Last revised
August 26, 2003

CARBON MONOXIDE REDESIGNATION REQUEST AND LIMITED MAINTENANCE PLAN

for the

NEVADA SIDE OF THE LAKE TAHOE BASIN
Including Douglas, Carson City and Washoe Counties

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Prepared by:

Nevada Division of Environmental Protection
Bureau of Air Quality Planning

Technical Assistance Provided By:

Nevada Department of Transportation
Tahoe Regional Planning Agency
Washoe County District Health Department
U.S. Environmental Protection Agency

_____ 2003

August 28, 2003

Wayne Nastri
Regional Administrator
US EPA, Region IX
75 Hawthorne Street
San Francisco, CA 94105

RE: Redesignation of the Nevada Side of the Tahoe Basin as Attainment for the CO NAAQS

Dear Mr. Nastri:

Pursuant to Section 107(d) of the 1990 Clean Air Act, I am submitting this letter to request a redesignation of the Nevada side of the Lake Tahoe Basin for air quality planning purposes. The Nevada Division of Environmental Protection (NDEP) is requesting that this area, Hydrographic Area 90, be redesignated from nonattainment to attainment for the carbon monoxide (CO) National Ambient Air Quality Standard (NAAQS).

Hydrographic Area 90 comprises parts of three counties: Carson City, Douglas and Washoe counties. Carson City and Douglas Counties are under NDEP's jurisdiction, whereas Washoe County is under the jurisdiction of the Washoe County District Health Department (WCDHD). Since it makes sense to submit a single request for the three jurisdictions, WCDHD has agreed to have NDEP integrate their request for redesignation with NDEP's. A letter to that effect is attached.

Monitoring data show that the Nevada side of the Lake Tahoe Basin has never violated the one-hour CO NAAQS and has not exceeded the eight-hour standard since 1978. Supporting evidence is included in the enclosed "Carbon Monoxide Redesignation Request and Limited Maintenance Plan." This document provides all the evidence necessary for a redesignation, including an attainment demonstration, a discussion of the control measures leading to emission reductions and a Limited Maintenance Plan. NDEP reaffirms that all applicable requirements of CAA Section 110 and Part D have been adopted and continue to be implemented.

NDEP commits to track CO concentrations and to adopt, submit as a SIP revision, and implement expeditiously any and all measures to achieve the level of CO emissions reductions needed to maintain the CO NAAQS in the event that an exceedance of the CO NAAQS is monitored. NDEP intends to work with the involved jurisdictions to ensure that sufficient measures are adopted and implemented in a timely fashion to prevent a violation.

If you have any questions regarding this request, please contact Colleen Cripps, Chief of the Bureau of Air Quality Planning, at (775) 687-9346 or e-mail at Cripps@ndep.nv.gov.

Sincerely,

Allen Biaggi, Administrator
Nevada Division of Environmental Protection

Certified mail:

Enclosures

cc: Colleen Cripps, NDEP
Andrew Goodrich, WCDHD
Jack Broadbent, USEPA Region 9, Director, Air Division
Steven Barhite, USEPA Region 9, Chief, Planning Office

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DATE

Mr. Allen Biaggi, Administrator
Nevada Division of Environmental Protection
333 West Nye Lane
Carson City NV 89706-0851

Dear Mr. Biaggi:

The Washoe County District Health Department – Air Quality Management Division hereby requests that the portion of Washoe County that lies in the Lake Tahoe Basin (Hydrographic Area 90) be redesignated from nonattainment to attainment for the carbon monoxide (CO) National Ambient Air Quality Standards (NAAQS).

The District operated an ambient air quality monitoring station at Incline Village from 1993 to 1999 and no exceedances were recorded for either the one-hour or the eight-hour CO NAAQS at that site. The California Air Resources Board operated this site during 2000-2001 and again no exceedances were recorded.

It is our understanding that the Nevada Division of Environmental Protection would like to submit a single redesignation request to the US EPA for all three Nevada counties within the Lake Tahoe Basin. We agree with this approach and are glad to provide supporting documentation for the Washoe County portion of the Basin.

If you or your staff have any questions regarding this matter, please feel free to contact me at (775) 784-7200.

Sincerely,

Andrew C. Goodrich
Director

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INTRODUCTION

Rational For Redesignation

The Nevada side of the Lake Tahoe Basin is designated as a "not classified" nonattainment area for the carbon monoxide (CO) National Ambient Air Quality Standard (NAAQS). A map of the Lake Tahoe region is presented as Figure 1.

The U.S. Environmental Protection Agency (EPA) requires two consecutive calendar years of quality assured monitoring data showing no violations before an area can be redesignated to attainment for CO. The Nevada side of the Basin has not violated the CO NAAQS since 1978. The data to support this statement may be found in the Aerometric Information Retrieval System (AIRS) database, which includes monitoring data from all State and Local Air Monitoring Stations (SLAMS) in the State of Nevada. Additional information in support of this redesignation request, including an attainment demonstration, a discussion of the control measures leading to emission reductions and a limited maintenance plan is presented in this support document.

