson. The remainder of the nonattainment area includes unincorporated areas of Clark County. The airshed, approximately 500 square miles, is bounded by the Spring Mountains to the west, the Pintwater, Desert, Sheep and Las Vegas Mountains to the north and the Frenchman Mountain to the east. The valley drainage flows to the south, toward the McCullough and Big Spring Ranges, then easterly though the Las Vegas Wash to Lake Mead.

Las Vegas Valley's climate, at the edge of the Mojave desert, is very dry and warm. The average annual precipitation is 4.2 inches. Temperatures through a year can range from daily maximums in July of 104ºF to average daily minimums in January of 33ºF.

Climatic conditions, and Las Vegas' location in a broad valley, result in calm wind conditions during the winter. These low winds combine with temperature inversions and nighttime downslope drainage of air back into the valley, preventing effective dispersion of air pollutants.

C. Area Designation History

The CAA Amendments of 1990 (CAA or "Act") were enacted on November 15, 1990. Under section 107(d)(1)(C) of the amended Act, each CO area designated prior to 1990, such as the Las Vegas Valley area, was designated nonattainment by operation of law. Under section 186(a) of the Act, each CO area designated nonattainment under section 107(d) was also classified as either "moderate" or "serious" depending upon the severity of the area's air quality problem. CO areas with design values between 9.1 and 16.4 parts per million (ppm), such as the Las Vegas Valley area, were classified as moderate. These nonattainment designations and classifications were codified in 40 CFR part 81.[1] See 56 FR 56694 (November 6, 1991).

States containing areas that were classified as moderate nonattainment by operation of law under section 107(d) were required to submit SIPs designed to attain the CO NAAQS by the applicable attainment date (i.e., December 31, 1995, for moderate CO nonattainment areas).[2] Under section 186(a)(4), Nevada requested, and EPA granted, a one-year extension of the December 31, 1995 attainment deadline (see 61 FR 57331, November 6, 1996). However, in the first quarter of 1996, Clark County recorded three exceedances of the CO standard at the East Charleston monitoring station. Clark County challenged the validity of the CO data collected at this site. EPA stated it would not disqualify the January to March winter 1996 CO season monitoring data from the East Charleston station without conclusive evidence that it was inaccurate. Therefore, EPA worked with Clark County and the State of Nevada to properly site and approve a new monitoring site at Sunrise Acres, and worked collaboratively with the State and Clark County to examine whether East Charleston levels correlated with Sunrise Acres (the East Charleston replacement site) levels. Data collected at the new Sunrise Acres monitor tracked closely with historical data from East Charleston.

On October 2, 1997, EPA found that the Las Vegas Valley CO nonattainment area did not attain the CO NAAQS under the Act after having received a one-year extension from the mandated attainment date of December 31, 1995 for moderate nonattainment areas to December 31, 1996 (see 62 FR 51604, October 2, 1997). As a result of that finding, which went into effect on November 3, 1997, the Las Vegas Valley CO nonattainment area was reclassified as serious. The State had 18 months or until May 3, 1999 to submit a new SIP demonstrating attainment by the new attainment date (i.e., December 31, 2000, the attainment date for serious nonattainment areas). The Las Vegas Valley continued to exceed the CO standard with 1 exceedance in 1997 and two in 1998.

D. Clean Air Act Requirements

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[1] The CO nonattainment area is the "Las Vegas Valley Hydrographic Area 212" within Clark County. See 40 CFR 81.329. Throughout this technical support document and the accompanying Federal Register notice, references are made to the "Las Vegas area" and the "Las Vegas nonattainment area." This is a matter of convenience; these references apply to the Las Vegas Valley Hydrographic Area 212 CO nonattainment area as defined in 40 CFR part 81 unless otherwise noted.

[2] The moderate area SIP requirements are set forth in section 187(a) of the Act and differ depending on whether the area's design value is below or above 12.7 ppm. The Las Vegas Valley area has a design value above 12.7 ppm.

General requirements for SIPs and SIP revisions under title I of the Act are set forth in section 110 of the Act. Part D of title I of the Act contains specific additional requirements for nonattainment areas. Section 172 of the Act contains the planning requirements that are generally applicable to all nonattainment areas, and section 187 contains the planning requirements that specifically apply to CO nonattainment areas, some of which supplement the general requirements of section 172 and others of which are particular to CO nonattainment areas. Section 187 is divided into two main subsections: paragraph (a) contains the planning requirements for moderate CO nonattainment areas, and paragraph (b) contains the requirements for serious CO nonattainment areas. As a general matter, serious CO nonattainment areas must meet all of the requirements listed for moderate areas in section 187(a) plus additional requirements specifically identified in section 187(b) for serious areas.

EPA has issued a "General Preamble" describing our preliminary views on how EPA intends to review SIPs and SIP revisions submitted under title I of the Act [see generally 57 FR 13498 (April 16, 1992) and 57 FR 18070 (April 28, 1992)]. The General Preamble sets forth the basic principles under which we have reviewed the various Nevada SIP submittals included in this action. Because EPA is describing its interpretations here only in broad terms, the reader should refer to the General Preamble for a more detailed discussion of the interpretations of title I. Our review of the Nevada SIP submittals will culminate in a notice of proposed rulemaking (NPRM) that will be published in the Federal Register, after which we will consider any timely submitted comments before taking final action.

Table 1-1 provides a summary list of the relevant general SIP and general nonattainment requirements under sections 110 and 172 for this CO plan submission. Specific requirements under section 187 for the Las Vegas CO nonattainment area, which is classified as serious, include the preparation and submission to EPA of the following:

- Comprehensive, accurate, current inventory of actual emissions from all sources (section 187(a)(1)) and periodic inventory updates (section 187(a)(5));
- Forecasts of, and tracking of, vehicle miles traveled (VMT) in the nonattainment area (section 187(a)(2)(A));
- Contingency provisions (section 187(a)(3));
- Enhanced vehicle inspection and maintenance program (section 187(a)(6));
- Attainment demonstration and specific annual emission reductions (section 187(a)(7));
- Transportation control measures (section 187(b)(2)); and
- Seasonal, oxygenated gasoline (section 187(b)(3)).

These requirements are discussed in more detail later in this document.

Table 1-1: General SIP Requirements; Sections 110 and 172 of the Clean Air Act

Emissions Inventory	Section 172(c)(3)
Ambient Air Monitoring System	Section 110(a)(2)(B)
Consultation and Public Notification/Participation Procedures	Section 110(a)(2)(M)
Provisions for Revising Plan	Section 110(a)(2)(H)
Prohibiting Sources from Significantly Impacting Other States	Section 110(a)(2)(D)
Permit Program for Construction and Modification of Stationary Sources	Section 172(c)(5)
Assurances of Adequacy of Personnel, Funding and Authority	Section 110(a)(2)(E)
Enforceability of Control Measures	Sections 110(a)(2)(A) and 172(c)(6)
Quantitative Milestones and Reasonable Further Progress	Section 172(c)(2)

E. State Submittal

On August 9, 2000, the Nevada Division of Environmental Protection (NDEP) submitted comprehensive revisions to the Nevada SIP. We refer to this plan as the 2000 CO plan or the Las Vegas Valley CO Plan. The 2000 CO plan addresses the requirements for serious CO nonattainment areas. The 2000 CO plan was developed primarily by the Clark County Department of Comprehensive Planning (CCDCP) and the Clark County Health Department (CCHD). The 2000 CO plan builds upon previous SIP submittals that NDEP submitted to EPA but for which EPA has not yet taken action. (Since development of the 2000 CO plan, the functions of CCDCP and CCHD have been re-organized into a new County department referred to as the Department of Air Quality Management). On January 30, 2002 and June 4, 2002, NDEP submitted materials supplementing the 2000 CO plan. Our current action addresses the overall CO control strategy, which includes the relevant control measures contained in the previous CO plans submitted to EPA, such as the Las Vegas wintertime RVP limit on gasoline and the State's enhanced inspection and maintenance program for Las Vegas Valley and Boulder City, as well as new control measures contained in the 2000 CO plan, such as the County's Cleaner Burning Gasoline (CBG) regulation.

F. Who to Contact for More Information

For more information on…	Please Contact	At
CAA and EPA's Requirements for serious CO Plans	Karina O'Connor	(775) 833-1276 oconnor.karina@epa.gov
CO Planning in the Las Vegas Valley nonattainment area	Karina O'Connor	(775) 833-1276 oconnor.karina@epa.gov

Completeness Determination	Karina O'Connor	(775) 833-1276 oconnor.karina@epa.gov
CO Air Quality in the LV area	Bob Pallarino	(415) 947-4128 pallarino.bob@epa.gov
CO Emission Sources in LV	Larry Biland	(415) 947-4132 biland.larry@epa.gov
Adequacy of the transportation conformity budget	Karina O'Connor	(775) 833-1276 oconnor.karina@epa.gov
The docket #NV-039-0053	Ruth Verlar	(415) 947-4153 verlar.ruth@epa.gov
Nevada I/M Program	Roxanne Johnson	(415) 947-4150 johnson.roxanne@epa.gov
Clark County CBG Program	Roxanne Johnson	(415) 947-4150 johnson.roxanne@epa.gov
Clark County Oxygenated Fuels	Roxanne Johnson	(415) 947-4150 johnson.roxanne@epa.gov

SECTION 2 – SUMMARY OF EPA ACTIONS

A. Las Vegas Valley CO Plans and Plan Elements Prior to 1990 CAA Amendments

Las Vegas Valley was first designated as a nonattainment area in 1978. See 43 FR 8962, 9012 (March 3, 1978). The CAA Amendments of 1977 required States to prepare plans to achieve the NAAQS in nonattainment areas. The original attainment deadline was 1982. EPA conditionally approved the initial CO plan for Las Vegas Valley into the Nevada SIP in 1981. See 46 FR 21758 (April 14, 1981). EPA removed the conditions on the CO plan in 1982. See 47 FR 15790 (April 13, 1982). Updated plans were required for nonattainment areas, like Las Vegas Valley, that did not achieve the original 1982 deadline. EPA approved this CO plan update into the Nevada SIP in 1984. See 49 FR 44208 (November 5, 1984) and 40 CFR 52.1470(c)(32).

Two elements of these early CO plans for Las Vegas Valley were a vehicle inspection and maintenance (I/M) program for on-road motor vehicles and a new source review program for new or modified stationary sources. In 1981, we approved the statutory basis for the vehicle I/M program for Las Vegas Valley. See 46 FR 21758 (April 14, 1981) and 40 CFR 52.1470(14)(iv) and (16)(vi). In 1984, we approved the regulatory basis for that program. See 49 FR 44208 (November 5, 1984) and 40 CFR 52.1470(c)(26)(iii). With respect to new source review, EPA approved Clark County air quality regulations, sections 1 and 15, into the SIP in 1981 and 1982 as meeting the new source review requirements of the 1977 Act. Specifically, EPA approved the existing SIP version of section 1 in 1981 and 1982. See 40 CFR 52.1470(c)(17)(i) and 46 FR 21758 (April 14, 1981); 40 CFR 52.1470(c)(17)(ii) and 46 FR 43141 (August 27, 1981); and 40 CFR 52.1470(c)(24)(iii) and 47 FR 26620 (June 6, 1982). EPA approved the existing SIP version of section 15 in 1981 and 1982. See 40 CFR 52.1470(c)(16)(ii) and 46 FR 21758 (April 14, 1981); 40 CFR 52.1470(c)(17)(i) and 46 FR 21758 (April 14, 1981); and 40 CFR 52.1470(c)(24)(iii) and 47 FR 26620 (June 6, 1982).

B. Post-1990 CAA Amendments: Moderate Area CO Plans and Plan Elements

The Federal CAA was substantially amended in 1990 to establish new planning requirements and attainment deadlines for the NAAQS. Under section 107(d)(1)(C) of the Act, areas designated nonattainment prior to enactment of the 1990 CAA Amendments, including Las Vegas Valley, were designated nonattainment by operation of law. Under section 186(a) of the Act, each CO area designated nonattainment under section 107(d) was also classified by operation of law as either moderate or serious, depending on the severity of the area's air quality problem. CO areas with design values between 9.1 and 16.4 parts per million (ppm), such as the Las Vegas Valley area, were classified as moderate. See 56 FR 56694 (November 6, 1991). (The design value for Las Vegas Valley for initial classification purposes was 14.4 ppm, which was based on monitoring data from the late 1980's. See 61 FR 57331, November 6, 1996.)

The 1990 CAA Amendments required states with CO moderate areas to submit SIP revisions demonstrating attainment of the NAAQS as expeditiously as practicable but no later than December 31, 1995. Under a letter dated November 13, 1992, the Nevada Division of Environmental Protection ("NDEP") submitted the first CO attainment plan for Las Vegas Valley

("1992 CO plan") under the 1990 CAA Amendments. Because the 1992 CO plan was superceded by the 1995 CO plan, discussed below, we will be taking no action on that plan.

From 1992 through 1994, the State of Nevada submitted various required CO SIP elements to us for Las Vegas Valley, and, in 1995, the State of Nevada submitted a new "moderate area" CO attainment plan for Las Vegas Valley under a letter from NDEP dated November 8, 1995 ("1995 CO plan"). The 1995 CO plan was adopted by the Clark County Board of Commissioners on October 17, 1995. The 1995 CO plan was deemed complete by operation of law on May 13, 1996 under section 110(k)(1)(B) of the Act. The 1995 CO plan included emissions inventories; including motor vehicle emissions estimates referred to as budgets; several CO control measures, including a specification for Reid Vapor Pressure (RVP) for wintertime gasoline sold in Clark County and a wintertime oxygenated fuels program; contingency measures related to technician training and heavy-duty vehicle inspection in the I/M program; and an additional commitment to implement an expanded on-road remote vehicle sensing program.

The only portion of the 1995 CO plan that was acted upon by us was the motor vehicle emission budgets. We were required to make positive or negative adequacy determinations on all emission budgets in response to the March 2, 1999 court decision on *Environmental Defense Fund v. EPA*, 167 F.3d 641 (D.C. Cir. 1999). We acted on the motor vehicle emission budgets contained in the 1995 CO plan on May 5, 1999. See 64 FR 31217 (June 10, 1999). We found the conformity emission budget (298.6 tons per day, or tpd) in the 1995 CO plan inadequate since the area failed to meet attainment by the required dates and was subsequently reclassified to "serious". In this NPRM, we are proposing to approve several control measures derived from those included in the 1995 CO plan, such as the State's wintertime RVP regulation for gasoline sold in Clark County, into the Nevada SIP.

One of the individual SIP elements submitted in the 1992 to 1994 time frame referred to above was a revision of the vehicle I/M program. Section 8 of this TSD provides a detailed overview of the various I/M submittals from the State of Nevada for Las Vegas Valley under the CAA Amendments of 1990. In this section of the TSD, we note only that we are proposing to approve the 1996 vehicle I/M program submittal as revised and supplemented through 2002.

Las Vegas Valley failed to reach attainment by December 31, 1995, but, under section 186(a)(4) of the Act, the State of Nevada requested, and EPA granted, a one-year extension of the attainment date to December 31, 1996. See 61 FR 57331 (November 6, 1996). However, in the first quarter of 1996, Clark County recorded three exceedances of the CO standard at the East Charleston monitoring station and thus was unable to show attainment of the standard by the new attainment date and could not qualify for an additional one-year extension under section 186(a)(4) of the Act. Subsequently, on October 2, 1997, we published a final rule that found that the Las Vegas Valley CO nonattainment area did not attain the CO NAAQS by the applicable attainment date and that reclassified the area from "moderate" to "serious" nonattainment under section 186(b)(2) of the Act.[3] See 62 FR 51604 (October 2, 1997).

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[3] Title 40 of the Code of Federal Regulations, Part 81, Section 81.329 (40 CFR 81.329) was not updated at that time to reflect this final action but was recently updated in a separate action.

C. Post-1990 CAA Amendments: Serious Area CO Plans and Plan Elements

Areas reclassified as serious are given more time to develop a new SIP revision and to attain the CO NAAQS, but additional requirements apply to such areas. For Las Vegas Valley, the effect of the reclassification to "serious" was to allow Nevada 18 months from the effective date (i.e., 18 months from November 3, 1997) to submit a new SIP demonstrating attainment of the CO NAAQS by the applicable attainment date (December 31, 2000 for serious CO nonattainment areas). The "serious area" CO plan was due May 3, 1999. By that date, Nevada had not submitted the required SIP revision, and on September 10, 1999, we published a notice finalizing a finding of failure to submit a "serious area" SIP revision for CO. See 64 FR 49084 (September 10, 1999). This finding, which was effective on August 31, 1999, triggered an 18- and 24-month time clock for sanctions and a 24-month time clock for a FIP under section 179 of the Act.

Subsequently, on September 29, 1999, NDEP submitted a serious area CO plan for Las Vegas Valley, *Carbon Monoxide Air Quality Implementation Plan - September 1999* ("1999 CO plan"), to EPA. On January 12, 2000, after review of this plan, we sent a letter to John Schlegel, Director of the Clark County Department of Comprehensive Planning (CCDCP), summarizing problems with the plan and indicating that we had made an inadequacy finding related to the emission budgets in the 1999 CO plan. In February of 2000, we published a notice of inadequacy for these emission budgets in the Federal Register. See 65 FR 4965 (February 2, 2000). We found the budgets in the 1999 CO plan to be inadequate because we determined that the measures contained in the 1999 CO plan would not be sufficient to reach attainment. Since the 1999 CO plan was superceded by the 2000 CO plan discussed below, we will be taking no action on that plan.

Roughly six months after publication of our determination of inadequacy for the budgets in the 1999 CO plan, NDEP submitted a revised "serious area" CO plan for Las Vegas Valley to EPA. This revised serious area CO plan, referred to herein as the 2000 CO plan, was adopted by the Clark County Board of Commissioners on August 1, 2000 and was submitted to us by NDEP under a letter dated August 9, 2000. We determined this submittal to be complete on September 12, 2000, with respect to portions of the plan relating to CO SIP requirements.[4] This finding permanently stopped the sanctions clocks that had been triggered by our September 10, 1999 finding of failure to submit a serious area CO attainment plan. (The FIP obligation will be extinguished when we take final action approving the 2000 CO plan.) On November 20, 2000, we found that the motor vehicle emission budgets in the 2000 CO plan were adequate for transportation purposes. (Section 2.D., below, provides additional information on our adequacy determination for the motor vehicle emissions budgets in the 2000 CO plan.)

Under letters dated January 30, 2002 and June 4, 2002, NDEP submitted additional information to supplement the 2000 CO plan, including, among other items, current versions of certain adopted I/M and fuel regulations, a draft version of revised I/M regulations and a request

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See 67 FR 12474 (March 19, 2002).

[4] EPA adopted the completeness criteria on February 16, 1990 (55 FR 5830) and, pursuant to section 110(k)(1)(A) of the Act, revised the criteria on August 26, 1991 (56 FR 42216).

that EPA "parallel process"[5] these draft regulations as part of our proposed action on the 2000 CO plan, and updated statutory authority for the I/M program in Las Vegas Valley. In the NPRM, we are proposing to approve the plan elements and measures contained in this 2000 CO plan as supplemented by the materials submitted by NDEP in January and June 2002. Table 2-1 provides a chronology of EPA actions and State SIP submittals for the Las Vegas Valley "serious" CO nonattainment area.

Table 2-1: Summary of "Serious" CO Nonattainment Area SIP Submissions and Actions

Date	Submission or Action
May 3, 1999	CAA deadline for Nevada to submit an attainment SIP for the Las Vegas CO serious nonattainment area.
May 5, 1999	EPA makes a formal finding that the CO SIP budget from the 1995 moderate area plan is inadequate.
September 10, 1999	EPA makes a formal finding that Nevada has failed to submit a serious CO SIP for Las Vegas.
September 29, 1999	Nevada submits to EPA a serious CO area attainment SIP, which was due on May 3, 1999.
February 2, 2000	EPA publishes notice that the motor vehicle emission budgets in the September 29, 1999 SIP are inadequate for conformity purposes.
August 9, 2000	Nevada submits to EPA a revised serious CO area attainment SIP, superceding the plan submitted on September 29, 1999.
August 2000	EPA posts notice of the beginning of the public comment period on the adequacy of the motor vehicle emissions budget included in the August 2000 revised CO SIP.
September 12, 2000	EPA makes completeness finding on revised CO SIP, turning off SIP sanction clocks (i.e, offset and highway sanctions).

[5] Under the "parallel processing" procedure, EPA proposes rulemaking action concurrently with the state's procedures for approving a SIP submittal and amending its regulations (40 CFR part 51, appendix V, section 2.3). If a state's proposed revision is substantially changed in areas other than those identified in this document, EPA will evaluate those changes and may publish another notice of proposed rulemaking. If no substantial changes are made, EPA will publish a final rulemaking on the revisions after responding to any submitted comments. Final rulemaking action by EPA will occur only after the SIP revision has been fully adopted by the state and submitted formally to EPA for incorporation into the SIP.

November 30, 2000	EPA publishes notice of its determination that the motor vehicle emission budgets in the 2000 CO plan are adequate for transportation conformity purposes.
January 30, 2002	Nevada submits to EPA supplemental materials for the 2000 CO plan.
June 4, 2002	Nevada submits to EPA supplemental materials for the 2000 CO plan.

D. Adequacy Determination for Motor Vehicle Emissions Budgets in 2000 CO Plan

Section 176(c) of the CAA requires that federally funded or approved transportation plans, programs, and projects in nonattainment areas "conform" to the area's applicable EPA-approved SIP. The "conformity" process ensures that federal transportation actions do not worsen an area's air quality or interfere with attainment or maintenance of the NAAQS. We have promulgated a rule that establishes the criteria and procedures for determining whether or not transportation plans, programs, and projects conform to the applicable SIP ("transportation conformity rule"). See 40 CFR part 93, subpart A.

One of the primary tests for conformity is to show transportation plans and improvement programs will not cause motor vehicle emissions higher than the levels needed to make progress toward and to meet the air quality standards. The motor vehicle emissions levels needed to make progress toward and to meet the air quality standards are set in the area's applicable SIP and are known as the "emissions budget for motor vehicles." Emission budgets are established for specific years and specific pollutants. See 40 CFR 93.118(a).

Before an emissions budget in a submitted SIP revision may be used in a conformity determination, we must first determine that it is adequate. The criteria by which we determine adequacy of submitted emissions budgets are outlined in conformity rules in 40 CFR 93.118(e)(4). To provide opportunity for the public input on the determination of whether a particular transportation conformity budget is adequate, we follow the following process:

> Notification of SIP submission: Within 100 days after a control strategy SIP (e.g., an attainment or maintenance plan) is formally received by EPA, we notify the public by posting a notice on EPA's Office of Transportation and Air Quality's (OTAQ's) website (www.epa.gov/otaq/transp/conform/adequacy.htm) and by notifying those who have previously requested notification of the plan's submission. The website also includes information on how to obtain copies of the plan.
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> Public comment: A 30-day public comment period commences immediately upon the website posting under two circumstances: (1) if the state has made the SIP electronically available to the public via a website, electronic bulletin board, etc; or (2) if no one has requested copies of the SIP within 15 days after the date of the posting notification. If someone does request a copy of the SIP and we receive the request within the first 15 days, the 30 day public comment period does not start until the date that we mail the copy. The website states when the public comment period begins and ends. If someone requests a copy of the SIP, we update the website to reflect any extension of the public comment

period.

EPA's adequacy determination: We issue our adequacy determination, including any response to comments, by posting it on EPA's OTAQ website (www.epa.gov/otaq/transp/conform/currsips.htm) and by mailing it to requesters. We also announce the determination in the Federal Register. The adequacy determination takes effect 15 days after publication in the Federal Register. Adequate budgets must be used in future conformity determinations; inadequate budgets cannot be used.

The 2000 CO plan contains CO emission budgets for the years 2000, 2010 and 2020 of 310.2 tons per day (tpd), 329.5 tpd and 457.4 tpd, respectively. Upon receipt of the 2000 CO plan, EPA announced receipt of the plan on the Internet and requested public comment by September 29, 2000. The November 20, 2000 letter from Amy Zimpfer to Allen Biaggi and the November 30, 2000 Federal Register Notice (65 FR 71313) announced EPA's decision that the budgets in the 2000 CO plan are adequate. The technical support document that was attached to the letter summarizes how the CO emission budgets for the years 2000, 2010 and 2020 meet the adequacy criteria contained in the conformity rule (40 CFR 93.118(e)(4)). As a result of our adequacy finding, the Las Vegas Regional Transportation Commission (RTC) is required to use these budgets in conformity findings. Table 2-2 lists how the budgets in the 2000 CO plan met the adequacy criteria.