Historical Background

The state of Nevada designated the Nevada portion of the Basin as a nonattainment area for CO on November 25, 1977, based on 1976 monitoring data from the Stateline, Nevada monitor. The California Air Resources Board (CARB) designated the California side of Tahoe as nonattainment for CO on December 2, 1977. Their designation was also based on the Stateline data because CARB did not have a CO monitor operating on the California side of the Basin, and the Stateline site was considered representative of the local "hot spot" location for California. EPA concurred with the nonattainment designations in March 1978.

The Governing Board of the Tahoe Regional Planning Agency (TRPA) requested that TRPA be designated as local lead agency for both California and Nevada. The Governor of Nevada concurred, designating TRPA as the lead agency for nonattainment planning on the Nevada side of the Basin on March 1, 1978. For the California portion of the Basin, the decision regarding lead agency responsibilities generated differences among the various agencies involved. This resulted in a "joint determination" process, and on June 7, 1978, CARB, exercising the Governor's delegated authority, retained the lead agency responsibilities on the California side of the Basin.

In 1978 and 1979, the Tahoe Air Program Ad Hoc Committee, which consisted of CARB, Nevada Division of Environmental Protection (NDEP), TRPA and other agencies having a responsibility in air quality planning, worked together to develop a bi-state air quality plan for the Basin. Coordination of the committee was handled by CARB. The intent was to treat the Basin as a single planning area and to promote cooperation in the evaluation, development and implementation of one plan. However, disagreements arose on technical assumptions and which control measures to adopt, and as a result California developed a separate plan.

On April 26, 1979, the TRPA Governing Board recommended that the 1979 *Lake Tahoe Basin Nonattainment Plan*, developed by the Ad Hoc Committee, be adopted by both California and

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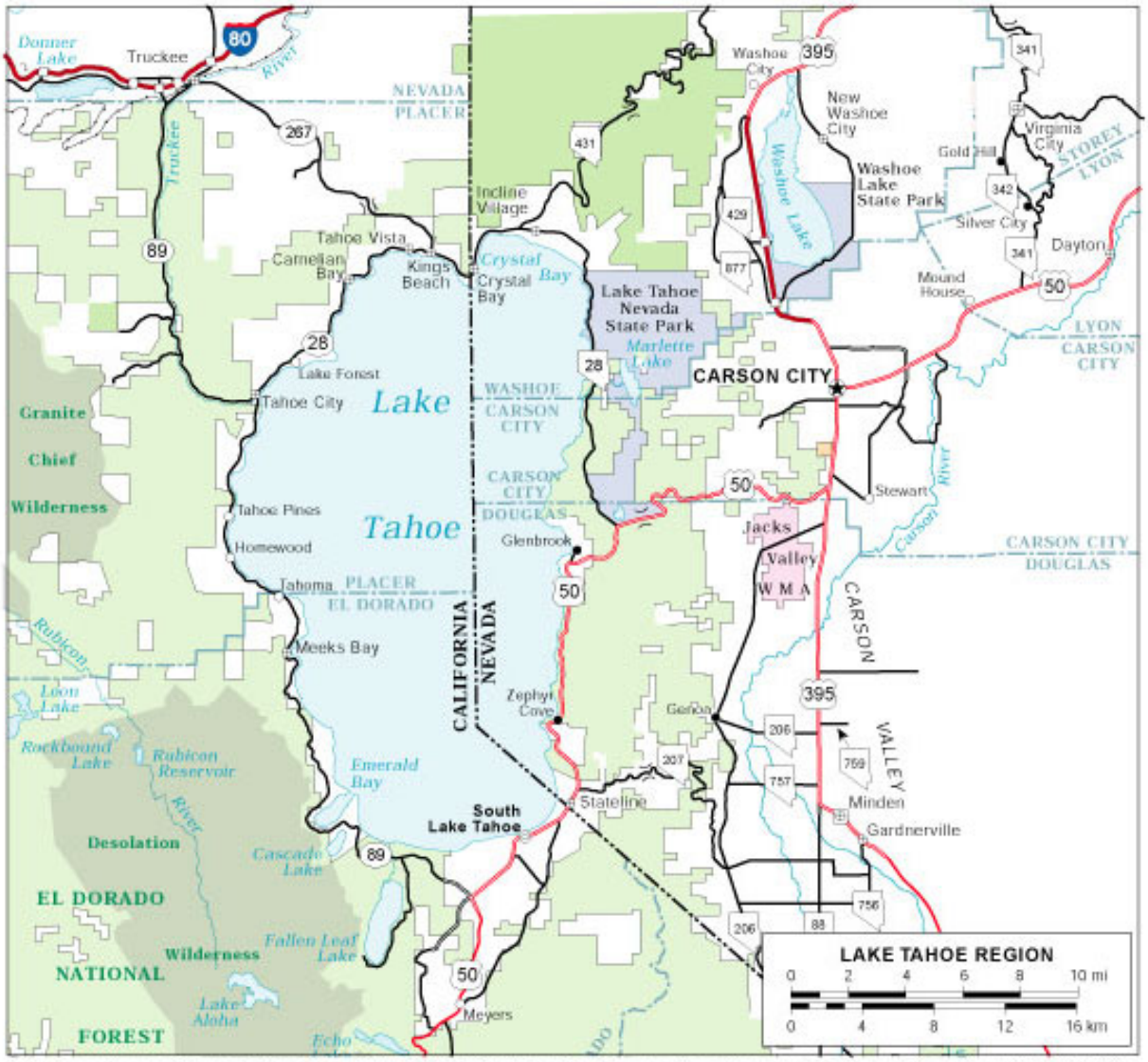
Nevada. The Nevada State Environmental Commission (SEC) adopted the TRPA recommended plan on May 9, 1979. CARB adopted a different plan on the same date.