As stated in EPA's May 14, 1999 guidance, our adequacy review is not to be used to prejudge our ultimate approval or disapproval of the submitted plans. The adequacy process was developed to give transportation agencies the ability to use emission budgets, once deemed adequate, for conformity determinations before we have made a final determination on the approvability of a SIP revision. It was recognized that considerable time is needed for us to complete rulemaking to approve or disapprove a SIP. Thus, the adequacy process was developed to give areas direction regarding the appropriateness of the conformity budgets.

Once deemed adequate, a motor vehicle emission budget must be used for transportation conformity purposes until replaced by another budget (for the same pollutant, CAA requirement and time frame) that is deemed adequate or approvable. However, once a plan has been approved, the motor vehicle emissions budget included in that plan cannot be replaced by another budget (for the same pollutant, CAA requirement and time frame) unless the new budget comes from an approved SIP.

In the NPRM, EPA proposes to reaffirm the evaluation in the TSD supporting the adequacy determination and proposes to approve the CO motor vehicle emissions budgets contained in the 2000 CO plan as meeting the purposes of 176(c) and the transportation conformity rule at 40 CFR 93, subpart A.

Table 2-2: Transportation Conformity Adequacy Review

Control Strategy SIP under Review: Clark County Serious Area CO Attainment			**Date of SIP Revision Receipt by EPA: 8/24/00**
Reviewers: Karina O'Connor, Ken Israels, Scott Bohning & Roxanne Johnson		Date: 11/13	
Transportation Review Criteria		Is Criterion Satisfied? Y/N	Reference in SIP Document / Comments
Sec. 93.118(e)(4)(i)	The plan was endorsed by the Governor (or designee) and was subject to a public hearing.	Y	The September 24, 2000 transmittal letter from NDEP to Felicia Marcus references NRS § 445B.100 through § 445B-845 which delegates authority to NDEP from the governor to adopt and submit plans. Appendix D, sec. 11 contains documentation of a public hearing on the plan on August 1, 2000.
Sec. 93.118(e)(4)(ii)	The plan was developed through consultation with federal, state and local agencies; full implementation plan documentation was provided and EPA's stated concerns, if any, were addressed.	Y	We understand that consultation with federal, state and local agencies and the public was undertaken, this consultation is described in Appendix D, sec. 11. Also, the plan does contain all of the actual public comments received on the plan and the responses to those comments in Appendix D, sec. 11.
Sec. 93.118(e)(4)(iii)	The motor vehicle emission budget(s) is clearly identified and precisely quantified.	Y	The motor vehicle budget is clearly identified and precisely quantified in Chapter 8, on page 8-3 - 8-4 of the plan.

Control Strategy SIP under Review: Clark County Serious Area CO Attainment			**Date of SIP Revision Receipt by EPA: 8/24/00**
Reviewer: Karina O'Connor, Ken Israels, Scott Bohning, & Roxanne Johnson		Date: 11/13	
Transportation Review Criteria		Is Criterion Satisfied? Y/N	Reference in SIP Document / Comments
Sec. 93.118(e)(4)(iv)	The motor vehicle emissions budget(s), when considered together with all other emission sources, is consistent with applicable requirements for reasonable further progress, attainment, or maintenance (whichever is relevant to the given plan).	Y	The plan adequately provides for all the control measures and emission reductions needed for attainment. With the required mobile source control reductions, the area should be able to reach attainment.
Sec. 93.118(e)(4)(v)	The plan shows a clear relationship between the emissions budget(s), control measures and the total emissions inventory.	Y	The emission inventory for all point, area and motor vehicle, and their relation to control measures, is described in Chapter 4, Control Measures and Chapter 8, Implementation and Monitoring.

Sec. 93.118(e)(4)(vi)	Revisions to previously submitted control strategy or maintenance plans explain and document any changes to any previous submitted budgets and control measures; impacts on point and area source emissions; any changes to established safety margins (see 93.101 for definition), and reasons for the changes (including the basis for any changes to emission factors or estimates of vehicle miles traveled).	N/A	There is no previous adequate CO budget for the Clark County nonattainment area. However, estimates of controlled emissions and attainment modeling in this SIP have been changed from a previously submitted CO plan that was determined to be inadequate. The emission reductions associated with a rideshare TCM are reduced in this plan, additional microscale modeling for future years have been included, and responses to public comments have been included**.**

E. Proposed EPA Actions

In the NPRM, EPA will be proposing to:

(1) Approve procedural requirements, under section 110(a)(1) of the Act;
(2) Approve baseline and projected emission inventories, under sections 172(c)(3) and 187(a)(1) of the Act and determine that the plan provides for reasonable further progress, under sections 172(c)(2) and 187(a)(7) of the Act;
(3) Approve the attainment demonstration, under section 187(a)(7) of the Act;
(4) Approve the Nevada Low Enhanced I/M program for Las Vegas Valley and Boulder City under section 187(a)(6) of the Act based on the submitted SIP materials, including draft regulations associated with implementation of on-board diagnostics systems (OBD) tests, assuming that the State will be submitting final regulations for OBD tests and thereby provide EPA with the basis to take final action on the I/M program;
(5) Approve the Nevada wintertime low RVP limit on gasoline sold in Clark County;
(6) Approve the County's wintertime Cleaner Burning Gasoline (CBG) under section 211(c)(4)(C) of the Act based on the submitted Clark County Health District's CBG regulation assuming that the State will be submitting the equivalent Clark County DAQM's CBG regulation, which will form the basis for EPA's final action on this measure;
(7) Approve Clark County Regional Transportation Commission's CAT MATCH commuter incentive program as a TCM/TDM program under 187(b)(2) and 108(f) of the Act;
(8) Approve the Nevada Alternative Fuels Program for government vehicles in Clark County;
(9) Approve Clark County's determination that stationary sources do not contribute significantly to ambient CO levels in the Las Vegas CO nonattainment area for the purposes of section 187(c) of the Act;
(10) Approve VMT forecasts and the responsible agencies' commitments to revise and replace the VMT projections as needed and monitor actual VMT levels in the future, under section 187(a)(2)(A) of the Act;
(11) Approve On-Board Diagnostics testing and related commitments as meeting the contingency measure requirements under section 187(a)(3) of the Act;
(12) Disapprove the other two contingency measures contained in the 2000 CO plan, lower I/M program cutpoints and on-road remote sensing; this action, if finalized, would not trigger sanctions clocks because we are proposing to find that OBD II testing and related commitments themselves provide the necessary compliance with section 187(a)(3) of the Act; and
(13) Approve the motor vehicle emissions budgets for 2000, 2010, and 2020 under section 176(c)(1) of the Act and the transportation conformity rule at 40 CFR part 93, subpart A.

The applicable Clean Air Act requirements and EPA's rationale for these proposed actions are discussed in the following sections of this TSD.

SECTION 3 - AMBIENT DATA

Requirement: CAA section 110(a)(2)(B): State must provide for the establishment and operation of appropriate devices, methods, systems, and procedures necessary to monitor, compile, and analyze data on ambient air quality, and upon request, make such data available to EPA.

40 CFR 58 - Ambient Air Quality Surveillance.

Proposed Action: EPA is not proposing any specific action related to the CO monitoring program at this time. However, based on the following evaluation and discussion, we have determined that the underlying CO monitoring data derived from that program are suitable for the purposes of developing a CO attainment plan for Las Vegas Valley.

Primary Guidance Documents: Selecting Sites for Carbon Monoxide Monitoring (EPA–450/3-75-077, September 1975), SLAMS/NAMS/PAMS Network Review Guidance (EPA-454/R-98-003, March 1998).

What are the statutory, regulatory and policy requirements?

The Clean Air Act (CAA) requires states to establish and operate air monitoring networks to compile data on ambient air quality for all criteria pollutants. Title 40, part 58 of the Code of Federal Regulations (40 CFR 58) establishes specific regulatory requirements for operating air quality surveillance networks to measure ambient concentrations of CO, including measurement method requirements, network design, quality assurance procedures, and in the case of large urban areas, the minimum number of monitoring sites designated as National Air Monitoring Stations (NAMS). EPA evaluates these four basic elements in determining the adequacy of an area's CO monitoring network.

How are these requirements addressed in the plan?

The Carbon Monoxide State Implementation Plan for the Las Vegas Valley Nonattainment Area, Clark County, Nevada ("2000 CO plan") does not specifically address the adequacy of the CO monitoring network in the Las Vegas Valley Planning Area (LVVPA). The Clark County Department of Air Quality Management (DAQM), an agency that was created in 2001 and that combines the air quality regulatory and planning functions formerly performed by the Clark County Health District (CCHD) and the Clark County Department of Comprehensive Planning (CCDCP), submits annual reports to EPA describing the overall ambient monitoring networks they operate in the LVVPA and how DAQM meets the relevant EPA requirements. By their nature, ambient monitoring networks need to be dynamic, and monitoring sites may need to be relocated over time as changes in demographics and emission source locations occur in the planning area.

Does the CO monitoring network meet the statutory and regulatory requirements?

A. Ambient Air Monitoring System

CO in the ambient atmosphere is measured using methods designated by EPA under the requirements of 40 CFR 53. All of the CO methods used in the LVVPA are designated as either reference or equivalent methods.[1] DAQM has an Ambient Air Monitoring Quality Assurance Plan that has been approved by the EPA. DAQM updates this plan as necessary when new equipment or procedures have been implemented.

Title 40 CFR part 58, appendix D details the requirements for designing an ambient monitoring network for CO. Further guidance is provided in the document "Selecting Sites for Carbon Monoxide Monitoring," (EPA-450/3-75-077, September 1975).

There are six objectives that need to be met when designing a monitoring network, depending on which pollutant is being measured and depending on the geographic location of the air basin. Prior to 1997, there were four objectives that were used in designing an ambient monitoring network. They were: (1) to determine the highest concentrations expected to occur in the area covered by the network; (2) to determine representative concentrations in areas of high population density; (3) to determine the impact on ambient pollution levels of significant sources or source categories; and (4) to determine general background concentration levels. In 1997, EPA revised this regulation to include two additional monitoring objectives: (5) to determine the extent of regional pollution transport among populated areas and in support of secondary [National Ambient Air Quality] standards; and (6) to determine the welfare-related impacts in more rural and remote areas (such as visibility impairment and effects on vegetation). Given the nature of CO air pollution and the relative isolation of Las Vegas Valley from other populated areas, the fifth objective does not factor into our evaluation of the CO network operated by the DAQM. The sixth objective, determining welfare impacts, is also not applicable for CO monitoring networks since there is no secondary NAAQS for CO, only a primary, health-related NAAQS.

Closely associated with the monitoring objectives is the concept of "spatial scale of representativeness." The goal in siting monitoring stations is to correctly match the spatial scale represented by the sample of monitored air with the spatial scale most appropriate for the monitoring objective of the station. Thus, spatial scale of representativeness is described in terms of the physical dimensions of the air parcel nearest to a monitoring station throughout which actual pollutant concentrations are reasonably similar. The six spatial scales defined in EPA regulations are as follows:

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[1]A reference method is an air sample collection and analysis method which follows the procedures detailed in the appendices to 40 CFR part 50 or a method that is designated as a reference method under 40 CFR part 53. An equivalent method is an air sampling collection and analysis method which does not follow the reference procedures in 40 CFR parts 50 or 53, but which has been certified by EPA under 40 CFR part 53 as obtaining "equivalent" results.

Microscale - defines an area up to 100 meters from the CO sampler.
Middle Scale - defines an area ranging from 100 meters to 0.5 kilometers from the sampler.
Neighborhood Scale - defines an area ranging from 0.5 to 4.0 kilometers from the sampler.
Urban Scale - defines an area ranging from 4 to 50 kilometers from the sampler. This scale usually requires more than one site for definition.
Regional Scale - defines usually a rural area of reasonably homogenous geography and extends from tens to hundreds of kilometers.
National and Global Scales - these measurement scales represent concentrations characterizing the nation and the globe as a whole.

For the purposes of this SIP review, we will focus on the neighborhood, middle, and microscale spatial scales. The relationship between the four relevant monitoring objectives and the scales of representativeness that are generally most appropriate for that objective are summarized in Table 3-1.

Table 3-1: Relationship Among Monitoring Objectives and Scale of Representativeness

MONITORING OBJECTIVE	APPROPRIATE SITING SCALES
Highest Concentration	Micro, Middle, Neighborhood
Representative Concentrations	Neighborhood, Urban
Source Impact	Micro Middle, Neighborhood
Background	Neighborhood, Urban, Regional

The final regulatory requirement concerns the number of monitors in a network. The ambient monitoring networks operated by State and local agencies are referred to as SLAMS (State and Local Air Monitoring Station) networks. A subset of the SLAMS sites are also designated as National Air Monitoring Stations (NAMS). NAMS sites are selected to provide data for national policy analyses and trends and for reporting to the public on air quality in major metropolitan areas. Emphasis is given to urban and multisource areas. Areas required to have designated NAMS sites are selected based on urbanized population and pollutant concentration levels. Generally, a larger number of NAMS sites are needed in more polluted, urbanized and multisource areas. The primary objective for siting NAMS is to monitor in the areas where the pollutant concentration and the population exposure are expected to be the highest.

It is important to understand that while EPA regulations do require a minimum number of NAMS sites in certain urban areas, these same regulations contain no criteria for determining the total number of stations in SLAMS networks. The optimum size of a particular SLAMS network involves trade offs between data needs and available resources that EPA believes can best be resolved during the network design process.

The last type of monitoring site is referred to as a Special Purpose Monitor (SPM) site. SPMs are monitoring sites which may or may not meet all of EPA's requirements. State and local

agencies generally operate SPMs for special studies where the sites are intended to be permanent or when agencies are trying to determine the appropriateness of new monitoring locations. Data collected at SPM sites which meet all of EPA's siting and quality assurance regulations are valid for use in regulatory actions with some exceptions.[2]

In 1996, there were 15 monitoring sites collecting data in the LVVPA. Of the 15-site network, four are designated as NAMS sites, seven designated as SLAMS sites, and four designated as SPM sites. DAQM's five SPM sites were operated in accordance with EPA regulations. Table 2-1 in the 2000 CO plan lists the names of the sites and their locations in the LVVPA.

Table 3-2 lists the CO monitoring sites in the LVVPA and their associated monitoring objective and spatial scale. Both the site designations in 1996 and 2001 are provided since DAQM has redesignated some sites since 1996.

Table 3-2: Las Vegas Valley Planning Area CO Monitoring Network

MONITORING SITE	OPERATING AGENCY	SITE DESIGNATION 1996/2001	MONITORING OBJECTIVE	SPATIAL SCALE
Boulder City	DAQM	SPM/SPM	Population Exposure	Neighborhood
City Center	DAQM	SLAMS/NAMS	Population Exposure	Neighborhood
Craig Road	DAQM	SLAMS/SLAMS	Population Exposure	Neighborhood
Crestwood	DAQM	NAMS/NAMS	Population Exposure	Neighborhood
East Flamingo	DAQM	SLAMS/SLAMS	Population Exposure	Neighborhood
East Sahara	DAQM	SLAMS/SLAMS	Population Exposure	Neighborhood
Heath District	DAQM	SLAMS/SLAMS	Population Exposure	Neighborhood
Green Valley	DAQM	SPM/SPM	Population Exposure	Neighborhood
S. East Valley	DAQM	SLAMS/SLAMS	Population Exposure	Neighborhood

[2]See the memorandum "Agency Policy on the Use of Special Purpose Monitoring Data," August 22, 1997 from John S. Seitz, Director, Office of Air Quality Planning and Standards to Regional Air Directors.

Winterwood	DAQM	SLAMS/SLAMS	Population Exposure	Neighborhood
Paul Meyer	DAQM	SPM/SPM	Population Exposure	Neighborhood
Pittman	DAQM	SPM/SPM	Population Exposure	Neighborhood
South Las Vegas Blvd.	DAQM	NAMS/NAMS	High Concentration	Microscale
Sunrise Acres	DAQM	NAMS/NAMS	Population Exposure	Neighborhood
J. D. Smith	DAQM	NA*/SLAMS	Population Exposure	Neighborhood

* NA = not applicable; site not operational in 1996.

In 1996, Clark County had designated four of their CO monitoring sites as NAMS sites. Three of these sites were established in 1996: South Las Vegas Blvd., Sunrise Acres and Crestwood. Based on the average CO concentrations in the LVVPA during the years 1996-1998, EPA regulations require a minimum of two sites be designated as NAMS. DAQM's CO network exceeds this requirement since the network has four sites designated as NAMS. Most of the CO monitoring sites in the LVVPA are sited as neighborhood scale with an objective of assessing population exposure. South Las Vegas Blvd. Station, located near an intersection with high traffic density, is designated as microscale. Micro, middle and neighborhood scale measurements are necessary station classifications for monitoring because most people are exposed to CO concentrations in these scales. Given the nature of the emission sources in the LVVPA, which are mostly mobile source types, EPA believes this is an appropriate focus of the network.

Based on EPA's annual review of the LVVPA CO monitoring network, EPA believes that the network meets all applicable statutory and regulatory requirements and that the data are suitable for CO planning purposes in Las Vegas Valley.

B. Summary of Air Quality

One of DAQM's predecessor agencies, the Clark County Health District, began monitoring CO in Las Vegas Valley in 1980 at a single station (the CAMP station), and the CO monitoring network has since grown to include 15 monitoring sites. The frequency of exceedances of the CO NAAQS has decreased from over 40 per year in the 1980's to less than 3 per year in the late 1990's. The severity of exceedances has also decreased, from a high value of 21 ppm in 1981 to a high value of 7.3 ppm in 2000. The last exceedances of the eight-hour CO NAAQS, 10.3 ppm and 10.1 ppm, were recorded at the Sunrise Acres site in Las Vegas. While the ambient monitoring data provides a preliminary basis for EPA to conclude that Las Vegas Valley has attained the CO NAAQS, this TSD is not intended to provide the basis for a formal attainment finding, which will be covered in a separate EPA rulemaking proposal.

SECTION 4 - EMISSION INVENTORY

Requirement: CAA sections 172(c)(2) and 172(c)(3) of the Act require that nonattainment plan provisions include a comprehensive, accurate, current inventory of actual emissions from all sources of relevant pollutants in the nonattainment area and provide for reasonable further progress (RFP). CAA sections 187(a)(1) and 187(a)(7) of the Act restate the inventory and RFP requirements for CO nonattainment areas.

Proposed Action: Approve.

What are the statutory, regulatory and policy requirements?

Section 172(c)(3) of the Act requires that nonattainment plan provisions include a comprehensive, accurate, current inventory of actual emissions from all sources of relevant pollutants in the nonattainment area. The CAA requires that all CO nonattainment areas prepare a base year inventory that is comprehensive, accurate, and current with respect to actual emissions in the area [section 187(a)(1)]. Baseline and future-year emissions inventories are necessary for demonstration of RFP and attainment and for determining conformity of transportation plans and programs with the SIP.

How are these requirements addressed in the plan?

A. Base Year Emissions Inventory

The base year emissions inventory included in the 2000 CO plan is consistent with EPA's guidance documents.[3] The previous 1990 emissions inventory served as a starting point to update emission estimates from stationary, area and most non-road sources. With respect to the largest source category, on-road mobile sources, EPA's MOBILE5a was used (as adjusted to account for off-cycle driving behavior) in conjunction with the Direct Travel Impact Model to update emissions from this source category. (MOBILE5a was the latest EPA-approved model at the time the base-year emissions inventory was originally prepared; a more recent version of that model, MOBILE5b, was used for future-year on-road vehicle estimates, including years 2000, 2010, and 2020). Additionally, emissions from civilian/commercial aircraft were updated utilizing the Emissions and Dispersion Modeling System (EDMS) developed specifically for airport emissions analysis and is approved for emissions inventory development by the EPA.

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[3]See, for example, Emission Inventory Requirements for Carbon Monoxide State Implementation Plans, EPA--450/4-91-011; Procedures for the Preparation of Emission Inventories for Carbon Monoxide and Precursors of Ozone, Volume I: General Guidance for Stationary Sources, EPA--450/4-91-016; Procedures for Emission Inventory Preparation, Volume IV: Mobile Sources, EPA--450/4-91-026d Revised.

The inventory addresses CO emissions from the following four major type categories: stationary point sources, area sources, on-road mobile sources, and nonroad mobile sources. The intent of this section is to provide a brief overview of the source categories and the associated methodologies employed to estimate emissions. The dispersion modeling (i.e., episode day) inventories are based on this inventory. Additional detailed information pertaining to the inventory can be found in appendix A of the 2000 CO plan.

The Clark County Department of Comprehensive Planning (CCDCP) was the agency responsible for preparing and submitting the Clark County, Las Vegas Valley Nonattainment Area 1996 base year CO emissions inventory. (As noted previously, in 2001, air quality planning functions performed by CCDCP were transferred to a new department, the Clark County Department of Air Quality Management.) CCDCP was also responsible for coordinating and supervising the completion of each part of the inventory. Several other local agencies contributed information necessary for preparing emissions estimates. These agencies include the CCHD, Clark County Regional Transportation Commission (RTC), Clark County Department of Aviation, and the Clark County Fire Department. Additional information sources included the Nevada Department of Transportation, U.S. Forest Service, and Southwest Gas Corporation.

The point source inventory was prepared primarily from a mail survey conducted by CCHD. Survey results were supplemented by information obtained through personal contacts during compliance inspections. VMT data necessary to calculate on-road mobile source emissions was provided by the RTC. CCDCP ran the MOBILE5a model to determine vehicle emission factors from on-road mobile sources for the base year inventory. (Once again, MOBILE5b was used for on-road mobile sources for future-year emission inventories.) Table 4-1 below contains demographic information for Clark County.

Table 4-1: Demographic Data Used in Developing Emission Inventories and to Project Activity Levels for Nonattainment Area[4]

Year	Population	Employment	VMT
1996	1,037,844	493,213	22,469,020
2000	1,269,600	609,400	24,929,485
2010	1,790,700	859,500	38,022,330
2020	2,406,500	1,115,100	57,492,333

What are the total emission levels in Las Vegas?

The results of the Las Vegas Valley 1996 base year CO emissions inventory for stationary

[4] Data is based on Clark County Regional Transportation Commission 1997 estimates and projections.

point and area sources, on-road mobile sources, and nonroad mobile sources categories are tabulated in this section. The biogenics category has been omitted, as it is not applicable to carbon monoxide emissions. Table 4-2 below contains a detailed listing of average daily, CO season emissions by source category. Large stationary sources at the periphery of the nonattainment area (State Hydrographic Basin No. 212) have also been included in the inventory.

Table 4-2: 1996 Carbon Monoxide Emission Summary - Average Daily CO Season Emissions

Source Categories	Emissions (Tons/Day)	Emissions as % of Total
Stationary Point Sources		
Titanium Metals	2.84	0.60%
Kerr McGee-BMI	0.24	0.05%
Chemical Lime Co. Apex	0.82	0.17%
Bonanza Materials	0.28	0.06%
James Hardie Gypsum	0.55	0.12%
Southern Nevada Paving	0.55	0.12%
Pabco Cogeneration/NCA 2	0.55	0.12%
Georgia Pacific@Apex/NCA 1	0.62	0.13%
Point Source Total	6.45	1.36%
Area Sources		
Small Stationary	2.70	0.57%
Boiler Emissions	1.24	0.26%
Fireplaces	2.12	0.45%
Structural Fires	0.87	0.18%
Vehicular Fires	0.07	0.01%
Brush Fires	1.68	0.36%
Residential Natural Gas	0.78	0.16%
Commercial Natural Gas	0.17	0.04%
Industrial Natural Gas	0.36	0.08%
Electrical Utility Generation	0.56	0.12%

Cigarette Smoking	0.05	0.01%
Area Source Total	10.59	2.24%
Nonroad Mobile Sources		
County Airports	36.40	7.69%
Nellis AFB	2.86	0.60%
Locomotive Emissions	0.23	0.05%
Lawn and Garden Equipment	0.86	0.18%
Construction Equipment	7.84	1.66%
MC & Recreational Equipment	2.93	0.62%
Total Nonroad Sources	51.12	10.79%
On-Road Mobile Sources	405.40	85.61%
TOTAL ANNUAL EMISSIONS	473.56	100.00%

Total average daily, CO season emissions associated with the Las Vegas Valley Nonattainment Area for the 1996 base year are 473.56 tons per day. The methodologies used to prepare the base year emissions inventory, as described in chapter 3 and appendix A of the 2000 CO plan, are acceptable. Accordingly, EPA proposes to approve the 2000 CO plan with respect to the emissions inventory requirements of sections 172(c)(3) and 187(a)(1) of the Act.