FIGURE 1. LAKE TAHOE REGION



Map from State of Nevada Road Map 2002-2003. Published by Nevada Department of Transportation. Copyrighted 2002

On September 10, 1980, EPA proposed to conditionally approve the California and Nevada plans in one rulemaking notice. In December 1980, a bi-state compact between California and Nevada was signed by President Carter reestablishing TRPA as the agency responsible for attainment of environmental goals in the Tahoe Basin. On May 17, 1981, CARB designated TRPA as the local lead agency for California, in response to renewed requests from TRPA and local governments. The conditional approval for both the California and Nevada 1979 State Implementation Plans (SIP) for Lake Tahoe was published on June 23, 1982 (47 FR 27069). It required correction of deficiencies in both plans by December 20, 1982.

TRPA established a Technical Advisory Committee and, with the help of an Inter Personnel Agreement (IPA) staff member assigned from EPA Region IX, developed the *1982 Air Quality Plan* for the Basin. On December 20, 1982, California submitted a SIP revision for the Basin, based on the *1982 Air Quality Plan.* Nevada submitted revisions to the 1979 *Lake Tahoe Basin Nonattainment Plan* on December 9 and 16, 1982, January 31, 1983 and May 5, 1983 to satisfy the conditions of the June 23, 1982 Federal Register Notice. Final rulemaking (approval) for both plans was promulgated on February 24, 1984, in the Federal Register (49 FR 6897) and appears in 40 CFR Part 52 (A-9-FRL2529-3), "Approval and Promulgation of Implementation Plans; California and Nevada CO Plan Revisions."

Through letters dated February 22 and 25, 1999, the State of Nevada and Washoe County requested that the Nevada side of the Basin be redesignated from nonattainment to attainment for the CO NAAQS. EPA returned comments on the redesignation submittal in a memo dated January 11, 2000. The redesignation document has been revised accordingly and is herein being resubmitted.

REQUEST FOR REDESIGNATION

NDEP requests that the United States Environmental Protection Agency redesignate the Nevada side of the Lake Tahoe Basin (Hydrographic Basin 90) to attainment status with the CO NAAQS. Section 107(d)(3)(E) of the Clean Air Act (CAA) lists the following five conditions that must be met before the EPA Administrator can redesignate an area from nonattainment to attainment:

- *The Administrator determines that the area has attained the national ambient air quality standard;*
- *The Administrator has fully approved the applicable implementation plan for the area under section 110(k);*
- *The Administrator determines that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the applicable implementation plan and applicable Federal air pollutant control regulations and other permanent and enforceable reductions;*
- *The Administrator has fully approved a maintenance plan for the area as meeting the requirements of section 175A; and*
- *The State containing such area has met all requirements applicable to the area under section 110 and part D.*

Attainment Demonstration

National Ambient Air Quality Standard for CO

The harmful effects of air pollution have been recognized for over 100 years; however, scientific and legal procedures for the establishment of standards for pollutants have only existed for the past thirty to forty years. In 1971, EPA established the first NAAQS for six air pollutants, including CO. Carbon monoxide is a colorless, odorless, poisonous gaseous pollutant. It is formed from the combustion of hydrocarbon fuels in automobiles and other modes of

transportation that use internal combustion engines and from home heating devices such as fireplaces, stoves and furnaces, and industrial sources of combustion. In high concentrations CO can be dangerous due to its affinity for combining with the hemoglobin in blood. This, in turn, causes the hemoglobin to be less readily available to perform the function of carrying oxygen; thus, less oxygen reaches the tissues. People who are already suffering from cardiopulmonary disease or anemia, and tobacco smokers are most likely to be affected by high CO levels. Brief exposure to smaller amounts may include such effects as headaches, diminished alertness, slower reaction time and faster blood clotting.

The current NAAQS for CO are 9 parts per million (ppm) for an eight-hour average concentration not to be exceeded more than once a year and 35 ppm for a one-hour average concentration not to be exceeded more than once a year.

Monitoring Network and Data

The Nevada side of the Basin has never violated the one-hour CO standard. Thus, the area is in nonattainment only for the eight-hour standard. To be redesignated attainment, monitoring must show no violations for two complete, consecutive calendar years. Evidence that the eight-hour CO NAAQS has not been violated for significantly more than two years is given in Tables 1 and 2 below. The tables show that no exceedance of the eight-hour average CO NAAQS has occurred since at least 1989. These data were collected and quality assured in accordance with 40 CFR 58 and may be found in the AIRS data base system. The data support an attainment designation, as determined in accordance with 40 CFR 50.8.

The Nevada side of the Basin has one State and Local Air Monitoring Station (SLAMS) located in Stateline at the southern edge of Lake Tahoe. Stateline, together with the adjacent city of South Lake Tahoe in California, represents the most highly populated area in the Basin. The SLAMS site was located at the Horizon Casino Resort until mid 1999. It was then relocated and installed at Harvey's Resort Hotel as a "microscale" site for CO in the core of the Stateline casino hotel area (Figure 2). It is designed to monitor the highest CO concentrations in the south shore casino district. Table 1 shows clean monitoring data (the highest and second highest non-overlapping eight-hour average) at the Horizon site through June 1999 and at the Harvey's site from October 1999 through December 2001.

A second SLAMS site was operated at Incline Village during 2000 and 2001. This is the second largest population center in the Nevada side of the Basin. Both 2000 and 2001 show extremely low concentrations as seen in Table 2. Monitoring for CO at the Incline Village site was shut down in March 2002 because the eight-hour high in 1993, the first year of monitoring for CO, was 2.5 ppm and the readings have been decreasing ever since. First and second highs in 2000 were 1.1 and 1.0 ppm respectively. The 2001 first and second highs were slightly elevated, 1.8 and 1.6 ppm, because of an extensive forest fire affecting the basin in August 2001.

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TABLE 1: MONITORING DATA FROM STATELINE

Eight-Hour Non-Overlapping Average Carbon Monoxide Concentrations

Horizon Casino Resort
ID# 32-005-0004 (SLAMS)

Year	1st High	2nd High	Federal Exceedances
1989	5.4	4.8	0
1990*	5.0	4.1	0
1991	3.7	3.4	0
1992	3.4	3.2	0
1993	3.7	3.6	0
1994	3.6	2.8	0
1995	2.6	2.5	0
1996	2.3	2.1	0
1997	1.8	1.7	0
1998	1.9	1.8	0
1999**	2.1	2.0	0

** Power disruptions due to construction & vandalism: incomplete year.*
*** Data for January-June. Discontinued monitoring at this site after June.*

Harvey's Resort Hotel, Microscale Site*
ID# 32-005-0009 (SLAMS)

Year	1st High	2nd High	Federal Exceedances
1999	4.6	4.3	0
2000	4.4	4.2	0
2001	3.7	3.6	0
2002	8.8**	6.1	0

** New site: 1999 data was collected for October-December only.*
*** This average occurred on Friday, July 5 from12:00 midnight to 8:00AM PDT and is being investigated.*
Source: State of Nevada, Bureau of Air Quality (Planning), *Trend Reports*, 1988-2001 and USEPA AIRS Maximum Values Report.

TABLE 2: MONITORING DATA FROM INCLINE VILLAGE

Eight-Hour Non-Overlapping Average Carbon Monoxide Concentrations

Library, 846 Tahoe Blvd.
ID#32-031-2002 (SLAMS)

Year	1st High	2nd High	Federal Exceedances
2000	1.1	1.0	0
2001*	1.8	1.6	0

* Affected by Star Fire, El Dorado National Forest, 8/28-29/01.
Source: State of Nevada, Bureau of Air Quality Planning, *Trend Report 1990-2001*.

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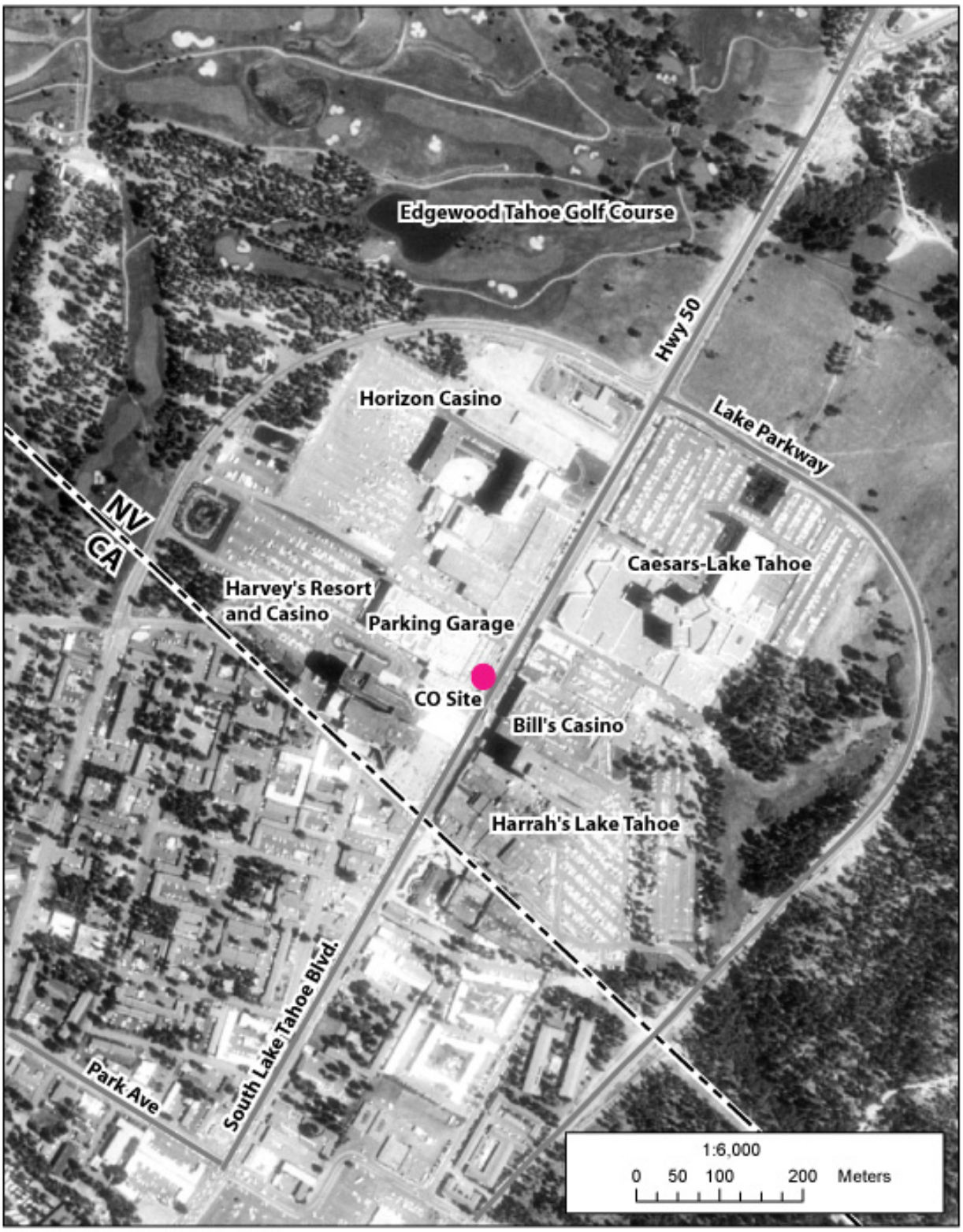
FIGURE 2. LOCATION OF MONITORING SITE AT STATELINE