B. Attainment Year Emissions Inventory

To initiate the attainment demonstration modeling, Clark County prepared a future year CO emission inventory representative of the year 2000, without any control measures for future year application of the Urban Airshed Model (UAM). This projected inventory is the basis for evaluating the potential CO reductions from a variety of proposed control measures. The development of the base case (no action scenario) future year projected inventory followed EPA guidance contained in the document titled "Procedures for Preparing Emission Projections" (EPA-450/4-91-019). Per EPA guidance, these emissions reflect current regulations, or any regulations that will be in effect prior to the year 2000, and the anticipated effects of any controls mandated by the 1990 CAAA.

Two approaches were used to develop the Las Vegas 1996 and 2000 base case inventories. The 1990 base inventory was used as the basis for projecting the 1996 and 2000 background inventories utilizing Bureau of Economic Analysis growth factors and local data for stationary, area, and nonroad sources. The on-road mobile source inventory was derived using MOBILE5a (1996) and MOBILE5b (2000) containing inputs representative of 1996 and 2000 conditions.

Additional information pertaining to the projected future year emission inventory can be found in the modeling documentation contained in appendix C, section 4 and appendix E, section 5 of the 2000 CO plan. Emissions are estimated both with and without the impact of the new control programs included in the 2000 CO plan. A summary of these emission estimates is given in Table 4-3.

Table 4-3 - CO Emissions by Major Source Category - Average Daily Emissions, CO Season, Year 2000

	Emissions (tons/day)	
Source Category	**Uncontrolled**	**Controlled**
Stationary Sources	6.45	6.45
Area Sources	12.41	12.41
On-road Vehicles	353.23	310.18
Other Mobile	53.45	53.45
Total	425.44	382.40

The decline in emissions from uncontrolled to controlled shown in Table 4-3, above, is attributed to wintertime Cleaner Burning Gasoline regulation, on-road vehicle fleet turnover, the technician training and certification provisions of the State's vehicle I/M program, an alternative fuels program for government fleets and voluntary transportation control measures. Also, as described in the section 6 of this TSD, the CO emissions reductions under the 2000 CO plan are sufficient to demonstrate attainment by the applicable date. Thus, the 2000 CO plan includes a control strategy that has been implemented to produce annual incremental reductions of emissions that have provided for RFP toward attainment of the standard by the applicable attainment date (December 31, 2000).

In summary, approval of the projected emissions inventories is appropriate because the inventories were developed following the EPA guidance contained in the document titled "Procedures for Preparing Emission Projections" (EPA-450/4-91-019). Approval of the 2000 CO plan with respect to the RFP requirements in sections 172(c)(2) and 187(a)(7) of the Act is also appropriate given that the plan includes a control strategy that has been implemented to produce annual incremental reductions of emissions that have provided for RFP toward attainment of the standard by the applicable attainment date (December 31, 2000).

C. Future Horizon Year Emissions Inventory

EPA's transportation conformity rule requires that "control strategy" plans (i.e., attainment, RFP, or maintenance plans) contain an emissions budget. The motor vehicle emissions budget therefore establishes a cap on motor vehicle-related emissions which cannot be exceeded by predicted transportation system emissions in the future. The emissions budget applies as a ceiling on emissions in the year for which it is defined and for all subsequent years until another year for which a different budget is defined or until a SIP revision modifies the budget. As described in

Section 2.D of this TSD, EPA previously found the motor vehicle CO emissions budgets in the 2000 CO plan to be adequate for transportation conformity purposes.

As described in the preamble to the conformity rule (62 FR 43787), EPA SIP policy allows areas to establish SIP motor vehicle emission budgets outside the time frame of the SIP. This flexibility addresses the challenge of completing conformity analyses for transportation plans which extend 20 years into the future. However, EPA cannot evaluate the adequacy or approvability of motor vehicle emission budgets unless the SIP also considers growth of non-mobile source emissions. Thus, future-year emissions inventories must reflect the emissions, by source category and year, which can be accommodated in the airshed without exceeding the NAAQS. The emissions budgets also reflect the effects that control measures will have in future years.

Table 4-4 below provides a breakdown of the Las Vegas Valley Nonattainment Area's attainment and future horizon year's CO emissions estimates, including the motor vehicle emissions budgets, as set forth in the 2000 CO plan. The 2000 CO plan predicts that the overall downward CO emissions trend in the nonattainment area will reverse after year 2000 and will, before 2020, exceed valley-wide CO emissions estimated for 1996 (i.e., 479.1 tons per day) when CO NAAQS violations were recorded; however, the results of area-wide and hot-spot modeling provided in the 2000 CO plan indicate that CO NAAQS violations would not be expected in the future despite these increases in overall CO emissions. The explanation lies in the wider geographic distribution of traffic and related CO emissions in 2020 compared to conditions that prevailed in the mid-1990's due to land use development patterns that disperse new development and related traffic congestion into outlying areas. Thus, the CO motor vehicle emission budgets in the 2000 CO plan can be approved despite the increases relative to emissions levels associated with past NAAQS violations.

The methodologies used to prepare the future-year emissions inventories, as described in chapter 8-4 of the 2000 CO plan, are acceptable. We reaffirm the evaluation provided in the TSD supporting the adequacy determination and propose to approve the CO motor vehicle emission budgets contained in the 2000 CO plan as meeting the purposes of section 176(c)(1) and the transportation conformity rule at 40 CFR 93, subpart A.

Table 4-4: Las Vegas Valley CO Emissions Estimates and Motor Vehicle Emissions Budgets

Source Category	1996 (TPD)	2000 (TPD)	2010 (TPD)	2020 (TPD)
On-Road Motor Vehicles*	405.4	310.2	329.5	457.4
Area Sources	8.5	9.9	15.3	19.4
Point Sources	6.5	6.5	6.5	6.5
Non-Road Sources excluding County Airports	22.3	20.1	18.2	19.3
County Airports	36.4	40.4	55.6	77.1
Total Emissions	479.1	387.2	425.2	579.7

Maximum Predicted CO Concentration (ppm)	11.2	8.1	7.2	8.5

* On-Road Mobile Sources Budgets are adjusted for the Month of December (adjustment factor = 1.021)

SECTION 5 - CONTROL STRATEGIES

Requirement: CAA section 172(c)(1) requires plans for all nonattainment areas to provide for the implementation of all Reasonably Available Control Measures (RACM (including Reasonably Available Control Technology or RACT)) as expeditiously as practicable and to provide for attainment of the NAAQS.

Guidance: "Technical Support Document to Aid States with the Development of Carbon Monoxide State Implementation Plans," EPA-452/R-92-003, July 1992. Guidance for Preparation of Emission Inventories for Ozone and CO, Volume IV: Mobile Sources, January 1992. MOBILE4.1 and MOBILE5a.

Proposed Action: Approve.

What are the statutory, regulatory and policy requirements?

Section 172(c)(1) requires plans for all nonattainment areas to provide for the implementation of RACM (including RACT) as expeditiously as practicable and to provide for attainment of the NAAQS. The EPA interprets this requirement to impose a duty on all nonattainment areas to consider the available control measures, and to adopt and implement such measures as are reasonably available for implementation in the area and necessary for attainment of the NAAQS as components of the area's attainment demonstration.

How are these requirements addressed in the plan?

The 2000 CO plan takes credit for several control programs in the attainment demonstration. Those identified in section 4.5 of the 2000 CO plan as "Previously Adopted Control Measures" are measures which were in existence prior to development of the serious area plans (i.e., the 1999 and 2000 CO plans) for Las Vegas Valley. EPA is recommending action on two of these previously adopted control measures in this rulemaking, including the wintertime RVP limit on gasoline and the vehicle I/M program, but is not recommending action at this time on two other measures. In one case, the previously adopted measure has already been approved into the Nevada SIP through separate, prior EPA rulemaking actions (Clark County's oxygenated gasoline regulation) or, in the other case, the "previously adopted" measure is a Federal program that is not appropriate for approval into the SIP (Federal Motor Vehicle Control Program / fleet turnover).

The measures discussed in section 4.2 of the 2000 CO plan represent additional control strategies which were newly-considered as part of the development of the serious area plans and were adopted for the attainment demonstration. The EPA has reviewed the State's explanation and associated documentation and concluded that it adequately justifies the control measures to be implemented. EPA is proposing to approve these control strategies. The exact nature of EPA's proposed approvals is discussed in more detail below.

A. Baseline Strategies

1. Federal Motor Vehicle Control Program/Fleet Turnover

The MOBILE emission factor model incorporates the benefits of Federal motor vehicle emissions standards and projected rates of emissions deterioration and fleet turnover. These benefits, as calculated using MOBILE5, are incorporated into the SIP's attainment demonstration. Because no action was required by the local or state agencies for this measure to be implemented, no further action is needed by EPA at this time to approve this control measure.

2. Oxygenated Fuels Program

This wintertime program is required for the Las Vegas Valley area by Section 211(m) and 187(b)(3) of the Act. The Clark County fuel regulations, which originally required fuels sold in Clark County to contain 2.7% oxygenated fuels, were included as a control measure in the 1995 moderate area CO plan. Those regulations were amended on September 27, 1997 to require fuel to contain 3.5% oxygenate by weight during the winter season (October 1 to March 31). In 1999, EPA approved these regulations into the Nevada SIP. See 64 FR 29573 (June 2, 1999). The attainment demonstration in the 2000 CO plan incorporates the benefits of this program, as calculated using MOBILE5b.

3. Reduced RVP Gasoline

Section 211(h)(1) of the Act directs EPA to promulgate regulations that establish certain standards related to the Reid Vapor Pressure (RVP) of gasoline during the high ozone season (generally late spring to early autumn). (The Act did not direct EPA to establish RVP standards for gasoline during the wintertime.) In the 1995 CO plan, Clark County included a wintertime RVP gasoline requirement in response to the continuing exceedances of the CO NAAQS. The Nevada Board of Agriculture subsequently amended section NAC 590.065 limiting RVP in gasoline fuel sold in Clark County to 9.0 pounds per square inch (psi) during the high carbon monoxide season (generally, the winter months). Wintertime gasoline sold in Clark County must also meet the specifications relating to distillation set forth for volatility class A, B or C in ASTM designation D 4814-97b.

EPA has not previously approved this control measure into the Nevada SIP. Clark County brought the wintertime low RVP requirement forward from the 1995 CO plan to the 2000 CO plan as a baseline measure rather than as an additional control measure. The most recent version of that regulation was submitted to EPA on June 4, 2002. EPA is proposing at this time to approve the wintertime low RVP requirement into the Nevada SIP.

Emission Reduction Credit

RVP is a measure of the stabilized pressure exerted by a volume of liquid at 100º F, and is generally used as a measure of the volatility of gasoline fuel. Fuels with high RVP values volatilize more readily than fuels with low RVP values. The effect of the increased rate of volatilization at any given

RVP value is largely dependent on ambient temperature. Lowering the RVP specification of gasoline reduces CO emissions from vehicles equipped with functional evaporative control systems (e.g., on-board carbon-canister). The evaporative control systems adsorb gasoline vapors which are then desorbed into the vehicle's fuel intake system causing enrichment of the fuel mixture and an increase in CO exhaust emissions. A lower volatility gasoline decreases the amount of vapor adsorbed by carbon canisters which in turn lowers subsequent fuel mixture enrichment and CO exhaust emissions. Newer vehicles operate "closed-loop," using oxygen sensors and constantly adjusting the air/fuel ratio. Such vehicles, which represent virtually all 1990 and later cars, are programmed to make adjustments to avoid undue enrichment (and associated emission increases) during canister purge. As a result, the effect of lower RVP on CO emissions on average will be larger for open-loop than for closed-loop cars, but there is considerable variation among manufacturers, models and model years.

The Nevada legislature granted authority to adopt regulations relating to fuel standards to the State Board of Agriculture through NRS chapter 590, section 590.070. Nevada Board of Agriculture's wintertime RVP regulations are found in chapter 590, section 590.065 of the Nevada Administrative Code ("NAC 590.065"). The specific regulation that was submitted as a control measure in the 1995 CO plan was adopted by the Board of Agriculture on September 21, 1995. Since that date, this regulation has been revised several times, e.g. to modify the applicable wintertime period, most recently on October 28, 1998. The current regulation, NAC 590.065 paragraphs (3) and (4) limits the RVP of gasoline sold in Clark County during the winter season (October 1 through March 31) to 9.0 pounds per square inch (psi) with no allowance for ethanol blended fuel. [See attachment A of this TSD.] NDEP submitted the current adopted regulation to us for incorporation in the SIP under a letter dated June 4, 2002.

To evaluate the effects of RVP on exhaust emissions, state and local air agencies use our MOBILE model. CCDCP used the MOBILE model to evaluate the CO emissions benefits of low RVP under wintertime conditions for the 1995 CO plan. The 1995 CO plan included several runs of both MOBILE4.1 and MOBILE5a. (See appendix A of the 1995 CO plan.) The modeled scenarios included 45/F average ambient daily temperature (low altitude assumption) and default values for percentage of VMT in cold start, hot start, and hot-stabilized start modes. For scenarios associated with the October through March period, emissions estimates reflecting an RVP of 12.0 psi were compared with emissions estimates reflecting an RVP of 9.0 psi to determine the benefit of the low RVP wintertime requirement. RVP controls were properly modeled in the 1995 CO plan using appropriate temperatures as indicated in our guidance.[5] However, members of Western States Petroleum Association (WSPA) objected to the 1995 CO plan's conclusion that gasoline with higher RVP results in higher CO emissions, especially during vehicle startup. They asserted that MOBILE5a

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[5] Guidance on the use of temperatures is provided in our ***Procedures for Emission Inventory Preparation, Volume IV, Mobile Sources***. The guidance indicated that temperatures from the dates of the ten highest concentrations should be examined in determining appropriate temperatures for use in the SIP.

overestimated the benefit of reducing RVP and expressed their concern over the related emission reduction predictions contained in the plan.

To address these concerns, Clark County commissioned a study of vehicle emissions to assess the validity of MOBILE5a results. Because of the unusual meteorological conditions in Las Vegas Valley that are associated with historic CO exceedances, and the relative lack of data within the MOBILE model for evaluating the RVP effects on CO emissions under colder temperatures, the study called for a shift in the normal series of events specified by the Federal Test Procedure for vehicle certification to simulate the effect of a diurnal temperature profile accompanied by a morning and evening commute.

This study culminated in the publication of the Society of Automotive Engineers' (SAE971726), *Effects of RVP Reduction on Vehicle CO Emissions During Las Vegas and Los Angeles Winter Conditions - Petroleum Environmental Research Forum Project Number 95-06* in May 1997. [See attachment B of this TSD.] As part of this study, two fleets of 30 vehicles each were emissions-tested to determine the effect of gasoline RVP reductions on tailpipe CO emissions in Las Vegas and Los Angeles under conditions typical of winter CO exceedances. The analyses had two locations and two RVP's (9 and 12 psi), including separate sets of temperature ranges, base gasoline types, and oxygenate types and levels. The conclusion was that RVP reduction is a significant control measure for reducing CO emissions under conditions typical of CO exceedances in Las Vegas and Los Angeles. It was estimated that reducing RVP by 3 psi (from 12 psi to 9 psi) would reduce winter CO emissions by 12% in Las Vegas and between 0 and 8% in Los Angeles.

As part of our decision on whether to approve the State's low RVP wintertime gasoline regulation into the Nevada SIP, we also must consider whether the fuel specification in that regulation is preempted under the Act. CAA section 211(c)(4)(A) preempts certain state fuel regulations by prohibiting a state from prescribing or attempting to enforce "any control or prohibition respecting any characteristic or component of a fuel or fuel additive" for the purposes of motor vehicle emission control, if EPA has prescribed under section 211(c)(1), "a control or prohibition applicable to such characteristic or component of the fuel or fuel additive," unless the state prohibition is identical to the prohibition or control prescribed by EPA. The Federal controls on RVP, promulgated under section 211(h) and section 211(c)(1), apply only in the summer months. There is no Federal RVP control applicable to gasoline in the wintertime, and thus no Federal preemption of the State's wintertime low RVP requirement.

Enforcement Methods

The wintertime low RVP requirement is enforced by Nevada Department of Business and Industry, Division of Agriculture ("Division"). Inspectors from the Division conduct daily random inspections. Gasoline samples from gasoline fueling stations are tested by chemists in the Division's laboratory. Monthly reports are prepared for the Department of Weights and Measures, the Bureau Chief and Administrator of the Division of Agriculture. Information pertaining to the number of tests performed, failure rates, compliance issues and enforcement actions are included in these reports [e.g., see attachment C of this TSD.] Exceedances of the random samples are to be sent directly to the Clark County Department of Air Quality Management (DAQM). Funding for

enforcement and monitoring activities associated with the RVP requirement is provided through a portion of the annual vehicle emission testing certificate fee.

Approval/Disapproval Recommendation

Approve. EPA is proposing to approve the State's wintertime low RVP requirement into the Nevada SIP as a CO control measure [i.e., NAC 590.065, as adopted on October 28, 1998] because the State has demonstrated that the measure is enforceable, contributes to the attainment demonstration by reducing vehicular CO emissions in the Las Vegas Valley nonattainment area, and is not preempted under section 211(c)(4) of the Act.

4. Vehicle Inspection and Maintenance (I/M)

The State of Nevada was required under section 187(a)(6) of the Act to implement an enhanced I/M program in the Las Vegas Valley nonattainment area because it was originally classified under the CAA Amendments of 1990 as a moderate CO area with a design value greater than 12.7 ppm. NDEP chose to implement EPA's alternate "low" enhanced I/M program under 40 CFR part 51, section 51.351(g). The MOBILE5b-based modeling included in the 2000 CO plan indicated that the area would attain the CO NAAQS by the applicable attainment date (December 31, 2000), without the use of a "high" enhanced I/M program.

On July 28, 1994, the NDEP submitted the enhanced I/M program for CO for Las Vegas Valley and Boulder City to EPA. This 1994 I/M SIP submittal was superceded by a revised I/M SIP submittal from NDEP on March 20, 1996. EPA recognized the March 20, 1996 as the full I/M SIP submission. Nevada modified its I/M regulations after March 20, 1996, and NDEP included these revisions as part of the August 8, 2000, January 30, 2002 and June 4, 2002 SIP submittals to EPA. The attainment demonstration included in the 2000 CO plan incorporates the benefits of this program, including 100% credit for the technician training and certification provisions, as calculated using MOBILE5b. The full approval of the low enhanced I/M program is discussed in Section 8 of this TSD. Specific emission reductions related to the I/M revisions concerning technician training and certification are discussed below in section 5. B.1, below.

B. Additional Control Strategies

The State of Nevada and Clark County have adopted several additional control strategies for the 2000 CO plan to provide for attainment of the CO NAAQS by December 31, 2000. These measures are described in chapter 4 of the 2000 CO plan and are discussed below.

Evaluation of Individual Control Strategies

1. I/M - Revisions to Program: Repair Technician Training and Certification

In the 2000 CO plan, additional CO emission reductions are credited to the State's I/M program due to provisions in the program related to training and certification of repair technicians that extend beyond minimum Federal requirements. In this context, a "repair technician" refers to

an individual with skills necessary to diagnose, repair and service devices for the control of motor vehicle exhaust emissions in addition to the skills necessary to test motor vehicle exhaust emissions. Nevada regulations refer to such an individual as a "class 2 approved inspector." An "inspector" refers to an individual with skills necessary only to test exhaust emission, not to diagnose, repair and service devices for the control of motor vehicle exhaust emissions. Nevada regulations refer to such an individual as a "class 1 approved inspector."

Federal I/M requirements (40 CFR 51.367) require all inspectors to receive formal training and to be licensed or certified to conduct inspections (for the purpose of testing vehicle exhaust emissions) but they do not require repair technicians to be trained and certified by the State. Nevada Administrative Code (NAC), sections 445B.485 through 445B.502, outlines procedures for the required training and licensing of both class 1 and class 2 inspectors. The requirements for an approved inspector are training [including a course approved by Nevada Department of Motor Vehicles (DMV)], a written and practical testing program, and a separate certification process. These criteria are described in NAC 445B.485. All trainees, at a minimum, are required to pass a comprehensive hands-on and written examination which requires inspectors to demonstrate an understanding of Nevada's rules, regulations, test procedures, equipment usage, quality control procedures and safety and health issues as used in the enhanced test. Inspector training covers all the requirements to perform emission tests and functional test procedures and standards listed in 40 CFR 51.367.

The Nevada low enhanced I/M program for Las Vegas also conforms to the Federal I/M requirements set forth in 40 CFR 51.369 related to the general topic of improving repair effectiveness and the Nevada program for Las Vegas extends beyond Federal I/M requirements in 40 CFR 51.369(c) related to the area of training of repair technicians. Nevada's I/M program goals related to repair effectiveness are achieved through the requirements for vehicles that have failed their initial I/M test and the qualifications that are required of technicians who perform repairs on those vehicles. All vehicles that fail the initial test must be retested only at "class 2" facilities, and "class 2" facilities have technicians who are trained and certified to diagnose, repair and service for the control of exhaust emissions as well as trained and certified to test exhaust emissions (i.e., "class 2" inspectors). Also, the State provides the repair industry with information and assistance on vehicle inspection diagnosis and repair. Reports on repair effectiveness and frequency are available to the DMV staff during regular business hours (NAC 445B.472).

Emission Reduction Credit

Carbon monoxide emission reductions credits were determined using the MOBILE5b model. MOBILE5b includes a control flag that allows the user to specify the operation of a technician training and certification program in the state's I/M program. Once this flag is set, MOBILE5b adds the benefits of the technician training program to the emission reductions associated with the I/M program. The added benefit can be estimated by completing MOBILE5b runs both with and without the flag. These results show that operation of the technician training program for 100% of the technicians further reduce CO emissions by 2.9 percent in the attainment year (2000).

Enforcement Methods

As mentioned above, the training program is operated by the DMV staff. All technicians must be certified and licensed to do vehicle repairs on vehicles that fail their initial I/M test. The Federal I/M regulation (40 CFR §51.364) requires the establishment of minimum penalties for violations of program rules and procedures which can be imposed against stations, contractors and inspectors. Procedures for actions against licensed and unlicenced stations and inspectors are provided for in NAC 445B.463, 445B.476, and 445B.487 through 445B.502. Violations and penalties are outlined in Nevada Revised Statutes (NRS) 445B.835 and 445B.845, and NAC 445B.727. Stations and inspectors are regulated by Nevada DMV with respect to license denials, suspensions, reinstatements, temporary suspensions, revoked licenses, required bonds, reapplications, and hearings for reapplication (NAC 445B.460 through 445B.502). EPA believes these provisions meet the requirements in the Federal rule and are acceptable.

Approval/Disapproval Recommendation

Approve. EPA believes that the State's technician training and certification program meets, and extends beyond, the requirements in the Federal rule and is acceptable. The approval of the full I/M program operating in Las Vegas Valley is discussed in section 8 of this TSD.

2. Wintertime Cleaner Burning Gasoline Regulation

The Clark County Board of Health, which governs the CCHD, adopted a wintertime Cleaner Burning Gasoline (CBG) regulation in 1999 that results in lower CO emissions from motor vehicles. The CBG regulation requires that gasoline sold in Clark County comply with limits on the maximum levels of sulfur and aromatics during the period from November 1 to March 31 and was included as one of the principal additional control measures included in the 2000 CO plan. The CBG regulation was adopted to provide additional reductions of CO emissions to reach attainment of the CO standard by the end of December 2000.