South Lake Tahoe Digital Ortho Phot Quad, USGS, 1992
State Boundary, Nevada Department of Transportation, 2002

Fully Approved State Implementation Plan

Final rulemaking, "Approval and Promulgation of Implementation Plans; California and Nevada CO Plan Revisions," was promulgated on February 24, 1984, in the Federal Register Vol. 49, No. 38 (49 FR 6897) and appears in 40 CFR Part 52 (A-9-FRL2529-3). Thus, the State of Nevada currently has an approved SIP for the Basin as required for redesignation under 107(d)(3)(E) of the Clean Air Act (CAA).

Improvements in Air Quality from Permanent and Enforceable Reductions in Emissions

Lake Tahoe lies at an altitude of about 6,200 feet and is surrounded by mountains reaching up to 10,000 feet (Figure 3). This bowl-shaped topography affects its climate and meteorology. Strong inversion conditions occur frequently in the cold winter months, contributing to higher concentrations of CO during the winter season.

The economy of the region is based largely on tourism. The area is known worldwide for its outdoor recreational opportunities. Casinos and resorts provide additional entertainment opportunities. There are no other major industries around the lake. Thus, the overwhelming source of CO is from motor vehicle exhaust. Over 90% of the CO in the Basin comes from on-road motor vehicles (1979 *Lake Tahoe Basin Nonattainment Plan*). This discussion, therefore, focuses on motor vehicle and transportation control measures to demonstrate attainment with the NAAQS.

Federal Motor Vehicle Control Program (FMVCP)

The FMVCP is a control measure that includes all federal actions aimed at controlling pollution from motor vehicles. In the Basin, CO emissions are reduced primarily by fleet turnover, which effectively replaces older, high-emitting vehicles with models manufactured to meet more stringent exhaust and evaporative emission standards under the FMVCP. This has been a tremendously effective measure for reducing motor vehicle emissions nationwide.

Since the passage of the Clean Air Act of 1970 and the subsequent creation of EPA, automobile manufacturers have been “forced” to develop new technologies in order to meet new emission standards. For example, the first generation of catalytic converters was built in 1975. More sophisticated three-way catalysts appeared in 1981, and innovative emission control technologies continue to evolve. Thus, new federal vehicle emission standards introduced in the 1970’s and the continued tightening of such standards into the present account for the most significant reduction of CO levels in the Basin.

State Control Measures

There is no Nevada State Inspection and Maintenance (I/M) program in the Tahoe Basin. However, because two-thirds of the Tahoe Basin is in California, the Nevada side benefits from California’s motor vehicle emission control programs. These include the CARB clean fuels programs and the Low Emission Vehicle (LEV) program, as well as multiple other measures to regulate exhaust and test procedures for motor vehicles.

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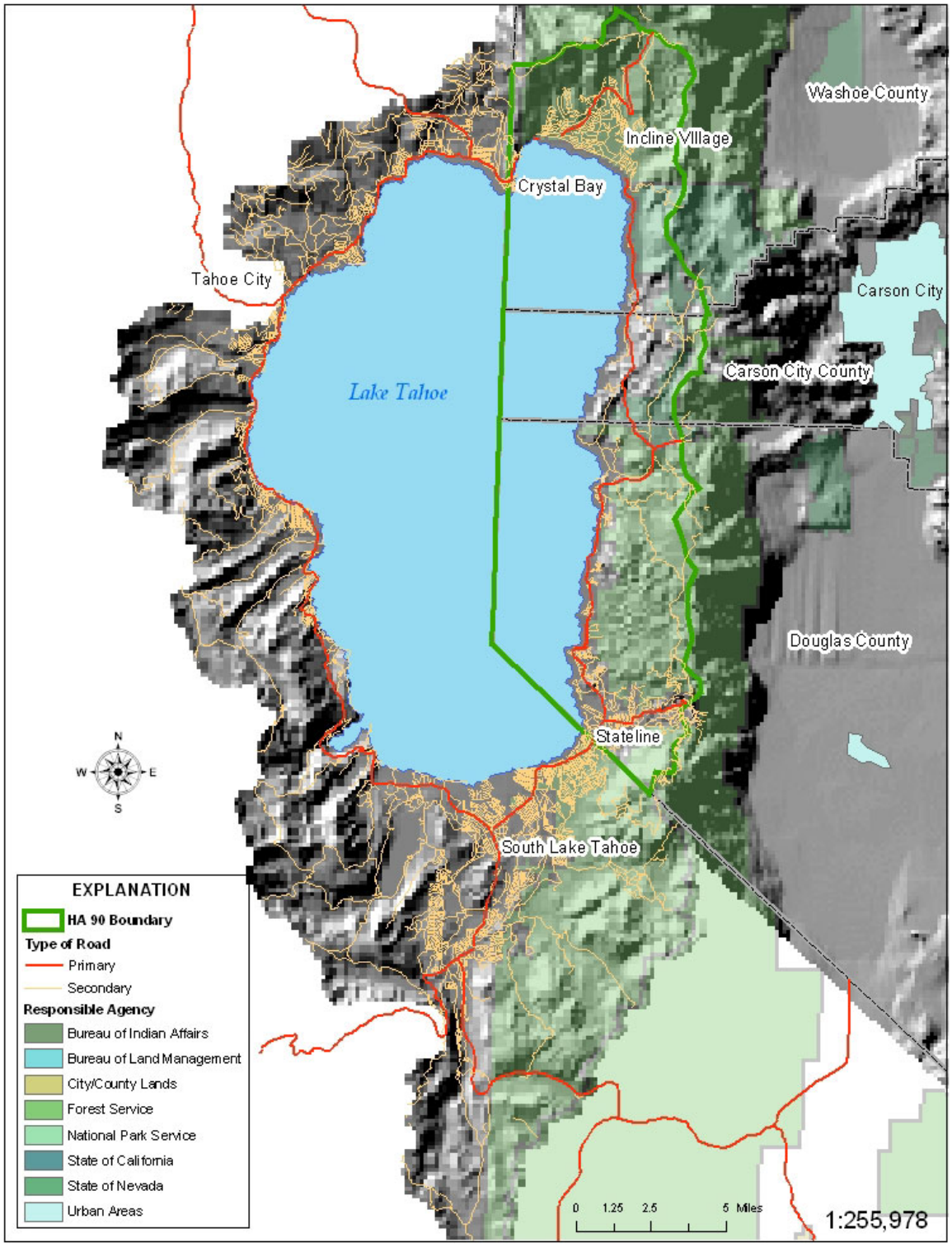
FIGURE 3. LAKE TAHOE BASIN TOPOGRAPHY



California's reformulated gasoline (CaRFG) and clean-burning diesel regulations impact the entire Basin. Phase 1 CaRFG took effect in 1992 and required refiners to make gasoline that evaporated less, used additives to reduce carbon build-up and phased-out the final traces of lead. Phase 2 CaRFG, which has been used since 1996, requires refiners to make blends of gasoline that significantly reduce emissions of criteria pollutants by modifying eight of the specifications of gasoline. Phase 2 CaRFG reduces CO emissions by 11% compared to Phase 1 CaRFG. Additionally, all diesel fuel sold in California must meet specifications established by CARB to ensure that California diesel is the cleanest burning in the US.

CARB's LEV program requires automobile manufacturers to meet more stringent new vehicle emission standards than are required under federal rules for vehicles sold in California. Because California and Nevada share the Basin, a significant portion of the vehicles driven on the Nevada side are registered in California and meet California's LEV standards. Furthermore, in order to be compatible with California regulations most of the vehicles sold in the Basin, whether for California or Nevada registration, meet the tighter California emission ratings.

The Basin also benefits from the Nevada state I/M program in the Reno-Sparks area. Reno is the largest metropolitan area near Lake Tahoe, approximately 30 miles away. It is, therefore, reasonable to expect that some portion of the total commuter and day trips in the Basin can be attributed to vehicles subject to Reno's I/M program.

Finally, there is a Nevada state program that requires government fleets to acquire alternative fueled vehicles (AFVs) to reduce motor vehicle pollutant emissions. This program is found in Chapter 486A of the Nevada Revised Statutes and the Nevada Administrative Code. The Incline Village General Improvement District fleet is subject to this regulation and has been acquiring AFVs for compliance since the program became effective in June 1994. Additionally, the Lake Tahoe Clean Cities Coalition, based on the north shore, and the Truckee Meadows Clean Cities Coalition (Reno) are both active in efforts to introduce more AFVs into the area.

Local Control Measures

The TRPA oversees an Environmental Improvement Program (EIP), which represents a Basin-wide effort designed to hasten achievement of Environmental Threshold Carrying Capacity (ETCC) standards established for the Lake Tahoe region in 1982. On May 27, 1992, the TRPA Governing Board adopted the *1992 Regional Transportation Plan-Air Quality Plan* (RTP-AQP) for the entire Lake Tahoe region. The RTP-AQP was developed to attain and maintain the ETCC standards established in 1982, as well as all applicable federal, state and local standards established for transportation and air quality. The RTP-AQP is an integrated document reflecting the relationship of transportation systems and regional development to air quality.