The Board of Health's CBG regulation (CCHD regulation, section 54) and the related technical support document are in appendix D, section one, and appendix E, section one, of the 2000 CO plan. The regulation includes sections on: definitions; applicability of the standards; the standards for sulfur content and aromatics content; sampling, testing and recordkeeping; requirements pertaining to CBG blendstock for oxygenated blending and downstream blending; and enforcement.

The CBG regulation provides two alternative ways to be in compliance for the sulfur and aromatics specifications, which are shown in table 5-1, below: 1) marketers can meet the flat limit on a per gallon basis or 2) marketers can comply via averaging, with each per gallon sample not to exceed a certain cap. (The current State and local regulations for wintertime RVP and wintertime minimum oxygen content (3.5%) would not be changed.) To meet the flat limit, each gallon transported must comply. Alternatively, a marketer can demonstrate, through record keeping, that the average level is being met while no retail gallon sampled can exceed the cap.

Table 5-1: Specifications for Aromatics and Sulfur In Clark County CBG

	Compliance Method I	**Compliance Method II**	
	Flat Limit	**Average**	**Cap**
Sulfur, ppm	40	30	80
Aromatics, percent	25	22	30

In June 2001, the Governor of Nevada designated the Clark County Board of Commissioners as the regulatory, enforcement and permitting authority for implementing the Federal Clean Air Act within Clark County. [See attachment D of this TSD.] This action by the Governor necessitated a transfer of certain pre-existing authorities from the Clark County Board of Health to the County Board of Commissioners. In response to the Governor's designation, the Clark County Board of Commissioners created the Clark County Air Quality Management Board (CCAQMB) as the governing agency for air quality programs and regulations in Clark County. CCAQMB acts through a new county department, referred to as the Clark County Department of Air Quality Management (CCDAQM), which has assumed the responsibilities for air quality permitting, ambient monitoring, and enforcement functions that had been performed by the CCHD as well as for air quality planning functions previously performed by CCDCP.

On July 24, 2001, the Clark County Board of Commissioners adopted County ordinance #2627, which, among other items, adopted the Board of Health's air quality regulations then in effect, including the CBG regulation, except for substitutions in the references to the applicable agency (e.g., "Clark County Air Quality Management Board") was substituted for "Clark County District Board of Health". [See attachments E and F of this TSD.] The new agency will complete the transfer of air quality authority through an interlocal agreement with the Health District. [See attachment G of this TSD.] We have not yet received CCAQMB's wintertime CBG regulation (i.e., CCDAQM regulation, section 54) from NDEP as a SIP submittal, but are taking action on the rule at this time based on the condition that the State submit to EPA the CCAQMB version of the rule prior to our taking final action.

Preemption, Necessity, and Emission Modeling

The cover letter from NDEP that accompanied the August 8, 2000 SIP submission (i.e., the 2000 CO plan) included a request that EPA, as part of the CO plan approval, approve the CBG regulation as a SIP revision in accordance with sections 110 and 211(c)(4)(C) of the 1990 CAA Amendments, and we respond to that request in the paragraphs below.

As noted above in connection with low-RVP wintertime gasoline, under section 211(c)(4) of the Act, states are preempted from prescribing any control or prohibition respecting any characteristic or component of a fuel, where there is a nonidentical Federal control or prohibition

applicable to such characteristic or component. To determine whether a state fuel requirement is preempted by a Federal requirement, EPA compares the applicable federal fuel requirements in the area with the proposed state fuel requirements.

The approval of a fuel control measure which is preempted under section 211(c)(4)(A) must meet the requirements of section 211(c)(4)(C) of the Act. Under section 211(c)(4)(C), EPA may approve such a fuel control measure into a SIP if EPA finds that this fuel control is "necessary" to achieve a NAAQS, and thereby "waive" federal preemption. A fuel control is "necessary" if no other measures that would bring about timely attainment exist, or if other measures exist and are technically feasible, but are unreasonable or impracticable. Section 211(c)(4) is intended to ensure that a state resorts to a fuel measure only if there are no available practicable and reasonable non-fuel measures.

The EPA guidance used to review a state's submittal for approval of a fuel measure under section 211(c)(4)(C) is the August 21, 1997, *Guidance on Use of Opt-in to RFG and Low-RVP Requirements.* The guidance on SIP approvals sets out four issues to be analyzed:

- The quantity of emissions reductions needed to achieve the NAAQS;
- Other possible control measures and the reductions each would achieve;
- The explanation for rejecting alternatives as unreasonable or impracticable; and
- A demonstration that reductions are needed even after implementation of reasonable and practicable alternatives, and that the fuel control will provide some or all of the needed reductions.

As noted above, the Clark County CBG regulation establishes gasoline standards for sulfur and aromatics, and CAA section 211(c)(4)(A) preempts certain state fuel regulations by prohibiting a state from setting any requirements that the federal government has already prescribed under section 211(c)(1), unless the state prohibition is identical.

Our analysis of preemption of the Clark County CBG regulation addresses the specifications for sulfur and aromatics. To determine whether a state fuel requirement is preempted by a federal requirement, we compare the applicable federal fuel requirements in the area with the proposed state fuel requirements. For the purposes of this analysis, the federal fuel requirement in the Las Vegas Valley CO nonattainment area is federal conventional gasoline.

In this proposed rulemaking, EPA does not need to determine whether the federal requirements for conventional gasoline include requirements for sulfur and aromatics which would preempt the CBG fuel requirements under section 211(c)(4)(A). If the sulfur and aromatics requirements are not preempted, there is no bar to EPA approving them as a SIP revision.[6] If they

[6] It is clear, however, that as of December 21, 1999, EPA has prescribed specific limits on maximum sulfur content in conventional gasoline. See, Tier 2 Motor Vehicle Emissions Standards and Gasoline Sulfur Control Requirements, 65 FR 6698, 6765 (February 10, 2000).

are preempted, EPA would be able to approve these requirements as necessary under section 211(c)(4)(C) if we could approve each of these requirements as a SIP revision, i.e., if CCHD's documentation for the regulation shows that each requirement (i.e., the sulfur limit and the aromatics limit) is "necessary" to achieve the CO NAAQS. Sulfur and aromatics requirements both reduce CO emissions. Emissions modeling data shows that each of these controls, independently, contributes to CO emissions reductions. Thus, each requirement must be determined "necessary" to achieve the CO NAAQS if the remaining requirements of the necessity justification are met.

To make a necessity determination, we must consider whether there are other reasonable and practicable measures available that would produce sufficient emissions reductions to attain the CO NAAQS without implementation of the CBG requirements. Section 211(c)(4) is intended to ensure that a state resorts to a fuel measure only if there are no available practicable and reasonable non-fuel measures. In demonstrating that measures other than sulfur and aromatics requirements for wintertime CBG are unreasonable or impracticable, a State need not address the reasonableness or practicability of other state fuel measures.

CCHD conducted an extensive public process to evaluate possible future emissions control options, including revisions to the current I/M program. CCHD considered eight control options other than wintertime CBG requirements for sulfur and aromatics. These options were: (1) separation of test and repair stations to make its I/M program a "high" enhanced program, (2) creation of one way streets, (3) adding powerful air propellers to certain developments, (4) adding 600 non-conventional fueled buses to its municipal fleet, (5) transportation control measures, (6) alternative fuels requirements for municipal fleets, (7) lower smog cutpoints for the I/M program, and (8) episodic woodburning control. The first four options were rejected as unreasonable or impracticable due to unavailability and/or ineffectiveness. Although there could be significant emissions reductions obtained from changing the I/M program by separating test stations from repair stations, this option would not be available until at least 2002.

The remaining four control measures were subject to further evaluation, but none of these measures provides significant emissions reductions. CCHD's modeling calculations show that, even with emissions reductions attributed to these four remaining measures, the CO design value would not reach 9.0 ppm by the end of 2000 without adding the reductions due to sulfur and aromatics controls for wintertime CBG.

CCHD worked with EPA to estimate the CO benefits of the winter CBG program by using the CO version of EPA's Complex Model (as described in SAE Technical Paper Series, number 961214, unofficially called the "CO Complex model.") See attachment H of this TSD. In March of 1999, EPA reviewed and approved the use of the CO Complex model for CO SIP development purposes, due to the unique fuel program in use in Clark County and the inability of MOBILE5b to fully assess the impact of all of the fuel parameters. At that time, the CO Complex model was the best approach available to assess these fuel parameters. The CO Complex model was approved for SIP development purposes in a letter dated March 23, 1999 from Roxanne Johnson, EPA Region 9, to Michael Naylor, Director, Air Pollution Control Division, CCHD.

All future transportation conformity determinations for CO in Clark County must be based

on the CO Complex model with MOBILE5b until the grace period for MOBILE6 has concluded. Because MOBILE6 is not capable of estimating the benefits of this exact fuels program, EPA will work with Clark County prior to the end of the MOBILE6 conformity grace period to determine how the benefits of this program should be estimated.

The CO emissions benefits of the Clark County CBG regulation were determined using the CO Complex model for two separate model runs for an existing baseline fuel and a target fuel with fuel characteristics associated with CBG. (See appendix E, section 1, of the 2000 CO plan.) Output from these runs were compared to determine the percentage difference that would occur from changing the fuel composition. The percent difference between these two model runs is 9.8% and equates to the amount of CO reduction that motor vehicle emissions will be reduced by use of CBG. Applying this reduction factor to the on-road, mobile source portion of the emission inventory, CO emissions should be reduced by 31.9 tons per day in 2000, above and beyond the benefits provided by existing control measures, such as the low RVP gasoline specification and 3.5% oxygenated fuel. Additional analyses were conducted to determine the effects for additional future years. As newer vehicles enter into the local fleet, the benefits of CBG will increase to a 13.9 percent reduction in CO emissions in 2010 and a 17.3 percent reduction in CO emissions in 2020. Additional information regarding the quantification of future year benefits of CBG can be found in appendix E, section 5, of the 2000 CO plan.

Results from the modeling demonstration showed that, using the CCHD's wintertime CBG gasoline plus all other measures previously adopted and newly identified in the 2000 CO plan, Las Vegas Valley would attain the CO NAAQS by December 31, 2000. Although the CCHD did not identify the estimated quantity of CO emissions that must be reduced in order to achieve the CO NAAQS, it did estimate the CO emissions reductions attributable to each of the individual control measures (including the CBG rule) deemed reasonable and practicable. CCHD's modeling calculations showed that, without the emissions reductions attributable to the CBG rule, Las Vegas Valley would not achieve the 9.0 ppm design value of the 8-hour CO NAAQS by the end of the year 2000. Therefore, the emission reductions from the CBG program are necessary to achieve the CO NAAQS.

Enforcement Methods

In general, to be approved as part of a SIP under section 110 of the Act, regulations must include adequate enforcement provisions, such as clear indications of what constitutes a violation, who is liable, and what defenses are available. Under the CBG regulation, those who fail to comply with the CBG regulation are subject to enforcement action and may be assessed penalties of up to $10,000 per day per section violated. CCDAQM has adopted the requirements developed by CCHD for every entity in the gasoline distribution system to ensure that Las Vegas Valley will receive gasoline that meets the wintertime CBG standards. The requirements, which include registration of gasoline suppliers, testing and sampling, compliance surveys, and record keeping and reporting, apply to any producer, importer, terminal, pipeline operator, trucker, rail carrier, or retailer.

The requirements imposed by the wintertime CBG regulation apply to activity occurring

both within and outside of Clark County and the State of Nevada. CCDAQM has been assigned the rights and duties of an agreement between CCHD and the California Air Resources Board (CARB) to have CARB sample and test CBG at the refineries in Southern California.

Clark County also entered into an agreement with the Nevada Department of Agriculture to check fuel at the final destination (i.e., Clark County). The Department of Agriculture agreed to check sulfur and aromatics content of CBG fuel along with their normal testing. They would notify the CCDAQM in the event that any fuel sampled exhibited non-compliant CBG characteristics.

Approval/Disapproval Recommendation

We have evaluated the wintertime CBG regulation and have determined that it is consistent with section 110 of the CAA and EPA regulations. We have also found that the various wintertime CBG requirements are necessary for the Las Vegas Valley nonattainment area to achieve the CO NAAQS, pursuant to section 211(c)(4)(C) of the Act. Therefore, based on the substance of the submitted Board of Health wintertime CBG regulation and CCAQMB's ordinance adopting that regulation (with changes related to the applicable agencies), we are proposing to approve the CCAQMB's wintertime CBG regulation (i.e., CCDAQM regulation, section 54) into the Nevada SIP for the Las Vegas Valley CO nonattainment area under section 110(k)(3) of the Act as meeting the requirements of section 110(a) and part D of title I of the Act. Our proposed approval is based on the condition that the State submit to EPA CCAQMB's version of the CBG regulation prior to our final action.

3. Transportation Control Measures

Section 187(b)(2) of the Act requires areas classified as serious to adopt the measures required by Section 182(d)(1). These measures consist of transportation control measures (TCMs) (see section 182(d)(1)(A)). Examples of TCMs are described in section 108(f) of the Act. The TCM portion of the 2000 CO plan is contained in section 4.2.1.2 of the plan. TCMs are needed in Las Vegas Valley to reach attainment by December 31, 2000. Therefore, several TCMs were examined during the plan development (see appendix B, section 1 of the 2000 CO plan), including congestion pricing/parking fees, trip reduction ordinances, area-wide rideshare incentives, bicycle incentives, work schedule changes, telecommuting, and no-drive days. Of these measures, congestion pricing and no-drive days had the largest impact on CO emissions while bicycle incentives had the least impact. Recommendations from the analysis included:

- Expand the work schedule changes and telecommuting programs already operating throughout the valley. The potential high cost effectiveness of both measures and the relative ease of implementation make them primary candidates to decrease CO emissions.
- Consider the implementation of area-wide rideshare and carpool matching programs in the near future.

Based on the study findings, voluntary employer-based commuter incentive programs, telecommuting and area-wide ridesharing were chosen as TCMs to operate in Las Vegas Valley. These measures are discussed below.

Voluntary Measures: Criteria for Evaluation

EPA released a policy document on Voluntary Mobile Source Emission Reduction Programs (VMEPs), in a memorandum from Richard Wilson dated October 24, 1997. [See attachment I of this TSD.] The VMEP policy provides guidance and sets forth EPA's policy and interpretation regarding the granting of explicit credit for VMEPs under section 110 of the Act. The policy was developed because EPA wanted to encourage areas to consider innovative methods in achieving air quality goals. EPA recognized that allowance of emission reduction credits for air quality demonstrations can be a positive factor for gaining political and institutional support for program development and implementation.

Under the VMEP policy, in light of the innovative nature of voluntary measures and EPA's inexperience with quantifying their emission reductions, EPA is setting a limit on the amount of emission reductions allowed for VMEPs. The limit is set at three percent of the total projected future year emissions reductions required to attain the appropriate NAAQS. However, the total amount of emissions reductions from voluntary measures shall also not exceed 3% of the statutory requirements of the CAA with respect to any SIP submittal to demonstrate progress toward, attainment of, or, maintenance of the NAAQS.[7] EPA has analyzed a number of voluntary mobile source programs that could be incorporated into a SIP. The emission reduction potential of these programs is generally a fraction of one ton per day. A three percent limit on emission reductions from VMEPs will allow areas to implement and claim SIP credit for a significant number of voluntary mobile source programs. This cap still provides a sufficient incentive for developing and implementing VMEPs, while setting a limit on the extent to which a SIP can rely on innovative programs with which we have had limited experience.

For inclusion in attainment plans, a state or local government 1) identifies and describes each VMEP; 2) provides projections of emission reductions attributable to the VMEP, along with relevant technical support documentation; 3) commits to monitor, evaluate, and report the resulting emissions effect of the voluntary measure; and 4) commits to remedy in a timely manner any SIP credit shortfall if the VMEP program does not achieve projected emission reductions.

Description of Las Vegas Valley VMEPs

Three VMEP control measures: (1) employer-based commuter incentive programs, (2)

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[7] For example, an ozone area classified as severe needing reductions of 200 tpd of volatile organic compounds (VOC) and 100 tpd of oxides of nitrogen (NO_x) from the projected year 2005 baseline inventory could rely on VMEPs for up to 3% of the required reductions from each pollutant, or 6 tpd of VOC and 3 tpd of NO_x. The area could also use all or a portion of these same reductions for purposes of meeting interim rate-of-progress (ROP) milestones, but again the 3% limit would apply. Thus, if the area needed 25 tpd of creditable VOC reductions to meet the 1999 ROP target, no more than 0.75 tpd of the VOC reduction in the 1999 ROP plan could come from VMEPs.

telecommuting and (3) an area-wide ridesharing program, were recommended for implementation in the 2000 CO plan. In response, the Clark County RTC adopted Resolution No. 177 (2000 CO plan, appendix D, section 2) which established the guidelines for administering the CAT MATCH commuter program. This program, described in appendix E, section 2 of the 2000 CO plan, includes a commuter incentive program, Club Ride, employer-based commuter incentives and area-wide ridesharing programs and was operational in July of 1999. The program contains the following nine major components:

- Outreach efforts at business expos and transportation fairs throughout the region,
- Employer rideshare program (Club Ride) that includes incentives, monthly prize drawings and tracking of commute alternatives though the use of a Club Ride credit card,
- Preferential parking for carpoolers and vanpoolers,
- Emergency ride home for Club Ride members,
- Marketing efforts on billboards, TV/Radio stations and newsletters,
- Monthly community outreach efforts (e.g. Bike-to-work day),
- Travel assistance information on the Internet and at public kiosks,
- Flexifare transit passes that can be used to subsidize employee's transit expenses, and
- Partnership with a vanpool leasing company.

RTC will use CMAQ funds to support the CAT MATCH program.

Emission Reduction Credits

Emission reductions for the programs are estimated to reduce CO emissions by 0.3 tpd for the year 2000. These emission reductions were estimated by examination of participation in the current CAT MATCH program and future expected growth of the program. For 2000, the RTC estimated that 2,500 people would participate in the program on an average day, reducing 1,800 vehicle two-way trips (to and from work) each day. Assuming that the eliminated trips cover an average trip length of 7.5 miles each way, the amount of reduced Vehicle Miles Traveled (VMT) is 27,000 miles. With these assumptions and the appropriate MOBILE5b emission factors, emission reductions from operation of the program are 0.3 tpd for the year 2000. This calculated level of CO emission reduction represents less than one percent of the total emission reductions expected to be achieved by 2000 by the four primary control measures identified in the 2000 CO plan (see table 4-7 of the plan) and is well below the three percent guideline under the VMEP policy. RTC estimates that participation in the program will grow to 20,000 participants in the year 2010 and 25,000 participants in 2020. With these assumptions, the emission estimates for the years 2010 and 2020 are 1.8 tpd and 2.3 tpd, respectively.

Enforceability

State and local agencies' obligations with respect to VMEPs must be enforceable at the state and Federal levels. Under the VMEP policy, the State or applicable local agency is not responsible, necessarily, for implementing a program dependent on voluntary actions. However, the applicable agency is obligated to monitor, assess and report on the implementation of voluntary actions and the emission reductions achieved from the voluntary actions and to remedy in a timely manner emission

reduction shortfalls should the voluntary measure not achieve projected emission reductions. EPA anticipates that the applicable agency will take the steps it determines to be necessary to assure that the voluntary program is implemented and that emission reductions are achieved so that corrective SIP actions are not required.

Commitments to Monitor, Evaluate and Report the Impacts of VMEPs and remedy shortfalls

In support of their commitment to implement the VMEP, RTC has adopted Resolution No. 186. This resolution commits the agency to (1) implement the CAT MATCH program, (2) monitor participation, (3) prepare annual reports tracking participation *and* (4) remedy any shortfalls of CO emission reductions if actual participation levels are lower than predicted participation levels. This resolution is included in appendix D, section 9 of the 2000 CO plan. As examples, the 2000 CO plan contains monthly reports that the RTC generates using the Ride Pro software. In addition, RTC and Clark County will submit annual reports to EPA which will include a comparison of the predicted effect of the program to the actual observed levels. This report will also be prepared using the Ride Pro software.

Approval/Disapproval Recommendation

EPA has evaluated RTC's CAT MATCH program under our VMEP policy and concludes that the emissions reduction credit in the 2000 CO plan for that voluntary program is appropriate. We also have determined that the CAT MATCH program complies with section 187(b)(2) of the Act. Therefore, we propose to approve the CAT MATCH program under section 187(b)(2), and we propose to approve into the Nevada SIP the commitments by RTC to develop, implement, monitor, report, and remedy any emissions shortfalls from this voluntary program under RTC's Resolution No. 177 (adopted June 10, 1999) and Resolution No. 186 (adopted June 8, 2000).

4. Alternative Fuels Program

There are two programs that operate in Las Vegas Valley which result in the operation of alternative fueled vehicles and result in reduced CO emissions. The first program, the Energy Policy Act of 1992 (EPACT), requires Federal, state, and fuel provider fleets to acquire alternative fuel vehicles. The State of Nevada has chosen to develop a program that extends alternative fuel requirements to local government agencies in their two most populated counties, Washoe and Clark, and that provides for a more aggressive schedule for implementation than would otherwise be required under EPACT. The State law establishing this program is set forth at NRS chapter 486A. NRS chapter 486A authorizes the State Environmental Commission (SEC) to promulgate implementing regulations, and SEC's regulations are set forth in NAC chapter 486A.

SEC's regulations require applicable government agencies to acquire and use an increasing proportion of alternative fuel vehicles up to 90% for year 2001 and beyond when acquiring additional or replacement vehicles for its fleet. See Table 5-2, below. The program includes on-road vehicles $\leq$ 26,000 pounds gross vehicle weight rating (GVWR) and includes buses. The Clark County fleet surpassed 90% compliance rate for the program. (See appendix E, section 4, of the 2000 CO plan).

Table 5-2: Summary of State Alternative Fuel Program

Fiscal Year	1996/97	1997/98	1998/99	1999/2000	2000/01
% of Fleet Alternatively Fueled	15%	25%	50%	75%	90%

The State program offers an exemption from the program for up to one year due to vehicle or fuel unavailability. Only two entities have applied for this variance since 1995. In one instance, the City of Las Vegas had placed a large order for alternatively fueled vehicles with General Motors, which faced a six-month-long strike shortly thereafter. At the end of the strike, General Motors canceled all orders for alternatively fueled vehicles. The City of Las Vegas applied for an exemption for the FY1997-98 acquisition requirements based on unavailability of vehicles. Similarly, the Clark County government fleet was granted an exemption in FY 97-98 based on the closure of the only Compressed Natural Gas (CNG) conversion business in Las Vegas. Clark County has 27 fleets under the State program, 15 of these are regulated under EPACT.

Emission Reduction Credit

The 2000 CO plan included the alternative fuels program set forth in NAC chapter 486A, as revised through April 2000, as an additional control measure. Most fleets have chosen to purchase CNG vehicles to comply with the alternative fuel regulations. Clark County estimates that over 1,400 alternative fueled vehicles are currently in operation in Las Vegas Valley. For the estimation of emission impacts, to be conservative, a total of 1,082 CNG vehicles were assumed in operation in 2000. Growth of this vehicle fleet was assumed to occur in future years at fairly low growth rates (1.280-1.393%) so that the number of CNG vehicles is expected to be 2,925 by the year 2010, and 3,568 by the year 2020. To estimate the reduction in CO emissions due to operation of these vehicles, we must first calculate the emissions that would have resulted from an equal number of average vehicles operating in the valley. Assuming that these vehicles are driven an average of 35 miles per day, emission can be calculated using MOBILE5b and compared to emissions that would have resulted from CNG vehicles also driving 35 miles. Under these assumptions, implementation of the alternative fuel vehicle programs results in emission reductions of 0.4 tpd in 2000, 1.1 tpd in 2010 and 1.4 tpd in 2020.

Enforcement

The state alternative fuel program requires state and local government fleet operators to track vehicle purchases and to keep month-by-month records of alternative and conventional fuel use. A copy of the fuel tracking form is included in appendix E, section 4 of the 2000 CO plan. NDEP requires fleets that do not meet their acquisition targets to submit a plan for coming into compliance during the next fiscal year. If necessary, NDEP has issued enforceable compliance plans, based on discussions with the fleet in violation, to bring the operator into compliance with the regulations. NDEP also conducts audits if use of alternative fuels drops below 80% in any bi-

fueled vehicles.