One of the nine major categories of threshold standards in the EIP is "Air Quality." TRPA's Air Quality Threshold Program consists of projects, programs, studies and regulatory amendments needed to attain and maintain the various air quality thresholds, while maintaining the economic health of the area. Much of the focus of the program is aimed at reducing private automobile use. Some important aspects of TRPA's Air Quality Program and corresponding EIP projects include attaining and maintaining federal, state and local air quality standards, reducing atmospheric deposition of nutrients and particles to the lake (to protect lake clarity),

implementing a Basin-wide transportation system, planning for local transit, parking management, encouraging bicycle and pedestrian use, and supporting aviation as an alternative way to travel to the Basin.

In the February 1998 EIP report, 114 proposed or in-progress air projects and regulations were listed, many of which targeted CO reduction specifically. Two goals, or thresholds, were established for CO. The first was an interim target of meeting the 8-hour NAAQS by 1997. This target has been met (based on the second highest 8-hour reading). The second goal addressed U.S. Highway 50 traffic volume. The indicator selected was the average volume of vehicles between 4 pm and 12 am in the months November through February, i.e., the peak hours of day for CO and the high CO season. The goal was a 7% reduction traffic volume on U.S. Highway 50 corridor from the 1981 values. This goal was reached and surpassed with a 7.8% reduction of volume in 1995.

As the result of these various initiatives since the 1979 *Lake Tahoe Basin Nonattainment Plan,* many transportation control measures have been implemented. These include improved public transportation (fixed route transit and various shuttle services), a mail delivery option, bicycle and pedestrian facilities, pedestrian guide rails in the busy casino areas and an underground passage (under Highway 50) from Harrah's to Harvey's casino.

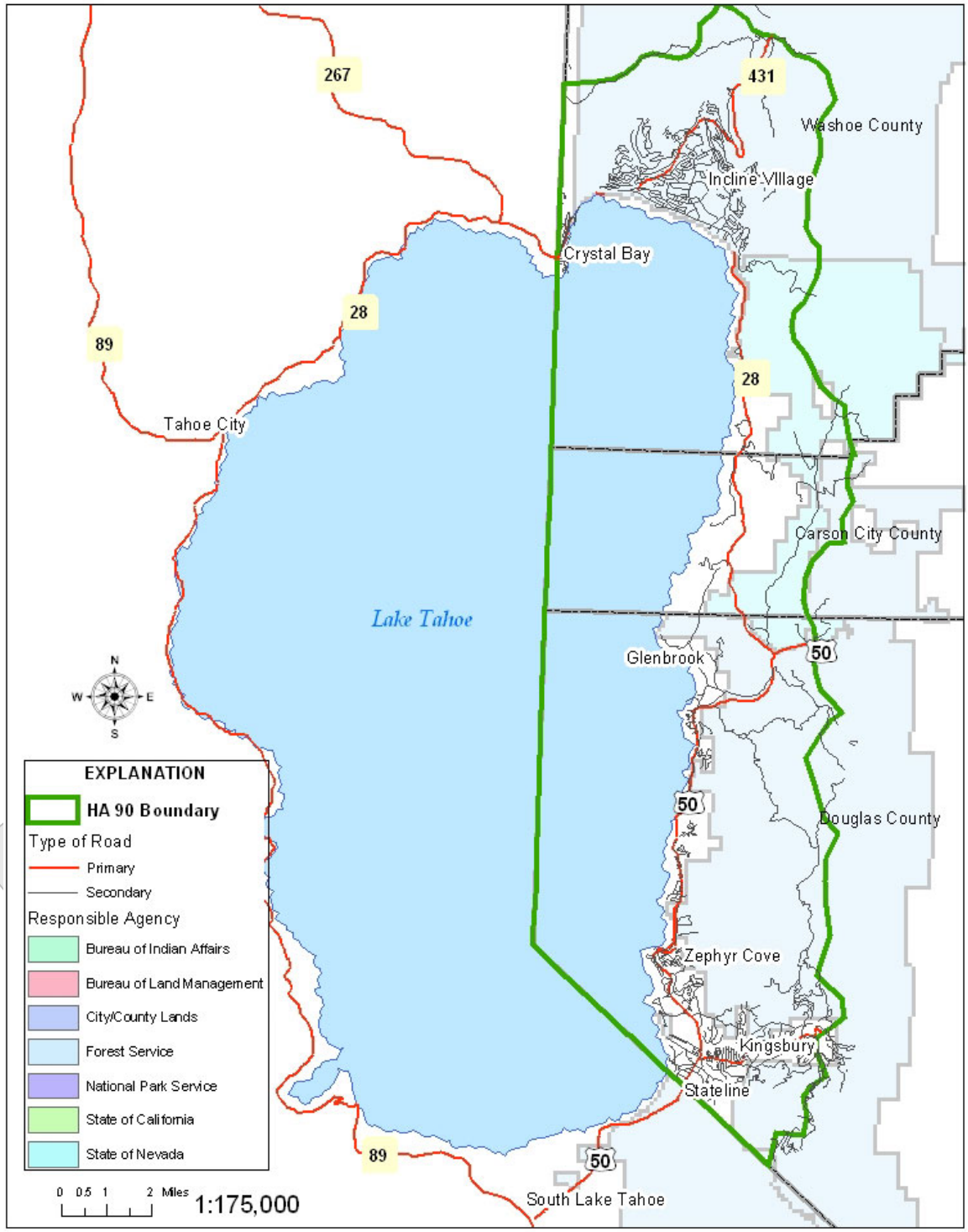
According to TRPA's *2001 Threshold Evaluation Report*, on the south shore, private shuttles, fixed route transit and demand response public transit will be consolidated into a Coordinated Transit System. This will include a central dispatch system and a network of electronic kiosks throughout the service area to automate passenger pick-up. Also, the bus service in South Lake Tahoe is beginning to purchase CNG buses and will have a permanent CNG fast fill fueling station within the year. They currently have at least four CNG buses that use a temporary, mobile fueling station. The northern side of the lake is planning to install a CNG station as well. Altogether, these measures have improved traffic flow by providing alternatives to motor vehicle use, by eliminating the need for vehicles to stop for jaywalking pedestrians and by reducing vehicle trips through public transportation alternatives (although the total number of Basin-wide vehicle miles traveled have increased due to increases in residential and tourist populations).