Approval/Disapproval Recommendation

Approve. In the NPRM, we are proposing to approve the alternative fuel program into the Nevada SIP for the Las Vegas Valley CO nonattainment area. Specifically, we propose to approve, into the Nevada SIP, the legal authority vested in SEC under NRS Chapter 486A and the implementing regulations set forth in NAC Chapter 486A, as amended through April 20, 2000, by the State Environmental Commission.

SECTION 6 - ATTAINMENT DEMONSTRATION

Requirement: CAA sections 110(a)(2)(K) and 187(a)(7). In general, SIPs must provide for the performance of such air quality modeling as EPA may prescribe for the purpose of predicting the effect on ambient air quality of any emissions of any air pollutant for which EPA has established a NAAQS and the submission, upon request, of data related to such air quality modeling to EPA. Specifically, in connection with CO nonattainment areas with design values greater than 12.7 ppm, SIP revisions must demonstrate that the plan as revised will provide for attainment of the CO NAAQS by the applicable attainment date.

Proposed Action: Approve.

What are the statutory, regulatory and policy requirements?

Areas classified as serious are required to attain the CO NAAQS no later than December 31, 2000. The basic modeling requirement for a serious CO area plan is to model at least one episode per meteorological regime using the Urban Airshed Model (UAM), to model at least three "hot spot" intersections using CAL3QHC, and to show that the UAM and CAL3QHC predicted concentrations is under 9.0 ppm everywhere by December 31, 2000. The modeling is to be done in accordance with applicable EPA guidelines: Guidelines on Air Quality Models (Revised), 40 CFR part 51, appendix W, Guideline for Regulatory Application of the Urban Airshed Model for Areawide Carbon Monoxide (EPA-450/4-92-011b), June 1992; Guideline for Modeling Carbon Monoxide from Roadway Intersections (EPA-454/R-92-005), November 1992.

EPA evaluates the modeling and attainment demonstration in the plan submittal, based on: (1) appropriate choice of models, (2) good procedures followed in developing model inputs; (3) acceptable model performance; (4) acceptable hotspot modeling; (5) acceptable attainment demonstration methodology; (6) predicted CO concentrations below the NAAQS in 2000, 2010, and 2020 (the latter two horizon years provide the basis for consideration of the motor vehicle CO emissions budgets included in the 2000 CO plan for those years).

How are these requirements addressed in the plan?

A. Summary of Modeling Approach

The air quality modeling was carried out in two phases. In Phase I, the UAM was run for the January 5 - 6, 1996 CO episode (the area's "design day" with 10.2 ppm CO), using routinely available meteorological data, and initial model sensitivity testing. Modeling done in Phase II used a more intensive meteorological database collected during winter 1996-97 and included sensitivity testing of some parameters identified as important during Phase I. The episodes examined in Phase II were similar both in meteorological patterns and in overall CO build-up patterns to most

measured exceedance episodes. As episodes for modeling, they have the significant advantage of occurring during an intensive field study, so that much more meteorological data is available. The episodes in Phase II were used, with scaling, to model regional CO concentrations. These regional concentrations were combined with hotspot (microscale) concentrations determined for roadway intersections and airports to predict attainment of the 8-hour CO standard for the year 2000. Portions of the 2000 CO plan submittal relevant to modeling are:

- Chapter 5, Air Quality Modeling;
- Chapter 6, Demonstration of Attainment;
- Appendix C, Modeling Documentation:

  Appendix C-1 "Modeling Protocol for the Las Vegas Valley Carbon Monoxide Urban Airshed Model Update Project" 9/11/96,
  Appendix C-2 "Summary Report: The Las Vegas Valley Carbon Monoxide Urban Airshed Model Update Project - Phase II: Field Data Collection" 7/98,
  Appendix C-2 "The Las Vegas Valley Carbon Monoxide Urban Airshed Model Update Project - Phase II: UAM Base Case and Sensitivity Applications" 7/98,
  Appendix C-4 "The Las Vegas Valley Carbon Monoxide Urban Airshed Model Update Project - Phase II: Modeling to Demonstrate Attainment of the Carbon Monoxide Standard" 6/99,
  Appendix C-5 "Microscale Hot Spot Modeling with CAL3QHC in Las Vegas" 1/27/99,
  Appendix C-6 "Carbon Monoxide Dispersion Modeling Protocol - Airport Related Pollutant Emissions, Clark County Airport System" 4/29/99,
  Appendix C-7 "Dispersion Modeling of Carbon Monoxide Emissions from Three Clark County Airports in Support for the Revised CO SIP" 7/99,
  Appendix C-8 "Carbon Monoxide Emissions Inventory and Dispersion Modeling - McCarran International, North Las Vegas, and Henderson Executive Airports" 7/27/99; and

- Appendix E, Supplemental Technical Support Documentation:

  Appendix E-5 "Supplemental UAM Modeling Documentation" 5/31/00,
  Appendix E-6 "Microscale Hot Spot Modeling with CAL3QHC for the Las Vegas Carbon Monoxide State Implementation Plan" 5/16/00.

B. Choice of Model

The Guideline on Air Quality Models (GAQM, appendix W, 40 CFR 51), at section 6.2.2.c, states that the recommended model for urban areawide CO analyses is RAM or the Urban Airshed Model (UAM). This recommendation is somewhat dated; UAM is much preferred, and EPA has provided a guidance document for it, Guideline for Regulatory Application of the Urban Airshed Model for Areawide Carbon Monoxide (GRAUAM), EPA-450/4-92-011a and b (June 1992). UAM was selected, in accordance with EPA guidelines.

C. Development of Inputs

Episode selection

Under the GRAUAM, at least one CO pollution episode is to be modeled for each episode regime observed, i.e. for each combination of emission and meteorological conditions for which high CO concentrations are observed.

In Las Vegas Valley, an evening 1-hour CO peak occurs after the rush hour and as the ground cools to form a low-level inversion. There is also an early morning CO peak that occurs with the morning rush hour. The central portion of Las Vegas Valley forms a bowl, with drainage toward the southeast. Low wind speeds allow CO to build up within this bowl. The East Charleston site area, which is near the center of the bowl (a high emission area), tends to have low and variable winds, so it generally has the highest ambient CO monitored values. The highest observed 8-hour CO averages are from sustained high levels lasting overnight, not from very high sharp short peaks. Note that the 8-hour CO level can be high even when one of the hourly peaks (early AM or late PM) is low.

As described in appendix C-3 (starting at page 2-1) of the 2000 CO plan, specific synoptic meteorological patterns were examined for episodes during the winter 1996-97 study and for historical patterns. Four patterns were identified, all of them occurring in winter and having a high pressure zone centered over either Nevada or an adjacent state, with subsidence and light winds. The first episode selected for modeling, December 19-20, 1996 was associated with the most frequently observed pattern. The magnitude and spatial extent of high CO was also examined for this episode, again the pattern was typical, with a fairly broad area of CO build-up. This episode had the highest peak 8-hour CO level measured during the Phase II study, 8.0 ppm (9.5 ppm at a portable monitor). A second episode, December 8-9, 1996 with a peak measured at 7.9 ppm (9.6 ppm at a portable monitor), was also chosen. This episode was associated with a high pressure zone centered over the New Mexico-Colorado border rather than over Nevada, and it had rather high 1-hour CO peaks, but spread over a smaller area.

Even though these episodes did not contain CO NAAQS exceedances at permanent county monitors, they did have exceedances at portable monitors, and were similar meteorologically and in overall CO build-up patterns to most exceedance episodes. As episodes for modeling, they occurred during an intensive field study. This is a significant advantage since much more meteorological data was available (see below on wind field, etc.). This data helped insure that model performance was driven by the physics of the situation rather than by the artificial adjustment of the mixing height (via DIFFBREAK in UAM), which has occurred in the past when local upper air data was unavailable. These episodes have the disadvantage of not having CO exceedances at permanent county monitors, so scaling must be used to develop the attainment demonstration. With that caveat, a sound procedure was used to select episodes for modeling, with a more thorough analysis than was done in earlier modeling efforts.

Domain and Grid Resolution

The modeling domain is 50 kilometers (km) by 50 km. While this domain is smaller than the Las Vegas Valley CO nonattainment area, it encompasses all urban areas within the nonattainment area, including the "urban growth area," projected to contain most of the area's future growth. This is larger than the domains EPA has accepted in past model applications for the area. The horizontal grid resolution was 1 km, which is fairly standard. Use of larger grid squares might simulate more transport of pollutants than actually occurred under the stagnant, light and variable winds associated with high CO concentrations.

During Phase I of the study, during 1995-96, modelers experimented with different vertical grid resolutions (see appendix A of appendix C-3 of the 2000 CO plan, at pages 7 and 30). Although changes gave only small improvements in CO predictions, the increased resolution at lower heights (10 layers instead of 5, half of these within 100 meters (m) of the surface) allowed a better match to observed temperature gradients and to what is believed to be a fairly rapid drop of CO with height. The changes also allowed the modelers to avoid the use of artificial dilution of low-level CO since the layers below UAM's DIFFBREAK (analogous to mixing layer height) increased during the morning. Layers and horizontal grid size for DWM (Diagnostic Wind Model) were chosen to match those of UAM, minimizing interpolation between the two, which can introduce error.

Wind, temperature, and mixing height fields

Meteorological data was collected during an intensive study during winter 1996-97, as described in appendix C-2 "Summary Report: The Las Vegas Valley Carbon Monoxide Urban Airshed Model Update Project - Phase II: Field Data Collection" 7/98. In addition to the 13 permanent CO stations, there were 19 CO sites where portable CO sensors were used, 8 surface meteorological sites, and 2 upper air monitoring data sites available during this study. The availability of this amount of data is a substantial improvement over past efforts. The upper air data instrumentation included: 1) radar wind profiler for hourly average profiles of wind speed, wind direction, vertical velocity (from 100 m to 3-4 km above ground); 2) RASS (Radio Acoustic Sounding System) for virtual temperature, to get height of mixed layer and strength of inversion; and 3) two SODARs (Doppler acoustic sounder) for hourly average profiles of wind speed, wind direction up to several hundred meters above ground. With data from these instruments, it was not necessary to treat mixing height as a free parameter to tune model performance as has been done in a number of other UAM applications for CO; instead, the model could be driven by the actual meteorological conditions.

The DWM (Diagnostic Wind Model) was used to interpolate winds between meteorological stations, per EPA guidance. During phase I of the study, modelers experimented with grid resolution and found that a 2 km grid spacing resulted in overly smooth winds, which are not reflective of the more disorganized variable flow observed during CO episodes. Better performance occurred with a 1 km cell spacing, matching that of UAM but extending beyond the UAM domain to an 80 by 80 km grid to minimize edge effects. The two SODARs were used to provide vertical wind profiles, combined with data from 25 surface meteorological stations, though none were located in the outlying parts of the domain. The RASS was used to determine the temperature lapse rate that drives various surface effects in DWM. The 2000 CO plan contains

relatively few wind plots, though the results match observations fairly well, including the light and variable flow in the central Las Vegas area.

Initial and Boundary Conditions

CO ambient air quality stations (28, including portable monitors) inside the modeling domain were used for setting initial conditions for UAM. This amount of data is more than adequate. The EPA-recommended default value of 0.2 ppm was used to set side boundary conditions, and also to set the top boundary. This approach seems reasonable given the lack of major or numerous CO-emitting sources outside of the Las Vegas urbanized area since the edge of the domain is mostly in rural desert.

Although the modeling protocol (appendix C-1 of the 2000 CO plan) states that results from Phase I are included in the 2000 CO plan to illustrate sensitivity testing of boundary and initial conditions, results from any such testing were not included in the plan. However, given the light wind conditions typical of high CO episodes in Las Vegas, transport from outside the boundary is likely not a significant contributor. Nevertheless, these tests should have been carried out, and the results reported to illustrate that the conditions were not a contributor.

Model Emissions and Spatial allocation

Appendix C-3 of the 2000 CO plan describes emission inventory development, starting at page 2-18. Its appendix (page 22) also addresses inventory development, as does appendix C-4 starting at page 2-1. Most of the CO emissions -- some 90% -- are from on-road motor vehicle traffic. For development of the gridded emission inventory (used in UAM), EPA's MOBILE5a was originally used for emission factors, and the TRANPLAN model provided link-specific traffic volumes. Traffic count data from the Nevada Department of Transportation and additional activity data from the Regional Transportation Commission provided hourly traffic profiles for the days of the week. Using hour-specific temperatures, the Direct Travel Impact Model (DTIM) model combined the emission factors and traffic data to produce hourly spatially-allocated emission data for motor vehicles. During Phase II of the modeling, MOBILE5a was altered to include "off cycle" or "in use driving behavior" emissions that reflect differences between real-world driving and the federal driving test cycle. In addition, the final revised modeling included a later version of TRANPLAN and incorporated emissions from mass transit.

Area sources, such as woodstoves, commercial natural gas combustion, and construction equipment were spatially allocated using land use data using the EPS2 emissions preprocessor. Sources that are located in the point source inventory (major point sources) were subtracted out of the area source inventory to avoid double counting. Note that there are relatively few CO point sources in the area. In addition to point sources with individual permits, there are locomotives and airports which emit CO. Much of the stationary source inventory work was based on updates to a 1992 study by BRW and SAI.

Overall, the model emission inventory preparation followed generally accepted procedures. For more detail on the emission inventory, see section 4 of this TSD.

D. Model Performance

Quality Assurance, Diagnostic Testing, Sensitivity Testing

As aids to ensuring appropriate model performance, GRAUAM recommends spatial plots of emissions, meteorological inputs, and concentrations and time series of concentrations for each monitoring station. The 2000 CO plan's modeling protocol states that reasonableness checks were to be performed for inventory totals and for activity data like traffic volumes, and that plots were to be made of the emission spatial distribution and of the diurnal variation of concentrations. Some of these plots are included in the 2000 CO plan near the end of appendix C-3.

GRAUAM also recommends several specific sensitivity tests to diagnose model performance (section 4.3): zero emissions, zero boundary conditions, zero initial concentrations, and variations in mixing height and wind speed. Sensitivity testing helps determine whether the model is performing as expected, it helps identify which parameters the model is sensitive to, and it helps guide further effort at refinement of inputs. The modeling protocol (Appendix C-1) states that Phase I was to include several sensitivity tests specified in EPA guidance. However, no results were included in the 2000 CO plan for: the length of "spin-up" period for initializing the model, the boundary conditions, and the initial conditions. The results from these tests should have been reported in the 2000 CO plan.

In contrast, considerable effort was spent in evaluating model sensitivity to a number of things that are not usually looked at in as much detail. For Phase I modeling (appendix C-3's appendix A starting at page 28), tests were done for increased vertical grid resolution; 10-minute averaging time for wind instead of hourly; domain mean wind derived from a local tethersonde instead of Desert Rock wind; "off-cycle" or "in-use" vehicle emissions (increasing emissions by about 15%); shift mobile emissions 2 hours later in the day; and forcing the lower atmosphere to be stable earlier in the day. These sensitivity tests showed little sensitivity to changes in meteorological formulation, but strong sensitivity to emissions changes. As a result, the increased vertical resolution and changes to mobile source emissions timing (in subareas of the domain where traffic data could support it) were retained. In Phase II modeling (appendix C-3, starting at page 3-9), additional sensitivity tests were performed: domain mean wind derived from higher altitude measurements; 10-minute winds; and off-cycle emissions. As in Phase I, the model was not very sensitive to meteorological changes, whereas the emissions changes improved model bias. Given the light and variable winds, especially at the surface during the stagnant conditions leading to high CO, it is not surprising that changes in the domain mean wind cause changes at the surface, where surface effects dominate it in DWM. Emissions changes, on the other hand, translate more directly to predicted concentrations, so the model would expected to be sensitive to them.

A strong effort was made to develop alternative inputs that would make UAM better reflect the physical situation in Las Vegas Valley, and to analyze why UAM was giving the results it did. For example, changes to the vertical layer structure, though they ended up having only a small effect, are nevertheless more defensible inputs for predicting CO concentrations using a model originally developed to reflect the course of an ozone episode through its DIFFBREAK formulation of the mixing layer. Despite the lack of reporting on some of the default sensitivity tests

in EPA guidance, the diagnostic and sensitivity testing done in this UAM application were admirably thorough.

Performance goals and evaluation; scaling

Two episodes were modeled, December 19-20, 1996 and December 8-9, 1996. The December 19 episode had poorer performance statistics, and predicted a larger CO plume than was observed in this episode or in previous episodes (e.g., extending toward the south with overpredictions). In contrast, the December 8 episode had better performance statistics and predicted a CO plume with coverage similar to that observed. Therefore, it was selected for use in the final attainment demonstration. (See discussion in appendix C-4 starting at page 2-11.)

In general, UAM underestimated CO concentrations. The modelers attributed this result to the underestimated CO emission inventory. Other problems seem unlikely given that sensitivity tests showed the model was insensitive to meteorological changes and that spatial patterns and timing of CO concentrations in the model seemed to replicate the observations fairly well. Scaling the emissions up by 14%, as a sensitivity test, and incorporation of off-cycle emissions, gave good improvements in UAM performance at monitors (the average peak error decreased from 29% down to 14%). With these changes, the spatial pattern of CO changed little. The poorer performance in peak timing is somewhat misleading, since there are both AM and PM peaks: the model may happen to show one is somewhat higher whereas observations showed the other: this causes a jump in the timing performance statistic, rather than a real physical change. Of note, the highest peak, in the East Charleston area, showed good timing. See appendix C-4, page 2-19 of the 2000 CO plan.

Despite improvements in the mobile source inventory from using a later version of TRANPLAN and incorporating off-cycle emissions in MOBILE5a, significant model CO underprediction still remained. The episode included an observed maximum (on the county monitoring network) of only 8.0 ppm, which is substantially less than the area's design value (10.2 ppm). To develop a reasonably conservative attainment demonstration, a factor of 1.14 was applied to remove the model's underprediction bias (average relative error in predicted vs. observed at monitors). In effect, the modeled peak of 9.6 at Marnell Field is thus increased to 11.2 ppm. This was done with EPA concurrence (letter from Scott Bohning, EPA to Clete Kus, Clark County Department of Comprehensive Planning, October 27, 1998, included at end of appendix C-4) based on the following five considerations:

(1) It was desirable to use these data-rich episodes, despite the lack of exceedances at permanent county monitors;
(2) Given the extensive testing, it appeared likely that an emissions underestimate was causing model underprediction, rather than poor formulation of other inputs;
(3) The scaling approach is consistent with proposed guidance for 8-hour ozone and PM2.5 modeling, under which modeled emission changes are used to scale monitored observations;
(4) In previous UAM applications to CO accepted by EPA, scaling of model results has been done implicitly or explicitly through artificially setting the mixing height to improve model performance, without the extensive database and the thorough

sensitivity testing and analysis done for this submittal; and

(5) The resulting concentration is higher than the area's design value, yielding a conservative attainment demonstration, and one that is conservative to a reasonable degree since it is possible that concentrations like 11.2 ppm actually occur in the area, i.e., at a location not at a monitor.

In summary, the attainment demonstration approach, including the scaling, is acceptable and approvable.

Table 6-2: UAM base case performance, based on 8-hour averages for the 12/8/96 - 12/9/96 episode

	GRAUAM goal	Unscaled	Scaled by 1.14
Peak concentration	**8.0***	**8.0**	**11.2**
Unpaired peak	**30-35%**	**-16%**	**0.17**
Absolute error in peak concentration	**25-30%**	**29%**	**14%**
Absolute error in time of peak	**2 hours**	**3 hours**	**3 hours**

(These numbers are from GRAUAM and Appendix C-4, Table 2-8a on page 2-13, and Table 2-10 on page 2-21 of the 2000 CO plan.)
* 8.0 is maximum observed on county monitoring network.

E. Hotspot Modeling

Roadway intersections

Roadway hot spot modeling is described in the submittal in appendices C-5 and E-6 of the 2000 CO plan. Appendix E-5 "Supplemental UAM Modeling Documentation" (5/31/00) revises the modeling to reduce the emission reductions assumed for transportation control measures, and to correct some Inspection and Maintenance stringency inputs to the MOBILE model. However, the predicted maximum concentrations did not change with these changes. The GRAUAM requires that "hot spot" modeling using the CAL3QHC microscale model be completed for three roadway intersections and the results added to UAM predictions for the corresponding grid square(s). The resulting predicted maximum modeled concentration must be under 9.0 ppm for attainment to be demonstrated.

The 2000 CO plan did not follow the formal approach in Guideline for Modeling Carbon Monoxide from Roadway Intersections (GMCMRI) (EPA-454/R-92-005, 1992) for ranking and selecting three intersections to model, by Level of Service and traffic volume. Instead, three

adjacent intersections were chosen as being the worst in the area in terms of traffic volume, congestion, and elevated nearby CO concentrations. The plan states that if attainment can be shown for these intersections (which are clearly the worst intersections, are located in a high-CO area as predicted by UAM, and are in the only area with measured CO exceedances), then attainment elsewhere is assured, too. EPA accepted this choice as reasonable during the development of modeling protocol.

The three intersections modeled were at the "five points" intersection, where East Charleston Boulevard, Eastern Avenue, and Fremont Street mutually cross. Default recommendations in GMCMRI for wind speed and stability class. Hourly wind direction, temperature, and vehicle emissions were the same as for UAM, per the Guideline. The addition of UAM and CAL3QHC results was done appropriately.

Airport

Emissions and Dispersion Modeling System (EDMS) is an EPA-approved emission inventory and dispersion model for use in assessing pollution at civilian airports and military bases (Guideline on Air Quality Models, appendix A.10, in 40 CFR 51, appendix W). Because of the relatively spatially dense emissions at airports with high traffic, there is the potential for a CO "hotspot," i.e., localized high concentrations of CO, just as there is with high-volume road intersections. An urban grid model such as UAM cannot adequately characterize such hotspots; emissions in a given grid cell are effectively dispersed immediately throughout a 1 km square, the grid cell size. Although it is not an EPA modeling requirement, it is appropriate and commendable that Clark County evaluated the potential for airport hotspots using EDMS, adding its result to UAM "background" concentrations as is done for intersections.

The EDMS model was applied by Ricondo & Associates, Inc., and ENVIRON International Corporation for the Clark County Department of Aviation; the modeling followed a protocol approved by EPA. (See 2000 CO plan section 6.5, protocol in appendix C-6, EDMS modeling in appendix C-8 and combination with UAM in appendix C-7.) EDMS was applied to the three major airports in the Las Vegas area; McCarran, North Las Vegas, and Henderson airports. Aircraft activity (landing and takeoff, or LTO cycles) was based on FAA Air Traffic Control Tower records for each airport; the mix of aircraft types were based on previous assessments. Together with emission factor database embedded in EDMS, this allows emissions to be calculated. Growth in airport activity was based on projections from the FAA, the Regional Transportation Commission, and previous environmental assessments. Respectively, for the three airports listed above, the annual rates of growth of operations were 3.08%, 0.5%, and 3.7%, respectively. Aircraft taxi times were checked by computations based on runway lengths, typical taxi speeds, and typical runway delays, based on FAA data, with increased delays for future years.

In addition to aircraft, there is a variety of ground service equipment (GSE), diesel-powered electricity generators, and vehicle travel at airports. EDMS contains default levels for GSE, which were improved using Clark County Department of Aviation 1996 GSE data. The emissions from generators and other point sources were calculated in EDMS based on fuel consumption. A potential defect of this approach is that the fuel data is on an annual basis, whereas the generator use

and emissions may be concentrated into shorter periods. This is addressed by using operational profiles developed from hourly activity data from FAA records and airlines schedules. Vehicle emissions estimates were based on MOBILE5b with traffic volumes determined from traffic counts and projected growth consistent with FAA forecasts.

These emission inventory preparation procedures are all in accord with EPA AP-42 emission factors and with procedures for applying them; this is partly due to them being embedded in EDMS, and partly due to the airport-specific data available for the needed input parameters.

CO concentrations resulting from airport operations were evaluated with EDMS at each grid point of a rectangle around each airport. In the airport modeling protocol (appendix C-6, page 7), grid resolution was not yet defined. In the final modeling, a spacing of 250 m was used (one fourth of the UAM grid spacing, since it "was determined to adequately resolve the structure of the resulting dispersion pattern" (appendix C-7 under "Grid Receptors" and Appendix C-8, page 35). No spatial plots of this pattern or maps of receptor locations were provided in the submittal. The 250 m spacing seems rather sparse to reliably find the peak CO concentration; a 100 m or smaller spacing would have been better, as is often done for modeling for individual point source permits. However, this larger spacing is acceptable (with reservations) for this application since the concentrations are the result not of emissions from a single point source, but an aggregate of many distributed sources. Receptors in ambient air (off-airport) would experience a smeared-out average of impacts from those sources; one would not expect the sharp concentration gradients that would otherwise necessitate a closer grid spacing. In addition, the final concentrations are enough below the NAAQS that this is not of much concern. Future evaluations, though, such as for a CO maintenance plan, should be wary of this issue.

The EDMS model results (2000 CO plan page 6-9, tables in appendix C-7, and appendix C-8, page 37) show that the maximum CO contribution from any of the airports is 0.19 ppm in the year 2000. Added to the UAM background in 2000, 2010, and 2020, even without new vehicle controls, the total concentration is under 9.0 ppm NAAQS level, except for 9.07 ppm in the year 2020 at McCarran. The Clean Burning Gasoline (CBG) control measure reduces this maximum value to 7.7 ppm, which is below the NAAQS. Thus, attainment is demonstrated even with the addition of airport "hotspots."

In summary, EPA finds that the hotpot airport modeling analysis and attainment demonstration are adequate and approvable.

F. Evaluation of Overall Modeling Approach and Demonstration of Attainment for 2000

As discussed above, EPA accepted the modeling scaling approach in discussions between EPA and the Clark County Department of Comprehensive Planning (CCDCP) during the autumn of 1998. For the attainment modeling (year 2000) future emissions were estimated using the same methodologies as for the base year, but with grown activity levels. Furthermore, future year MOBILE5b predictions with vehicle turnover and future year traffic projections were included in the UAM and hotspot modeling. Additional control strategies modeled included the National Low Emitting Vehicles (NLEV), CBG (fuel with lower sulfur and aromatic content, yielding a nearly

10% reduction in vehicle CO inventory), Transportation Control Measures, alternative fuels for government vehicle fleets, lower cut points and technician training in the Inspection and Maintenance program. The table below shows the model-predicted CO concentrations for various years. For the year 2000, the maximum UAM-only concentration anywhere in the modeling domain is 8.1 ppm; the maximum at hotspot intersections is 8.3 ppm (at the Charleston/Eastern intersection). Because these are both less than 9.0 ppm, attainment is demonstrated.

Table 6-3: 8-hour CO Predictions

Year	Domain Max UAM (ppm)		Sum of UAM + CAL3QHC (ppm)
	Base	Controlled	
1996	11.2	--	--
2000	9.1	8.1	8.3
2010	8.7	7.2	7.3
2020	10.5	8.5	7.6

(Numbers from 2000 CO plan, tables 6-3 and 6-4, and identical numbers from revised modeling from appendix E-5, table 9 and appendix E-6, table 3.)

Approval/Disapproval Recommendation

Despite using an episode with no CO NAAQS exceedances at permanent county monitors and the use of scaling, the 2000 CO plan's attainment demonstration is stronger technically than it would have been using the earlier episodes, and is a clear improvement over previous submittals. A thorough analysis of model performance was done, increasing confidence that the model has a physically reasonable basis. Overall, the approach for the attainment demonstration is reasonably conservative, and substantially meets EPA guidelines and requirements. Therefore, EPA proposes approval of the modeling and attainment demonstration.

SECTION 7 - ADDITIONAL REGULATORY REQUIREMENTS TO ASSURE ATTAINMENT

A. Consultation and Public Notification/Participation Procedures

Requirement: CAA sections 110(a)(2), 110(a)(2)(M), and 110(l).

Proposed Action: Approve.

What are the statutory, regulatory and policy requirements?

Sections 110(a)(2) and 110(l) require States to adopt SIPs and SIP revisions after reasonable notice and public hearing. Under section 110(a)(2)(M), each SIP must provide for consultation and participation by local political subdivisions affected by the plan.

How are these requirements addressed in the plan?

The 2000 CO plan was adopted after extensive cooperation between the State of Nevada, Clark County Department of Comprehensive Planning (CCDCP), and local governments. The 2000 CO plan was adopted by the Clark County Board of Commissioners on August 1, 2000 at a properly noticed public hearing. The public, including private citizens, and representatives from environmental groups, industry, and the public interest sector attended the hearing and provided comments on the SIP revisions.

In compliance with section 110(a)(2) of the Act, public hearings were publicized and conducted on the 2000 CO plan and related SIP revisions. These hearings and workshops were advertised in the Las Vegas Review Journal, the Las Vegas Sun, and the Internet. Appendix D, section 11 of the 2000 CO plan contains documentation of public participation in developing the 2000 CO plan, including documentation concerning a public hearing on the plan held on August 1, 2000. In adopting the SIP submittals made to date, the State complied with the requirements of the Act including: providing adequate participation of local governments and the public; and ensuring proper notice and hearing of the plan.

B. Vehicle Miles Traveled Forecasting and Tracking

Requirement: CAA section 187(a)(2)(A).

Guidance: General Preamble, sections III.B.2. and III.B.3 (57 FR 13498, April 16, 1992). "Technical Support Document to Aid States with the Development of Carbon Monoxide State Implementation Plans," EPA-452/R-92-003, July 1992. Section 187 VMT Forecasting and Tracking Guidance, March 1992.

***Proposed Action*:** Approve.

What are the statutory, regulatory and policy requirements?

Section 187(a)(2)(A) of the Act requires states with CO nonattainment areas with design values greater than 12.7 ppm to prepare a forecast of vehicle miles traveled (VMT) in the nonattainment area for each year before the year in which the plan projects the CO NAAQS to be attained in the area. The plan revision must also provide for annual updates of the forecasts to be submitted to EPA together with annual reports regarding the extent to which such forecasts proved to be accurate. Such annual reports must contain estimates of actual VMT in each year for which a forecast was required.

Section 187(a)(2)(A) of the Act required EPA, in consultation with the U.S. Department of Transportation (DOT), to develop guidance for states to use in complying with the VMT forecasting and tracking provisions of section 187. A Notice of Availability for the resulting Section 187 VMT Forecasting and Tracking Guidance was published in the Federal Register on March 19, 1992.

The Section 187 Guidance identifies the Federal Highway Administration's Highway Performance Monitoring System (HPMS) as the foundation for VMT estimates and forecasts. HPMS was chosen as the best method for estimating actual VMT because it is a count-based, statistically-based, nationwide program with auditing procedures in place, and because travel demand models would require resource-intensive, annual updates of input data and annual validation against traffic counts in order to be useful for estimating annual VMT. EPA believes that these time and resource requirements generally make travel demand models an unrealistic option for estimating actual annual VMT with reasonable accuracy.

To develop growth factors for forecasting VMT, the Section 187 Guidance offers as one alternative the use of network-based travel demand models. If these models are properly updated and validated, and if they use an equilibrium approach to allocating trips, they are considered to be the best predictor of growth factors for VMT forecasts. Moderate areas without a network model that is validated according to the specifications described in the Section 187 Guidance are offered the alternative of developing growth factors based on a linear regression extrapolation of the past six years' HPMS VMT. In both cases, the growth factors are applied to the HPMS VMT reported to the Federal Highway Administration. States that depart from the Section 187 Guidance are expected to show that the alternative approach used is technically sound and adequate to meet the requirements of the Act.

How are these requirements addressed in the plan?

The 2000 CO plan discusses VMT tracking in section 7.2 to satisfy the requirements of section 187(a)(2)(A). As described above, in order to gain approval, the discussion must provide for each of the following mandatory elements: (1) a forecast of VMT in the nonattainment area for each year prior to the attainment year; and (2) a provision for annual updates of the forecasts along with a provision for annual reports describing the extent to which the forecasts proved to be

accurate. In addition, these reports must provide estimates of actual VMT in each year for which a forecast was required. The purpose of these VMT reports is to identify the need to implement contingency measures as required under section 187(a)(3) of the Act. Generally, there are two ways in which an estimate of actual VMT or an updated forecast can be found to exceed a prior forecast. Individual yearly comparisons can result in an exceedance of the forecast made 12 months earlier by more than the prescribed percentage for that year, and exceedances can accumulate so that, cumulatively, they exceed the 5.0 percent cap above the attainment demonstration forecast. See 57 FR 13498 at 13532 (April 16, 1992). Contingency measures are discussed in section 7.C of this TSD, below.

1. VMT Forecasts

Section 187(a)(2)(A) requires that the state include in its SIP submittal a forecast of VMT in the nonattainment area for each year before the year in which the SIP projects the CO NAAQS to be attained. The forecasts are to be based on guidance developed by EPA in consultation with DOT, i.e., the Section 187 VMT Forecasting and Tracking Guidance. The 2000 CO plan provides the required VMT forecasts for every year from 1997 through the attainment year of 2000 and then for nearly every year between 2001 and 2030. The forecasts were prepared by the Clark County Regional Transportation Commission (RTC). The Nevada Department of Transportation has the responsibility of estimating actual VMT in conjunction with the HPMS and reporting these values to the Federal Highway Administration. The predictions from the RTC can be compared with the HPMS reports to determine if actual VMT is higher than forecast VMT.

The VMT forecasts were estimated using recent transportation modeling results from RTC that incorporated more recent socioeconomic data than had been used for VMT forecasts contained in the earlier plans. The VMT forecasts are displayed in Table 7-1 of chapter 7 of the 2000 CO plan. The forecasts are broken down by roadway type. The forecasts predict increases in VMT of roughly 5% each year through 2005 consistent with recent trends, then roughly 4% each thereafter until 2020, and then marginal decreases each year between 2020 and 2030 based on an assumption of highway saturation by that time resulting in a mode shift to mass transit, ride sharing, and other modes.

2. Annual VMT Updates/Reports

Section 187(a)(2)(A) specifies that the SIP revision provide for annual updates of the VMT forecasts and annual reports that describe the accuracy of the forecasts and that provide estimates of actual VMT in each year for which a forecast was required. The Section 187 VMT Forecasting and Tracking Guidance specifies that annual reports should be submitted to EPA by September 30 of the year following the year for which the VMT estimate is made. RTC is the local agency responsible for preparing VMT forecasts. Through Resolution No. 149, as adopted on July 13, 1995, RTC has committed to preparing annual VMT estimates and forecasts and to submitting these reports ("VMT tracking reports") to EPA. Clark County RTC has submitted the first of the required annual reports to EPA. This report shows that VMT growth is within the range allowed under EPA guidance.

Approval/Disapproval Recommendation

Approval. We propose to approve the VMT forecasts contained in the 2000 CO plan as meeting the section 187(a)(2)(A) requirements. However, it is noted that section 187(a)(2)(A) does not require forecasts extending as far into the future as those provided in the 2000 CO plan, and, while our approval of the emissions budgets through 2020 discussed in this notice implies approval of the VMT forecasts through 2020, no such implied approval is intended for VMT forecasts beyond 2020. Also, we propose to approve RTC's commitment through Resolution No. 149 to prepare and submit annual VMT tracking reports.

C. Contingency Measures

Requirements: CAA sections 172(c)(9) and 187(a)(3).

***Guidance*:** General Preamble (57 FR 13498, April 16, 1992); specifically, 57 FR 13498 at 13510-12 and sections III.B.2 and III.B.3. "Technical Support Document to Aid States with the Development of Carbon Monoxide State Implementation Plans," EPA-452/R-92-003, July 1992.

Proposed Action: Approve.

What are the statutory, regulatory and policy requirements?

Section 187(a)(3) of the Act requires each CO nonattainment area with a design value above 12.7 ppm at the time of classification to adopt contingency measures that will take effect without further action by the state or EPA upon a determination by EPA that an area failed to make reasonable further progress or to attain the standards, as described in section 172(c)(9), or that an area exceeded a VMT forecast (see discussion of the VMT Tracking program, above).

The Act does not specify how many contingency measures are needed or the magnitude of emissions reductions that must be provided by these measures. EPA guidance ("Technical Support Document to Aid States with the Development of Carbon Monoxide State Implementation Plans," EPA-452/R-92-003, July 1992) recommends that implementation of the contingency measures provide vehicle miles traveled (VMT) reductions or emission reductions sufficient to counteract the effect of one year's growth in VMT. In the case of Las Vegas Valley, the annualized rate of growth in VMT over the 2000 to 2005 period is approximately 5 percent, therefore, the contingency measures should have the potential to achieve that level of reduction in VMT or a corresponding reduction in CO emissions, which would be approximately 16 tons per day based on the 2000 CO motor vehicle estimate of 310 tons per day.

For a failure to attain the CO NAAQS by the attainment date, EPA believes that contingency measures should have the potential to provide a reduction in emissions equivalent to 3 percent of the inventory. See 57 FR 13498 at 13511 (April 16, 1992). In this instance, 3 percent of the total CO inventory projection in 2000 (387 tons per day) is approximately 12 tons per day.

EPA believes that for serious nonattainment areas, a logical contingency measure for failure to attain by the attainment date would be the adoption of a requirement for a minimum 3.1 percent oxygen content of gasoline. See 57 FR 13498 at 13532 (April 16, 1992). However, this particular measure is unavailable as a contingency measure in Las Vegas Valley because, in a separate, prior action, we have already approved such a measure into the Nevada SIP (specifically, a wintertime gasoline regulation specifying 3.5% oxygen content). See 64 FR 29573 (June 2, 1999). As such, the CO emissions reductions associated with high-oxygen wintertime gasoline in Clark County are already included in the baseline emissions inventories and in the base case modeling results.

Section 172(c)(9) of the Act specifies that contingency measures shall "take effect in any such case without further action by the State or Administrator." EPA has interpreted this requirement (in the General Preamble at 57 FR 13498 at 13512) to mean that no further rulemaking activities by the State or EPA would be needed to implement the contingency measures. In general, EPA expects all actions needed to effect full implementation of the measures to occur within 60 days after EPA notifies the state of its failure to attain the standard or make RFP.

EPA recognizes that certain actions, such as notification of sources, modification of permits, etc., may be needed before some measures could be implemented. However, States must show that their contingency measures can be implemented with minimal further administrative action on their part and with no additional rulemaking action such as public hearing or legislative review.

States may implement contingency measures early to obtain additional emission reductions, without being required to adopt replacement contingency measures to put in place should one of the triggering events for implementation of contingency measures occur. This policy is described in a memorandum from Tom Helms, Chief of the OAQPS Ozone Policy and Strategies Group entitled "Early Implementation of Contingency Measures for Ozone and Carbon Monoxide Nonattainment Areas," August 13, 1993.

How are these requirements addressed in the plan?

The three contingency measures included in the 2000 CO plan include: On Board Diagnostics II (OBD II) Testing[8]; Lower I/M Program Cutpoints; and On Road Remote Sensing. From 1997 through 2000, when the Las Vegas serious area plan was being developed, the implementation deadline for mandatory OBD testing in I/M programs had not yet passed, and the

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[8] Some variety of OBD system has been an option on certain vehicle models since the early 1980's, standardized OBD systems (also known as OBD II) were not introduced until model year (MY) 1994, and such systems did not appear on all new light-duty vehicles sold in this country until MY 1996. Therefore, for I/M purposes, EPA does not require or recommend that pre-1996 MY vehicles be subject to OBD inspections. Additionally, EPA's MOBILE6 emission factor model will not provide emission reduction on pre-1996 MY vehicles. (Nevada DMV intends to submit final adopted regulations that are consistent with EPA's definition for OBD systems.)

plan identified OBD II testing as a contingency measure that would be triggered by the occurrence of either unanticipated growth in VMT or a CO exceedance. However, the deadline for mandatory OBD testing is now expired. See 66 FR 18156 (April 5, 2001). Normally, a required measure does not qualify as contingency measure; however, a measure that represents a requirement but that is designed to allow for implementation prior to its implementation deadline may qualify as a short-term contingency measure. In this instance, because the implementation deadline for mandatory OBD testing had not passed at the time of plan development and adoption and the emissions benefits from OBD testing were not included in the attainment demonstration, and because of Clark County's commitment to provide documentation and additional measures if necessary, as explained below, we propose to approve OBD testing as a contingency measure of the 2000 CO plan for the purposes of section 187(a)(3) of the Act. Specifically, we may propose to approve (under our parallel processing procedure) revisions to the I/M program to implement OBD II testing based on draft revisions to the implementing regulations (specifically, revision to NAC 445B.580) submitted by NDEP under a letter dated January 30, 2002. Thus, as a practical matter, this "contingency measure" will not actually be contingent upon occurrence of any particular event but will be implemented fully by the end of 2002.

We cannot approve the other contingency measures in the 2000 CO plan: lower I/M program cutpoints and on-road remote sensing. With respect to lower I/M program cutpoints, we cannot approve this measure because it has not been developed to allow for implementation (upon the occurrence of triggering events) without further action by the State. With respect to on-road remote sensing, we note that a minimum level of on-road testing is required for all enhanced I/M programs (see 40 CFR 51.51.351(b), and to the extent that this particular measure provides for that minimum level of testing, it does not qualify as a contingency measure (note that, unlike OBD testing, the implementation date for on-road testing expired long before the development of the 2000 CO plan.).

An on-road testing program designed to obtain measurable emission reductions over and above those already predicted to be achieved by other aspects of the I/M program can serve as a contingency measure, but the description and documentation of the on-road remote sensing contingency measure as included in the 2000 CO plan does not provide us with the basis to conclude that it would provide emissions reductions beyond those already predicted to be achieved by other aspects of the I/M program.

Effectiveness of the Contingency Measures

The 2000 CO plan did not provide emission reduction estimates for implementation of OBD II testing because of the limitations of the vehicle emissions model (MOBILE5b) available at the time of plan preparation. However, in adopting the 2000 CO plan (resolution dated August 1, 2000), Clark County committed to preparing and submitting a plan revision to EPA that quantifies the actual benefits of the contingency measures contained in the plan, within one year of the release date of pending applicable guidance protocols and models. The County also committed to monitoring the emission reductions associated with the plan's control measures and remedying in a timely fashion any shortfall for the purpose of complying with SIP control measure requirements of the Act.

In January 2002, EPA approved and announced the availability of the MOBILE6 motor vehicle emission factor model for official use outside of California. See 67 FR 4254 (January 29, 2002). Unlike MOBILE5b, MOBILE6 has the capability of quantifying the emissions reductions associated with implementation of OBD. Based on Clark County's commitment cited above, we anticipate that the County will develop and, via NDEP, submit emissions estimates by the end of January 2003 showing the emissions reductions associated with OBD testing in Clark County and identifying additional contingency measures, if necessary, to provide needed emissions reductions if VMT growth exceeds projections or if the CO NAAQS is exceeded.

In addition, the Nevada State Environmental Commission adopted a resolution dated April 9, 1999 that directs NDEP, DMV, the Department of Agriculture, and Clark County to work together to identify and propose to the appropriate adopting body the most cost-effective and reasonably available control strategies necessary to achieve and maintain the NAAQS and to ensure conformity between the transportation improvement program and the SIP. Through this resolution, the Nevada State Environmental Commission further committed itself to adopting appropriate emission reduction measures as necessary to ensure that the NAAQS can be achieved and maintained in Las Vegas Valley.

Approval/Disapproval Recommendation:

Approval. Although two of the three contingency measures in the 2000 CO plan are not approvable, OBD II testing and related commitments are sufficient in themselves to comply with section 187(a)(3) of the Act. Therefore, our disapproval of these other contingency measures, if finalized, would not trigger sanctions clocks under section 179(a) of the Act. MOBILE6 is the appropriate tool to use in estimating emissions reductions from OBD testing, and implementing mandatory OBD testing will provide substantial emissions reductions beyond those already accounted for in the 2000 CO plan. Based on currently available information (contained in EPA's draft document: Determination of CO Basic Emission Rates, OBD and I/M Effects for Tier I and Later LDV's and LDT's, EPA 420-P-99-017), we expect that OBD testing will ultimately be shown by Clark County to provide emissions reductions beyond the minimum we believe contingency measures must provide.

D. Provisions for Revising Plan

Requirements: CAA section 110(a)(2)(H).

What are the statutory, regulatory and policy requirements?

Section 110(a)(2)(H) of the Act requires that a SIP provide for revisions to the plan as may be necessary to take account of revisions to the NAAQS or the availability of improved or more expeditious methods of attaining such standard, and whenever EPA finds that the plan is substantially inadequate to attain the NAAQS which it implements or to otherwise comply with any additional requirements established under the Act.

How are these requirements addressed in the plan?

The 2000 CO plan itself does not address this more general SIP requirement, which is met with reference to existing State statutory provisions. Nevada Revised Statutes (NRS), title 40, chapter 445B, section 445B.205 (incorporated into the Nevada SIP as NRS section 445.456) designates the State Department of Conservation and Natural Resources (of which NDEP is one division) as the air pollution control agency of the state for the purposes of the Federal Clean Air Act insofar as it pertains to state programs and authorizes the department to take all action necessary or appropriate to secure to this state the benefits of the Act. NRS, title 40, chapter 445B, section 445B.500 (incorporated into the Nevada SIP as NRS section 445.546) designates Clark County as the air pollution control agency of the county for the purposes of the Act insofar as it pertains to local programs in that county and authorizes the county to take all action necessary to secure for the county the benefits of the Act. These general provisions provide the statutory authority necessary to revise the Clark County portion of the Nevada SIP from time to time, when necessary, to account for changes to the NAAQS or the availability of more expeditious methods to attain the NAAQS and to respond to a finding by EPA of substantial plan inadequacy.

E. Prohibiting Sources from Significantly Impacting Other States

Requirements: CAA section 110(a)(2)(D).

What are the statutory, regulatory and policy requirements?

Section 110(a)(2)(D) of the Act requires that SIPs contain adequate provisions prohibiting any source or other type of emissions activity within the state from emitting any air pollutant in amount which will contribute significantly to nonattainment in, or interfere with maintenance by, any other State, or interfere with measures required to included in the applicable SIP for any other State to prevent significant deterioration or to protect visibility and to contain adequate provisions insuring compliance with requirements relating to interstate and international pollution abatement under sections 115 and 126 of the Act.

How are these requirements addressed in the plan?

The 2000 CO plan does not contain any provisions specifically intended to address this general SIP requirement. CO is generally considered a local pollutant, in contrast to ozone, which is considered a regional pollutant. CO also does not affect visibility. The Las Vegas CO nonattainment area, i.e., State hydrographic area #212, lies completely within Clark County, and the vast majority of the urbanized portion of the Las Vegas nonattainment area lies at a considerable distance from Arizona (the nearest neighboring State). Given the localized nature of CO, and the distance between the urbanized portions of the Las Vegas CO nonattainment area and the nearest neighboring State, the lack of specific provisions to address CO impacts to other States from sources in the nonattainment area is not a deficiency of the 2000 CO plan.

F. Permit Program for Construction and Modification of Stationary Sources

Requirement: CAA section 172(c)(5).

What are the statutory, regulatory and policy requirements?

Section 172(c)(5) of the Act requires States with nonattainment areas to revise their SIPs to include a permit program for the construction and operation of new or modified major stationary sources in the nonattainment areas. Section 302(j) of the Act defines "major stationary source" and "major emitting facility," except as otherwise expressly provided, as any stationary facility or source of air pollutants which directly emits, or has the potential to emit, 100 tons per year of any air pollutant.

How are these requirements addressed in the plan?

Within Clark County, the State of Nevada, rather than the county, has jurisdiction over plants which generate electricity by using steam produced by the burning of fossil fuel. See NRS 445B.500. [See attachment J of this TSD.] With respect to such plants, EPA is not requiring the State to submit new source review permit regulations under section 172(c)(5) of the Act because the State has adopted a regulation that prohibits new power plants or major modifications to existing power plants under its jurisdiction within the Las Vegas Valley nonattainment area (i.e., hydrographic area 212). See NAC 445B.22083. [See attachment K of this TSD.] Clark County has jurisdiction over all other stationary sources within the county, and with respect to those sources, we approved a new source review permit program in 1999. See 64 FR 25210 (May 11, 1999). This program defines major stationary sources of CO within Las Vegas Valley as those that have the potential to emit 70 tons per year or more, which is more stringent than required under section 302(j) of the Act and requires such new or modified sources locating within the nonattainment area to obtain offsets in addition to installing control equipment representing the lowest achievable emission rate.

However, on August 29, 2001, the U.S. Court of Appeals for the Ninth Circuit vacated our 1999 approval of Clark County's new source review program. See *Hall v. EPA*, 273 F.3d 1146 (9th Cir. 2001). The court vacated our approval, not because EPA had acted unreasonably in finding that the program complies with the specific requirements of section 172(c)(5), but rather, because EPA did not have an adequate basis under section 110(l) of the Act to conclude that the new program, even if it met the minimum requirements of section 172(c)(5), would not interfere with attainment of the NAAQS by the applicable deadline.

We intend to re-propose an action on the new source review program in a separate notice in the near future. However, we note here that the emissions inventory and attainment demonstration from the 2000 CO plan that we are proposing to approve in this notice includes stationary sources and the projections of emissions from those sources appear to be generally consistent with the new source review program as submitted to EPA. Specifically, the 2000 CO plan assumes that CO emissions from major CO stationary sources will remain unchanged (which is consistent with the offset requirement in their new source review program) whereas the plan projects growth in CO emissions from non-major stationary sources (which are not subject to federally-enforceable offsets under their program).

Section 187(c) of the Act requires that, in the case of CO nonattainment areas classified as

serious and subject to significant stationary source emissions of CO, the term "major stationary source" to include any stationary source which emits, or has the potential to emit, 50 tons per year or more of CO. The 2000 CO plan concludes that Las Vegas Valley is not subject to significant stationary source emissions of CO and thus not subject to the requirements of section 187(c). Generally, significance in this context is associated with areas with individual stationary sources that generate 5,000 tons of CO per year or more. (See guidance provided in a memorandum from William G. Laxton, Director, Technical Support Division, EPA, dated May 13, 1991. See attachment L of this TSD.) Because the highest CO-emitting facility shown in the stationary source inventory for the 2000 CO plan emits only 1,100 tons per year of CO, we agree with the conclusion that stationary sources are not significant contributors to ambient CO levels in Las Vegas Valley and that section 187(c) of the Act does not apply within the CO nonattainment area.

Approval/Disapproval Recommendation

This TSD is not intended to provide the basis for EPA to take action on the submitted regulations comprising the new source review program for Clark County. In this TSD, however, we provide the basis with which to approve the determination by the county that stationary sources do not contribute significantly to ambient CO levels in the Las Vegas CO nonattainment area for the purposes of section 187(c) of the Act.

SECTION 8 - NEVADA LOW ENHANCED I/M PROGRAM

Requirements: Clean Air Act section 187(a)(6): States with moderate areas with a design value greater than 12.7 ppm at the time of classification must submit a SIP revision that includes provisions for an enhanced vehicle inspection and maintenance program as required in section 182(c)(3) (concerning serious ozone nonattainment areas), except that such program shall be for the purpose of reducing CO rather than VOC emissions.

40 CFR part 51, subpart S (Inspection/Maintenance Program Requirements).

Proposed Action: Approve.

Guidance: EPA's final rule published at 57 FR 52950 (November 5, 1992) establishing performance standards and other requirements for basic and enhanced vehicle inspection and maintenance (I/M) programs.

What are the statutory, regulatory and policy requirements?

Section 187(a)(6) of the Act requires states with moderate areas with design values greater than 12.7 ppm at the time of classification to submit a SIP revision that includes provision for an enhanced vehicle inspection and maintenance (I/M) program as required in section 182(c)(3) (concerning serious ozone nonattainment areas), except that such program is for the purpose of reducing CO, rather than VOC, emissions. Las Vegas Valley was originally classified under the Clean Air Act Amendments of 1990 (Act) as a moderate CO nonattainment area with a design value greater than 12.7 ppm and thus, the State of Nevada was required to submit an enhanced vehicle (I/M) program for that area.

In November 1992, EPA published a final rule establishing performance standards and other requirements for basic and enhanced vehicle I/M programs (see 57 FR 52950, November 5, 1992). Section 182(c)(3) of the Act was prescriptive regarding the various elements that are required as part of an enhanced I/M performance standard. It also required that EPA provide States with flexibility in meeting the requirement for enhanced or basic I/M programs. In December 1994, EPA announced its intent that it would soon amend its I/M regulations to establish separate high and low enhanced I/M performance standards. The alternate low enhanced I/M performance standard was designed for areas that can demonstrate an ability to meet the CAA deadlines for RFP and attainment of either the CO and/or ozone NAAQS without the emissions benefits of the high enhanced performance standard. EPA's proposed I/M amendments related to the alternate low enhanced vehicle I/M program were published in April 1995 (see 60 FR 20934, April 28, 1995). EPA's final rule was published in September of that year (see 60 FR 48029, September 18, 1995) and is codified at 40 CFR 51.351(g).

EPA believes that the low enhanced performance standard provides needed reductions and offers greater flexibility. The low enhanced performance standard meets the Act's requirement that it be based on centralized, annual testing of light duty cars and trucks, and checks for tampering and exhaust emissions. Nevertheless, this standard can be met, as is the case with the Nevada program, with a comprehensive decentralized, test-and-repair program.

How are these requirements addressed?

In 1981, we approved the statutory basis for the "basic" vehicle I/M program for Las Vegas Valley. See 46 FR 21758 (April 14, 1981) and 40 CFR 52.1470(14)(iv) and (16)(vi). In 1984, we approved the regulatory basis for that program into the Nevada SIP. See 49 FR 44208 (November 5, 1984) and 40 CFR 52.1470(c)(26)(iii). On January 15, 1993, EPA notified the State that, pursuant to section 179(a), EPA made a finding of incompleteness on the State's committal enhanced I/M SIP revision dated December 7, 1992. (See letter, Daniel W. McGovern, Regional Administrator, U.S. EPA-Region 9 to Robert J. Miller, Governor of Nevada, January 15, 1993.) EPA made this finding because the State had failed to hold a public hearing on the commitment to enhance the Nevada program to meet CAA requirements. A public hearing is a fundamental prerequisite to submitting a SIP revision. (See CAA sections 110(a)(2) and 110(1) and EPA's completeness criteria, 40 CFR 51, appendix V.) Our determination that a state has submitted an incomplete plan revision has the same legal effect under the CAA section 110(k)(1) as if the state had simply not made a submittal to EPA at all, and thus, "findings of incompleteness" are also referred to as "findings of failure to submit" or "findings of nonsubmittal."

Our January 15, 1993 finding of nonsubmittal on the committal I/M SIP for Las Vegas Valley triggered sanctions "clocks" under section 179(b) as well as 24-month "clock" for EPA to promulgate a Federal Implementation Plan (FIP). On March 3, 1993, Nevada submitted a letter to EPA committing to submit such a program to meet CAA requirements for enhanced I/M programs. On July 29, 1993, the State held the required public hearing and provided documentation of that hearing on August 6 and September 3, 1993. On September 28, 1993, EPA found the committal I/M SIP submittal complete under section 110(k)(1) and revoked its January 15, 1993 section 179(a) nonsubmittal finding.

On November 15, 1993, Nevada submitted the enhanced I/M SIP to EPA for the Las Vegas Valley. However, on April 13, 1994, EPA notified Nevada that the November 1993 submittal was incomplete, which had the effect again of triggering sanctions clocks and a FIP clock. On July 28, 1994, NDEP submitted the revised enhanced I/M program for Las Vegas Valley. The submittal included all the elements meeting EPA's completeness criteria (e.g., approved State rules and public process).[9] On January 31, 1995, EPA found the submittal to be complete and notified the State by letter of the Agency's finding of completeness. Our finding of completeness stopped the sanctions clocks

[9] In a letter dated August 3, 1994, the NDEP submitted the written specifications for the loaded mode test equipment which had been inadvertently omitted from the enhanced I/M program.

that had started on April 13, 1994. (The FIP clock will be stopped upon EPA's final approval of Nevada's I/M SIP submissions for the enhanced I/M program in Las Vegas Valley.)

During this time, in 1995, the substance of the enhanced I/M network requirement was amended by implication by section 348(b) of the National Highway System Designation Act (NHSDA). States opting for the NHSDA's flexibility were allowed to claim prospective emission reduction credit for their I/M SIPs based upon a "good faith estimate," and were to be granted an interim approval. Basically, States were given a limited time during which they could apply for interim approval under the NHSDA (i.e., by March 28, 1996). Even though Nevada chose not to re-submit their I/M SIPs under the NHSDA, it was a time of granting more flexibility in I/M programs - Nevada asked that EPA defer processing the July 1994 submittal so that it could act on the revised program (i.e., low enhanced) once EPA finalized the regulatory changes establishing high and low enhanced I/M performance standards.

The State of Nevada chose to implement this low enhanced I/M program in Las Vegas Valley. NDEP modified the I/M program accordingly and submitted another SIP revision under a letter dated March 20, 1996. This 1996 vehicle I/M submittal superceded the 1994 vehicle I/M submittal. EPA did not take formal action on a completeness finding, and thus, the 1996 vehicle I/M submittal was deemed complete by operation of law on September 20, 1996. The 1996 vehicle I/M submittal contained an overview of the State's I/M plan, a checklist/review of the plan relating it to EPA requirements, legislation, rules, implementation of the program, MOBILE5a analysis, motor vehicle fleet characteristics, and numerous other appendices containing material describing the plan. The 2000 CO plan contained some updated I/M regulations and a revised emissions evaluation based on MOBILE5b. In 2002, under letters dated January 31, 2002 and June 4, 2002, the State submitted additional adopted revisions to the I/M regulations, updated statutory authority for the I/M program, a draft revision to the I/M provisions related to inspection of model year 1996 and newer vehicles (i.e., on-board diagnostics (OBD) systems checks), and supplemental materials related to vehicle roadside remote sensing (on-road testing). In accordance with EPA's requirements, inspection stations in Las Vegas began OBD testing MY 1996 and newer OBD-equipped light-duty vehicles in February 2002 using the NV2000 analyzer (Nevada's previous I/M emissions analyzer, referred to as the "Nevada 94" analyzer, was not programmed to conduct OBD testing). By May 1, 2002, all inspection stations in Las Vegas Valley were conducting OBD tests for MY 1996 and newer OBD-equipped vehicles.

Description of I/M Programs in Nevada

The State of Nevada has implemented an I/M program for vehicle emissions in Las Vegas Valley since 1983. Because Las Vegas Valley was designated as a moderate CO nonattainment area with a design value greater than 12.7 ppm under the CAA Amendments of 1990, the State of Nevada was required under section 187(a)(6) of the Act as amended in 1990 to revise the vehicle I/M program within Las Vegas Valley to meet an "enhanced" performance standard. As discussed above, Nevada chose to implement the "low" enhanced program because the county's modeling results indicated that the

area would attain the CO NAAQS by the applicable attainment date (December 31, 2000), without the use of a regular enhanced I/M program.

EPA's requirements for basic and enhanced I/M programs are contained in 40 CFR part 51, subpart S. The SIP revisions submitted by NDEP must be consistent with these requirements and must meet EPA's requirements for enforceability, as well as CAA section 110(l) requirements. Although the required elements under Nevada's low enhanced I/M program differ from those described in EPA's I/M requirements for low enhanced programs, a side-by-side comparison demonstrates that, overall, the Nevada program is not less stringent (see subsection B., below, for a discussion of the results of emissions modeling of the Nevada program compared to the low enhanced performance standard).

On September 1, 1995, Nevada began phasing-in low enhanced I/M in the Las Vegas Valley nonattainment area, and the annual decentralized, test-and-repair and test-only program became effective for implementation on January 1, 1996. The Nevada low enhanced I/M program meets the requirements of EPA's performance standard and other requirements contained in the Federal I/M rule promulgated on November 5, 1992 (57 FR 52950). The details of this are contained in the modeling portions of the I/M submittals.

Detailed Analysis of the Nevada Low Enhanced I/M Program

The following sections summarize the requirements of the Federal I/M regulations and address whether the elements of the State's submittal comply with the Federal rule.

A. Applicability (40 CFR § 51.350)

The Clean Air Act (CAA of Act) requires a basic I/M program to be implemented in moderate ozone and moderate CO nonattainment areas with a design value of 12.7 ppm or below. CAA sections 182(b)(4) and 187(a)(4). An enhanced I/M program is required in serious and above ozone nonattainment areas and CO areas with a design value greater than 12.7 ppm. CAA sections 182(c)(3) and 187(a)(6). Basic and enhanced programs must be implemented in urbanized areas (defined in the 1990 census) with a population of 200,000 or more. 40 CFR 51.350(a)(2) and (a)(4). Under the requirements of the Act, Nevada is required to submit a SIP revision for Las Vegas Valley that implements an enhanced I/M program for on-highway motor vehicles. The State's legal authority necessary to establish program boundaries is contained in NRS 445B.770.

The applicable area for the low enhanced I/M program is within the boundaries of Hydographic Area 212 (Las Vegas Valley) and Boulder City. County-wide, the only residents not subject to enhanced I/M are those whose addresses are serviced by one of the following rural post offices: (a) Bunkerville; (b) Indian Springs; (c) Jean; (d) Goodsprings; (e) Logandale; (f) Mesquite; or (g) Moapa. See NAC 445B.593.

The Federal I/M regulation (i.e., 40 CFR part 51, subpart S) requires that a State I/M program to remain in operation until it is no longer necessary. The statutory authority for the

enhanced I/M program does not expire with the attainment of the CO standard, which is consistent with EPA requirements.

B. Enhanced I/M Performance Standard (40 CFR § 51.351)

The enhanced I/M program must be designed and implemented to meet or exceed a minimum performance standard. The performance standard in this case is a low enhanced I/M program that is required only in the Clark County nonattainment area of the State. Areas are required to meet the performance standard for the pollutants which cause them to be subject to I/M requirements. Emission levels must be calculated using the most recent version of EPA's mobile source emission factor model.

The performance standard for Las Vegas Valley must be met for CO. Title 40 CFR section 51.351(g) requires that the low enhanced I/M performance standard be established using the model I/M program inputs and local characteristics, such as vehicle mix and local fuel controls, and model I/M program parameters for the following: network type, start date, test frequency, model year coverage, vehicle type coverage, exhaust emission test type, emission standards, emission control device, evaporative system function checks, stringency, waiver rate, compliance rate and evaluation date.

Nevada updated the emissions analysis of the State I/M program for Las Vegas Valley using MOBILE5b as part of the 2000 CO plan. (The 1996 I/M SIP submittal included a program emissions evaluation based on MOBILE5a). Section 7 of appendix E of the 2000 CO plan includes updated input and output files from MOBILE5b. As shown on the MOBILE5b input/output files, the Nevada I/M program includes: (1) computerized test and repair (50% default values were used to discount emissions reduction benefits of this largely test-and-repair network relative to a test-only network); (2) a 1983 start date, (3) 1999 last model year covered (reflects the first two years exemption on new vehicles and a model run for calendar year 2002); (4) annual frequency: (5) 1968 and newer model year coverage; (6) multiple vehicle types including: LDGV, LDGT1, LDGT2, and HDGV; (7) two speed idle test MY 1986 through MY 1999; (8) five-element visual inspection and presence of gas cap check on all vehicles MY 1981 and newer; (9) a stringency rate for pre-1981 vehicles of 20 percent; (10) a waiver rate of 1 percent; (11) a 96 percent compliance rate; and (12) 100% emissions credit for the State's technician training and certification program.

The emissions evaluation of the State's I/M program reflects two speed idle testing for all subject vehicles. Given an analysis year of 2002 and the State's two-year exemption for new vehicles, the emissions evaluation reflects two speed idle testing for all subject vehicles MY 1968 through MY 1999. The additional emissions reductions associated with OBD checks were not included in the emissions evaluation of the State's program or in the emissions evaluation of the low enhanced I/M performance standard with which the State's program is compared. (Recent changes in the State program now require OBD checks for subject vehicles MY 1996 and newer instead of the two speed idle test.) The VMT information and some of other MOBILE5b modeling input was provided by local planning agencies for the State. The emissions analysis was performed correctly, using local characteristics. As shown in section 7 of appendix E, the composite CO emissions factor for January 1, 2002 under the State's program (15.18 grams per mile) is below the

corresponding emission level target (15.49 grams per mile) that reflects the EPA model program under the low enhanced performance standard; and thus, the State's low enhanced I/M program for Las Vegas Valley and Boulder City exceeds the EPA performance standard. Overall, the 2000 CO plan estimates that the low enhanced I/M program in Las Vegas Valley and Boulder City provides a 16.8 percent CO emission reduction and thereby represents a significant element in the strategy to attain the NAAQS by the applicable attainment date (December 31, 2000).

C. Network Type and Program Evaluation (40 CFR § 51.353)

Nevada operates an annual, test and repair, and test-only network for 1968 and newer non-diesel LDV, HDV, LDT1, and LDT2 vehicles as defined by 40 CFR part 51, subpart S. The network is decentralized and includes both test-and-repair and test-only stations. All 304 stations are privately-owned, 96 of which are test-only stations. A facility authorized as a "class 1" station is a test-only station except for oil changes and replacement of oil filters. Program guidelines are established for licensing of test stations and persons qualified to install, repair and adjust devices for the control of emissions in motor vehicles (NAC sections 445B.460 through 445B.502).

The DMV is required to inspect licensed test facilities to ensure that they are properly equipped, and that their personnel are adequately trained to perform low enhanced emissions testing and issue certificates of compliance. Performance audits, both covert and overt, are conducted on test stations periodically to determine if violations of low enhanced I/M regulations have occurred.

Authority for this program is established in NRS sections 445B.700 through 445B.845, and program evaluation is specified in NRS 445B.765 and 445B.770.

NAC 445B.5052 defines the type of exhaust gas analyzers. The design elements for emission analyzers include specifications and requirements for: the actual emission test; data entry; calibration; printing of test results; storage of data from emission testing; test procedures and quality control requirements for the low enhanced I/M program; requirements for vehicle pre-inspection; preparation for test sequence; and emission measurements. Test stations licensed before February 1, 2002 can use either a Nevada 94 or NV2000 analyzer to perform an inspection; after February 1, 2002, only an NV2000 analyzer can be used.

Program evaluations and reporting are the responsibility of the Nevada DMV and will be done in cooperation with the NDEP as required by EPA. Nevada DMV is responsible for the licensing of stations and inspectors, certifications of technicians, and program oversight. Tampering rates will be measured for changes during the life of the program, and evaluated as to deterrent effects. Nevada law prohibits the sale of any tampered vehicle in the State. Nevada is required to submit an evaluation and report on the results of the evaluations to EPA by the end of 2002. The report will assess whether the program is meeting the emission reduction target. EPA believes these elements meet the requirements of the Federal I/M regulation.

D. Adequate Tools and Resources (40 CFR § 51.354)

The Federal I/M rule requires the state to demonstrate that there is adequate funding of the program functions including quality assurance, data analysis and reporting, the holding of hearings and adjudication of cases. The Nevada low enhanced I/M program will be funded from a dedicated fund originally established by the 67th Session of the Nevada Legislature and the Governor. Revenue for the fund is generated from the vehicle emission test certification fee.

NRS 445B.830 establishes annual fees to cover costs associated with implementation, administration and operation of the I/M program. The fees must be paid to the DMV and accounted for in the pollution control account, which is created in the Nevada general fund. EPA believes the Nevada program plan for resources is acceptable.

E. Test Frequency and Convenience (40 CFR § 51.355)

The Federal I/M rule requires test systems to be designed in such a way to provide convenient service. The Nevada low enhanced I/M program test frequency is annual and is tracked by continuing annual vehicle registration. Under NRS section 482.206, vehicle registration must be renewed annually, and under NAC 445B.593, persons who are registering or reregistering their vehicle in Clark County (except for in some rural parts of the county and for new vehicles) must provide evidence of compliance (with the emissions inspection) as part of the annual registration process. New vehicles are exempt from testing until the third registration cycle.

The DMV has authority under NRS 445B.798 to require proof of compliance with the emissions standards after a vehicle has been cited for needing mechanical repair or for a smoking vehicle. Under NRS section 482.461, cancellation of registration can result if the vehicle failing a test conducted under NRS 445B.798 has not been repaired as required. This provides for out-of-cycle emission test for high emitting vehicles. EPA believes these elements meet the requirements of the Federal regulation.

F. Vehicle Coverage (40 CFR § 51.356)

The Federal baseline enhanced I/M program against which State programs are compared, assumes coverage of all 1968 and newer MY light duty vehicles and light duty trucks up to 8,500 GVWR, and includes vehicles operating on all fuel types. For the State I/M program, "light-duty vehicles" refers to passenger cars and trucks up to 8,500 pounds GVWR; "heavy-duty vehicles" refers to trucks which have a GVWR of 8,500 pounds or more. The Nevada I/M program requires all 1968 and newer gasoline-powered (light and heavy-duty) vehicles be tested. New vehicles are not emissions-tested until the third registration cycle (but still must be registered or re-registered). Light-duty diesel vehicles are subject to annual registration requirements and certain emissions-related requirements but are not subject to the emissions testing procedures that apply to gasoline-powered vehicles. In addition, the emissions evaluation for the State's I/M program takes no specific credit for inspection and maintenance of diesel-powered vehicles; therefore, the requirements that relate to diesel vehicles are not being evaluated in this TSD for proposed action into the Nevada SIP.

The Federal I/M regulations require that vehicles operated on Federal installations located within an I/M program area be tested regardless of whether the vehicles are registered in the state or local I/M area. 40 CFR 51.356(a)(4). This requirement applies to all employee-owned or leased vehicles as well as agency-owned or operated vehicles, except tactical military vehicles. Government fleets (any number of vehicles) and private fleets (consisting of 25 or more vehicles) located in an I/M program area can be evaluated in their own licensed fleet facility (see NAC 445B.461 and NAC 445B.478). I/M inspection facilities for fleets must also meet the requirements applicable to a licensed station with the exception of the bond requirement and posting of signs.

Exempted vehicles include: motorcycles; fleet vehicles manufactured prior to 1968; and dedicated alternative fueled vehicles (e.g., fueled by alcohol, butane, hydrogen, LPG, LNG, electric powered, and non-gasoline powered vehicles). Bi-fueled vehicles which fan operate on either gasoline or diesel are not exempt. EPA believes this portion of the State's program meets the Federal requirements and is acceptable.

G. Test Procedures and Standards (40 CFR § 51.357)

The Federal I/M rule requires that states establish written test procedures and pass/fail standards to be followed for each model year and vehicle type included in the program. Federal test procedures and standards are found in 40 CFR 51.357. The Federal I/M rule also requires that beginning January 1, 2002, inspection of the OBD system on MY 1996 and newer light duty shall be conducted according to the procedure described in 40 CFR 85.2222, at a minimum. See 40 CFR 51.357(a)(12). The Nevada low enhanced I/M test procedures for gasoline-powered vehicles are found in NAC 445B.580. These procedures require use of an approved exhaust gas analyzer and compliance (unless a waiver is granted) with the emissions standards set forth in NAC 445B.596. Testing procedures and standards for light-duty diesel-powered vehicles are found in NAC 445B.587 through 445B.589. As noted previously, the emissions evaluation for the State's I/M program takes no specific credit for inspection and maintenance of diesel-powered vehicles, and EPA is therefore not approving the diesel portion of the State's I/M program into the Nevada SIP.

The exhaust emission test type for all subject gasoline-powered vehicles under the Nevada I/M program is the two speed idle test. Exhaust emission testing standards are specified in 40 CFR part 85, subpart W. Consistent with those standards, the State I/M program establishes, for those vehicles that are subject to emissions testing, maximum exhaust emissions for MY 1981 and newer of 1.2% for CO and 220 ppm for HC. For older light-duty vehicles (MY 1968 through 1980), maximum CO(%) and HC(ppm) range from 4.0% - 2.0% and 800 ppm - 500 ppm, respectively. The standards for heavy-duty gasoline-powered trucks MY 1981 and newer are 3.5% for CO and 1,000 ppm for HC; for older heavy-duty vehicles (MY 1968 through 1980), maximum CO(%) and HC(ppm) range from 7.0% - 4.0% and 1,400 ppm - 1,000 ppm, respectively. All light-duty, gasoline-powered motor vehicles MY 1996 and newer are now subject to on-board diagnostic system checks.

The low enhanced I/M performance standard assumes visual inspection of the positive crankcase ventilation valve on all MY 1968 through 1971 vehicles, inclusive, and of the exhaust

gas recirculation valve on all MY 1972 and newer vehicles. Under the Nevada I/M program for Las Vegas Valley and Boulder City, during the course of the two speed idle test, inspectors perform visual checks for smoke from the exhaust system and for blowby gases from the crankcase. See NAC 445B.580. Also, inspectors visually inspect all vehicles to determine the presence of a properly installed gas cap. For vehicles MY 1981 and newer, inspectors also check for the presence of an exhaust gas recirculation valve, catalytic converter, air injection system and fuel inlet restricter, and whether this equipment appears to be operating in accordance with the specifications of the manufacturer of the vehicle. For MY 1996 and newer vehicles, some inspection stations in Las Vegas Valley began OBD testing in February 2002, and all inspection stations in Las Vegas Valley were conducting such tests by May 2002. The State has submitted draft regulations (i.e., revision to NAC 445B.580) requiring OBD testing as part of its SIP submittal dated January 30, 2002.

If a vehicle has missing or malfunctioning emissions control equipment, the low enhanced I/M test will result in a failed vehicle notification. Under NAC 445B.582 and 445B.589, necessary repairs must be completed before a second test can be performed. All vehicles are tested in an as-received condition, and vehicle owners have an opportunity to view the test from an area at the test site that affords an unobstructed view. Each vehicle is inspected prior to the emissions test and rejected from testing if any unsafe condition exists or if the exhaust is leaking or missing. In the event of an emission failure of any of kind, all components are retested after repairs.

EPA has concluded that, once we receive the final adopted revision of NAC 445B.580 that requires OBD testing, this portion of the State's program will meet the corresponding Federal requirements and is acceptable.

H. Test Equipment (40 CFR § 51.358)

The Federal I/M rule requires computerized test systems for performing any measurement on subject vehicles. The State's exhaust gas analyzers include the Nevada 94 analyzer, for which specifications were included in the State's March 1996 vehicle I/M SIP submittal, and the NV2000 analyzer, for which specifications were included in the State's January 30, 2002 SIP submittal. As of February 2, 2002, the NV2000 analyzer has replaced Nevada 94 as the approved exhaust gas analyzer for the I/M program in Las Vegas Valley. Both Nevada 94 and NV2000 test equipment are fully automated and computerized. Features include: concentration measurements of HC, CO, CO2, and O2 ; engine RPM; leak checks; anti-tampering checks; automatic test data recording; and lock-out measures. The test begins with a check of the vehicles registration and for any recall notices for that model vehicle. Adoption or use of alternate test equipment, test procedures or alternate methods require prior approval by EPA. The exhaust gas analyzer specifications describe all the necessary components of the emission analysis process, test equipment and all necessary EPA requirements under CFR § 51.358. EPA believes this part of the State program meets the Federal requirements and is approvable.

I. Quality Control (40 CFR § 51.359)

EPA's Federal I/M rule requires state programs to include measures to insure emission testing equipment is calibrated and maintained properly. See 40 CFR 51.359. SIPs are to include a description of quality control and record keeping procedures and the procedure manual, rule, ordinance or law describing and establishing the quality control procedures and requirements. See 40 CFR 51.359(f). The specifications for Nevada's NV2000 analyzer includes several quality control elements. Only State-certified analyzers may be used for emissions testing purposes under the I/M program, and to qualify for certification, manufacturers of analyzers must demonstrate that their model complies with all NV2000 specifications. NV2000 specifications were submitted by Nevada as part of its January 30, 2002 SIP submittal to EPA. NV2000 requires that analyzers be designed to perform automatic two-point gas calibrations for HC, CO and CO2; ambient air zero and span check tests; and measurements of O2 using ambient air. The specifications call for automatic gas calibration to be conducted every 72 hours as activated by the analyzer's internal clock. In addition, an NV2000 analyzer must be designed with a system capable of requiring an automatic leak check of the vacuum side of the analyzer activated by the internal clock every 24 hours.

The NV2000 analyzer also includes a number of automated controls to ensure that the system is tamper-resistant. The inspection certificates are stored automatically by the exhaust gas emission analyzer. The analyzers provide security capable of preventing any unauthorized modifications to the software or test data. The performance of licensed test and repair stations on repairing vehicles for retest is monitored. Emission certificates are counterfeit-resistant. Overt and covert audits are used to help verify the security of documents and emission test information. The Nevada DMV collects and inspects records from licensed test stations to detect discrepancies in testing and/or repairs. EPA believes the State submittal meets the requirements of this section and is acceptable.

J. Waivers and Compliance via Diagnostic Inspection (40 CFR § 51.360)

Under the Federal I/M rule, state I/M programs may allow the issuance of a waiver, which is a form of compliance with the program requirements that allows a motorist to comply without meeting the applicable test standards, as long as certain prescribed criteria are met. See 40 CFR 51.360. For enhanced programs, state I/M programs must require motorists to make an expenditure of at least $450 to qualify for a waiver, but allows motorists to wait to repair a failed vehicle for the period of one test cycle for "economic hardship." See 40 CFR 51.360(a)(9). EPA's regulations also allow a vehicle to receive multiple waivers as long as the vehicle fully passes the applicable standards between such waivers.

Procedures have been adopted by the State for a waiver after an emission test failure (see NAC 445B.590). The Nevada program requires a minimum expenditure of at least $450 from an authorized station on repair parts (other than a catalytic converter, fuel inlet restricter or air injection system) or on labor to qualify for a waiver in Clark County. Such labor costs can not include emission testing if the repairs evidenced by the receipt were directly related to the deficiency in emissions. Unlike the federal program, where relief may be allowed for "economic hardship," the Nevada program includes more limited provisions for waivers. In the future, the number of failed vehicles that require waivers is not expected to exceed the current waiver rate of approximately 1

percent. If the waiver rate exceeds 1 percent, Nevada will re-evaluate their procedures. EPA's model program for a waiver rate uses a 3 percent waiver rate, as a percentage of failed vehicles. Therefore, EPA proposes to conclude that, taken as a whole, Nevada's waiver requirements are not less stringent than those required by the federal I/M regulations.

K. Motorist Compliance Enforcement (40 CFR § 51.361)

The Federal I/M rule requires the use of registration denial to ensure compliance with the requirements of the I/M program. The Nevada program includes a registration denial enforcement program. Vehicles owners that do not renew vehicle registrations, and continue to drive an unregistered vehicle in the State, are subject to enforcement action by any law enforcement officer in the State. Local governments are responsible for establishing policies for the mandatory fines of all traffic violations including failing to comply with registration requirements.

Vehicles purchased from used-car dealers must have the vehicle tested and obtain evidence of compliance prior to sale (NRS 445B.800). All persons purchasing vehicles from individuals must have the vehicle tested and have a passing certificate of compliance to obtain registration. If a vehicle is not registered, it is unlawful to be operated on public highways, and NRS 445B.840 prohibits having unauthorized evidence of compliance.

Government fleets (any number of vehicles) and private fleets (consisting of 25 or more vehicles) can certify their vehicles in their own licensed fleet facility (see NAC 445B.461 and NAC 445B.478). I/M inspection facilities for fleets must also meet the requirements applicable to a licensed test station except for bonds and signs. Evidence of I/M compliance for vehicles serviced by a covered fleet must be submitted annually to Nevada DMV.

Emission control compliance is tied to vehicle registration or re-registration. Registration tags are color-coded with the date imprinted to make it easily visible to local, county or state law enforcement personnel. EPA believes this section of the State plan meets the requirements of the Federal rule and is acceptable.

L. Motorist Compliance Enforcement Program Oversight (40 CFR § 51.362)

The Federal I/M rule requires the State to audit the enforcement program on a regular basis and to follow effective program management practices, including adjustments to improve operation when necessary. A quality assurance program must be implemented to insure effective overall performance of the enforcement system.

Nevada Statutes, 1993 (NS) Chapter 654, sections 9 - 20, inclusive, and sections 30 - 40, inclusive, provide adequate authority to implement a low enhanced I/M motor vehicle program in Las Vegas Valley, Clark County. These provisions were enacted on July 15, 1993 and became effective on October 1, 1993. Since 1993, these statutory provisions have been revised but not in such a way as to diminish the authority on which the program relies. The current statutory authority for the low enhanced I/M program in Las Vegas Valley is found in Nevada Revised Statutes (NRS), title 40, section 445B.210 and sections 445B.700 through 445B.845; and title 43, sections

481.047-481.083, 482.155-482.283, 482.385, 482.461, 482.565, and 484.644-484.6441, as amended by Nevada through 2001.

Program compliance is monitored using computer records of vehicle registration through the DMV, in conjunction with the State, local and county law enforcement agencies. Denial of vehicle registration is the main tool for compliance. The DMV issues and supplies all emission control documents. The DMV track all certificates of inspection issued, received, returned or voided by the individual licensed test stations. Licensed test stations are required to provide the DMV with a report on all control documents received, issued, or voided (see NAC 445B.472 and 445B.473).

The DMV is required to develop procedures for personnel engaged in enhanced I/M document management and processing. Periodic audits of test records and registration files for renewals must be performed. Evaluations of all personnel are conducted on a regular basis in accordance with the State Personnel Manual.

Emission test files are required to be updated periodically at the DMV. Procedures have been developed for inquiry into the host computer for specific vehicles, stations, and general program reporting. Information on complaints, waivers issued, and recall information is included in the data files. The Nevada exhaust gas analyzer automatic functions are required to include: pass/fail determinations on all measurements; a record of all test data and vehicle data to the central computer; regular self-test in; electronic calibration and system integrity checks; and lock-outs for specified quality control.

The State has developed written procedures for all field auditors and personnel directly involved in the enforcement of the enhanced I/M program. The procedures include: methods for performing covert and overt audits, preparation of enforcement documents, methods for operation of I/M test equipment, public relation materials and other applicable information. EPA believes this section of the State program meets the requirements of the Federal rule and is approvable.

M. Quality Assurance (40 CFR § 51.363)

The Federal I/M rule requires an ongoing quality assurance program to discover, correct and prevent fraud, waste, and abuse and to determine whether procedures are being followed, are adequate, if equipment is measuring accurately, and if other problems may exist which would impede program performance. The procedures must also be periodically evaluated to assess their effectiveness and relevance in achieving program goals. See 40 CFR 51.363.

The specifications for the NV2000 analyzer incorporate quality assurance procedures. Among its various software requirements, NV2000 provides the capability for generating station and inspector evaluation reports. NV2000 also provides for different types of reports conducted for State audit purposes, such as a station performance report and details regarding analyzer maintenance. Each licensed test station must maintain records and have them available for collection for DMV evaluation (NAC 445B.472, NRS 445B.785).

Audits are scheduled to ensure that all facilities are randomly audited on a regular basis, while additional audits are directed to investigate specific situations. Covert vehicles are procured through rental or through cooperative agreements with the NDEP. A tampering defect or emissions-related failure condition is introduced and a driver not directly affiliated with the program is selected. Nevada DMV auditors are expected to receive formal training in the use of analyzers, basics of air pollution control, basic engine repair, State administrative procedures, quality assurance practices, covert procedures and program rules and regulations. EPA believes this section meets the requirements in the Federal rule and is acceptable.

N. Enforcement Against Contractors, Stations and Inspectors (40 CFR § 51.364)

The Federal I/M rule requires the establishment of minimum penalties for violations of program rules and procedures which can be imposed against stations, contractors and inspectors. Procedures for actions against licensed and unlicensed stations and inspectors are provided for in NAC sections 445B.463 and 445B.476 (stations) and sections 445B.489 and 445B.491 (inspectors). Violations and penalties are set forth in NRS 445B.835 and 445B.845 and NAC 445B.727. Stations and inspectors are regulated by Nevada DMV with respect to license denials, suspensions, reinstatements, temporary suspensions, revoked licenses, required bonds, reapplications, and hearings for reapplication [NAC sections 445B.463 through 445B.468 (stations) and sections 445B.489 through 445B.493 (inspectors)]. EPA believes this section meets the requirements in the Federal rule and is acceptable.

O. Data Collection (40 CFR § 51.365)

An effective I/M program requires accurate data collection in order to manage, evaluate and enforce the program requirements. The Nevada I/M program contains data gathering provisions that meet all of the criteria of the EPA regulations. Vehicle test data storage and retrieval methods are enumerated. Test results are expressed as either pass or fail. Information related to the calibration check must be stored automatically by each analyzer. EPA believes this section meets the requirements in the Federal rule and is acceptable.

P. Data Analysis and Reporting (40 CFR § 51.366)

Data analysis and reporting are required to monitor and evaluate the program by the State and the EPA. The Federal I/M rule requires annual reports submitted to the EPA following a performance period by a specific time. Data analysis and reporting are the responsibility of Nevada DMV as mandated by NRS 445B.765 and 445B.810. NDEP is required to assist Nevada DMV in submitting the annual report to EPA. These reports contain the information to meet the submittal requirements of the Federal rule. The statistics required are consistent with those listed in the Federal rule and are expected to be submitted on time. EPA believes this section meets the requirements in the Federal rule and is acceptable.

Q. Inspector Training and Licensing or Certification (40 CFR § 51.367)

The Federal I/M rule requires all inspectors receive formal training and be licensed or certified to conduct inspections. NAC sections 445B.485 through 445B.502 set forth the procedures for the required training and licensing of inspectors. Nevada DMV's requirements for an approved inspector include a verified training program for "class 1" and "class 2" inspectors (including a course approved by DMV), a written and practical testing program, and a separate certification process. All trainees are required to pass a comprehensive hands-on and written examination which requires inspectors to demonstrate an understanding of Nevada's rules, regulation, test procedures, equipment usage, quality control procedures and safety and health issues. Certified repair technicians must comply with the training and licensing requirements of "class 2" inspectors in order to perform service on vehicle exhaust emission components. All test stations must employ approved inspectors of the appropriate class and rating. Nevada DMV provides the appropriate inspector training and licensing to meet the requirements listed in 40 CFR 51.367. EPA believes this section meets the requirements in the Federal rule and is acceptable.

R. Public Information and Consumer Protection (40 CFR § 51.368)

The Federal I/M rule requires that an I/M program include a plan for informing the public on an ongoing basis throughout the life of the I/M program of: local air quality problems, Federal and State laws, and the impact of motor vehicles to local in the air quality problems. The educational program should also include information on: the need for and benefits of an inspection program, how to maintain a vehicle in a low-emission condition, how to find a qualified repair technician, and the requirements of the I/M program. In addition, the program must describe procedures and mechanisms to protect the public from fraud and abuse by inspectors, mechanics, and others involved in the I/M program.

Pursuant to NRS 445B.785 and NAC 445B.471, Nevada DMV issues a pamphlet for the purpose of providing the general public with a description of the methods of, and reasons for, the low enhanced I/M program. (Two such pamphlets were included in the March 1996 I/M SIP submittal.) In addition, Nevada DMV operates a website (www.dmvnv.com/emission.htm) that describes the emissions testing program. Nevada DMV has developed a public relations program to disseminate information to the public through the local offices of the DMV and civic events throughout the year. Information is made available to the motorist, whose vehicle fails the test, to provide knowledge of repair facilities and the relative quality of repairs performed. EPA believes this section meets the requirements in the Federal rule and is acceptable.

S. Improving Repair Effectiveness (40 CFR § 51.369)

I/M program goals are achieved through effective repairs of vehicles which have failed the initial test. The state must provide the repair industry with information and assistance on vehicle inspection, diagnosis and repair. Pursuant to NAC 445B.472, each station is required to maintain and have available for collection, records of all inspections and repairs, as may be applicable, for evaluation of the information at the request of Nevada DMV.

Nevada DMV's inspector regulations (NAC 445B.485 through 445B.502) require specific training and licensing of "class 2" inspectors, who are then approved as repair technicians. These

requirements go beyond the requirements of 40 CFR 51.369 and thereby justify the 100% credit taken in the emissions evaluation of the State I/M program for the technician training and certification program.

T. Compliance With Recall Notices (40 CFR § 51.370)

States are required to establish a method to ensure that vehicles subject to enhanced I/M and that are included in either a voluntary emissions recall as defined at 40 CFR 85.1902(d), or in a remedial plan determination made pursuant to section 207(c) of the Act, receive the required repairs. Procedures have been established to ensure that vehicles with factory related emission recalls are repaired prior to registration renewal. Inspection stations are required to verify compliance with recall repair notifications sent out by Nevada DMV. EPA believes this section meets the requirements in the Federal rule and is acceptable.

U. On-Road Testing (40 CFR § 51.371)

On-road testing is required in enhanced I/M areas and is an option for basic I/M areas. On-road testing is to be part of the emission testing system, but is to be a complement to testing otherwise required. On-road testing is not required in every season or on every vehicle but shall evaluate the emission performance of 0.5% of the subject fleet statewide or 20,000 vehicles, whichever is less, per inspection cycle.

The legal authority for on-road testing was adopted by the Nevada Legislature in Senate Bill 570, which was signed into law by the Governor on July 5, 1995. This legislation added a new section to Chapter 445 of the NRS providing authority to implement a remote sensing program as part of the vehicle I/M program. NRS 445B.798 is the statutory authority allowing DMV to conduct on-road testing in Clark County, and NRS 482.461 allows DMV to cancel the vehicle registration of any motor vehicle found to have failed the test conducted under NRS 445B.798 unless the owner takes certain specified actions. In July 1999, the DMV voluntarily performed on-road remote sensing and mailed 355 letters to vehicles with a CO level at or above 4% and twice the standard. Vehicles responding to the remote sensing test letter were 73 (20%); vehicles responding that passed a 2-speed idle test, 53 (73%); vehicles responding that failed a 2-speed idle test, 20 (27%); passing vehicles that had repairs performed after the remote sensing reading was 5; failing vehicles that had repairs performed was 1.

Based on the experience gained through the 1999 study, the State of Nevada entered into a contract with a vendor (MD Laser Tech) to conduct on-road remote sensing (RSD) in Clark County during 2002. In the June 2002 SIP submittal, Nevada submitted a copy of the executed contract between the State and MD Laser Tech for on-road testing services, effective through June 30, 2003. These contract materials included: a description of the roadside remote sensing program; a list of required program elements needed to implement the program, (e.g., remote sensing test equipment, number and location of possible testing sites, vehicles testing cut points, needed program personnel, and funding); and a schedule describing implementation milestones for each vehicle emissions testing measure. DMV has contracted with MCI Worldcom to develop and maintain a vehicle information emission database. The MCI Worldcom vehicle emission

information database (VID) transmits all emission test results to the DMV registration database. The MCI Worldcom system (VID) also maintains the licensee and administrative programs that are used to identify emission stations and produce program statistical reports. On-road testing information is located in the administrative program which can be used to store statistical records for vehicles tested through this process. The database can also generate letters to vehicle owners when regulatory actions are needed. The MD Laser Tech contract calls for the Contractor to perform remote sensing of motor vehicle exhaust emissions for a specified time period at specified locations within Clark County. The primary operational objective is to obtain information concerning gross emitting vehicles and use this information to ensure that these vehicles are brought into compliance with Nevada's motor vehicle regulations. Failure of a test conducted under the on-road testing program may lead to cancellation of vehicle registration under NRS 482.461 unless, within the prescribed period, the registered owner has the vehicle inspected and repaired (if necessary) and provides the DMV with evidence of compliance with the I/M requirements.

EPA believes this part of the program meets the requirements in the Federal rule and is acceptable.

V. State Implementation Plan Submission (40 CFR § 51.372)

The federal I/M rule requires state I/M SIP submittals to address the following elements: (1) a schedule of implementation of the program including interim milestones leading to mandatory testing; (2) an analysis of emission level targets for the program showing that the program meets the performance standard; (3) a description of the geographic coverage of the program; (4) a detailed discussion of each of the required design elements; (5) legal authority requiring or allowing implementation of the I/M program; (6) legal authority for I/M program operation until such time as it is no longer necessary; (7) implementing regulations, interagency agreements, and memoranda of understanding; and (8) evidence of adequate funding and resources to implement all aspects of the program.

Mandatory testing under the Nevada low enhanced I/M program began March 1, 1996. For MY 1996 and newer light-duty gasoline-powered vehicles, mandatory OBD checks replaced the previous two speed idle test beginning in 2002. The 2000 CO plan submittal provided an updated emissions evaluation of the Nevada I/M program for Las Vegas Valley and Boulder City. As described in more detail in section 8.B of this TSD, the Nevada program exceeds the low enhanced performance standard.

The 1996 I/M submittal included a description of the geographic coverage of the program by ZIP code. That ZIP code list is now out-of-date, but the I/M program is implemented in the appropriate areas through NAC 445B.593, which requires emissions testing for all subject vehicles registered in the county except in 7 specific rural areas. The 1996 I/M submittal also provided a discussion of the required program design elements and included the relevant statutory and regulatory provisions, which have subsequently been updated through SIP submittals dated January 30, 2002 and June 4, 2002. The latter SIP submittals included other materials related to implementation of the program, such as NV2000 analyzer specifications and the contract between the State and a private entity to provide for on-road testing services. Nevada's I/M program does

not undergo a sunset review, and thereby has the legal authority to operate until such time as it is no longer necessary. Lastly, the 1996 I/M submittal and subsequent SIP updates provide sufficient evidence of adequate funding and resources to implement the I/M program (see section 8.D of this TSD).

W. Implementation Deadlines (40 CFR § 51.373)

The Federal I/M rule requires I/M programs to be implemented as expeditiously as practicable. Nevada's low enhanced I/M program started on March 1, 1996, which required that all specified vehicles would be tested annually. Legal authority to implement the low enhanced I/M program by the State was granted by the 67th Legislative Session. EPA believes this section meets the requirements in the Federal rule and is acceptable.

Approval/Disapproval Recommendation: Approve.

SECTION 9 - LIST OF ATTACHMENTS

A Nevada's wintertime low RVP regulation for gasoline distributed in Clark County: NAC 590.065.

B Society of Automotive Engineers, *Effects of RVP Reduction on Vehicle CO Emissions During Las Vegas and Los Angeles Winter Conditions* - Petroleum Environmental Research Forum Project Number 95-06, SAE #971726.

C Division of Agriculture, monthly fuel report, prepared for the Department of Weights and Measures, the Bureau Chief and Administrator of the Division of Agriculture.

D Guinn, Kenny C., Governor, State of Nevada, letter correspondence to Dario Herrera, Chairman, Clark County Commission, June 21, 2001.

E Notice and Call of Special Meeting, Clark County Board of Commissioners, July 24, 2001.

F Clark County Board of Commissioners, Agenda Item #5, ordinance # 2627 amending sections of County code, establishing a new Department of Air Quality Management, transferring specific responsibilities from the Department of Comprehensive Planning to the new department, revoking earlier delegations of authority over air quality to the Clark County Health District, establishing an air quality hearing board, adopting existing Health District regulations concerning air quality) and a copy of the ordinance, adopted July 24, 2001.

G Clark County Board of Commissioners, Agenda Item #6: recommendation that the Board approve and authorize the Chairman to sign an interlocal agreement between Clark County and the Clark County Health District for the transfer of air quality functions to Clark County, July 24, 2001.

H Society of Automotive Engineers, *Development of an Exhaust Carbon Monoxide Emissions Model*, SAE Technical Paper Series #961214, May 1998.

I Wilson, Richard D., Acting Assistant Administrator for Air and Radiation, U.S. EPA, Memorandum to EPA Regional Administrators, Guidance on Incorporating Voluntary Mobile Source Emission Reduction Programs in State Implementation Plans (SIPs), October 24, 1997.

J Laxton, William G., Director, Technical Support Division (MD-14), Office of Air Quality Planning and Standards, U.S. EPA, Guidance for Determining Significant Stationary Sources of Carbon Monoxide, May 13, 1991.

K Nevada Revised Statutes (NRS) 445B.500 (2002).

L Nevada Administrative Code (NAC) 445B.22083 (2002).