Population Data

Population estimates for the towns on the Nevada side of the Basin were taken from the U.S. Census Bureau 2000 Census. The largest population center located totally within the Nevada side of the Basin is the Incline Village-Crystal Bay area. According to the 2000 census, the population of this area is 9,952. Incline Village and Crystal Bay are primarily residential and resort communities along the California state line on the north end of Lake Tahoe. Figure 4 shows the road network on the Nevada side of the Basin.

The other population centers along the Nevada shore are in Douglas County. From north to south, these include Glenbrook with a population of 365, Zephyr Cove with 1,649, Kingsbury with 2,624 and Stateline with 1,215. The total Douglas County population, including outlying areas, according to the 2000 census was 6,739. The Carson City County area within the Basin is considered a rural area with a very minimal population. There are no towns in this area. It was not a "census designated place" in the 2000 census and does not have any population estimates available. Any existing population is expected to remain essentially stable in this rural area.

FIGURE 4. ROADS IN HYDROGRAPHIC AREA 90



Altogether, the population on the Nevada side of the Basin, i.e., the Zephyr Cove Census County Division (CCD) plus the Incline Village CCD, was estimated at 16,691 in 2000. Historical population data were obtained from the Nevada State Demographer and appear in Table 3. From

1990 to 2000, the Incline Village CCD increased by 32 percent. The Zephyr Cove CCD (includes all Douglas County towns in the Basin) increased by 10 percent, while the South Lake Tahoe City (California) population only increased by 9 percent.

TABLE 3. LAKE TAHOE NEVADA AREA POPULATION DATA

Geographic Levels Reported: State; County; Census County Division (CCD); Census Designated Place (CDP).

	2000	1990	1980	1970	1960
Nevada	1,998,257	1,201,833	800,493	488,738	285,278
Douglas County	41,259	27,637	19,421	6,882	3,481
Zephyr Cove CCD[1]	6,739	6,115	5,368	3,015	1,017
Kingsbury CDP	2,624	2,238	2,695		
Zephyr Cove-Round Hill Village CDP	1,649	1,434	1,316		
Stateline CDP[2]	1,215	1,379			
Washoe County	339,486	254,667	193,623	121,068	84,743
Incline Village CCD[3]	9,952	7,567			
Incline Village-Crystal Bay CDP[4]	9,952	7,119	6,225		
California	33,871,648	29,760,021	23,667,902	19,953,134	15,717,204
Eldorado County	156,299	125,995	85,812	43,833	29,390
South Lake Tahoe CCD[5]	34,042	29,552	27,471	14,919	7,897
South Lake Tahoe City	23,609	21,588	20,681	12,921	

[1] Referred Zephyr Cove CCD began in 1990. Prior to that it appears to be the Tahoe Township.

[2] Stateline CDP began in 1990.

[3] Incline Village CCD began in 1990.

[4] Incline Village CDP first appears in 1980. Prior to that there are no geographic units assigned to the Washoe County portion of Lake Tahoe.

[5] Boundaries for the Census County Divisions were revised in 1980. Prior to that the CCD was the Lake Valley Division. Though not exactly the same it approximates the same area.

Source: Jeff Hardcastle, Nevada State Demographer. April 7, 2003, e-mail.

Approval of a Maintenance Plan Meeting the Requirements of Section 175A of the CAA

The Lake Tahoe Nevada Area (Hydrographic Area 90, see Figure 4) is classified by EPA as "Not Classified" in the November 6, 1991 issue of the Federal Register (56FR56694). If a CO nonclassifiable area has a design value[1] equal to or less than 85% of the NAAQS (7.65 ppm) at the time of the redesignation request, it qualifies for the less rigorous maintenance plan known as a Limited Maintenance Plan (LMP). This design value is based on the eight consecutive quarters (2 years of data) used to demonstrate attainment. Additionally, the area must continue to be below 7.65 ppm for CO until the time of final EPA action on the redesignation request.

[1] The design value is the highest of the second highest eight-hour concentrations observed at any site in the area and is the value on which the determination of attainment or nonattainment is based.

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EPA guidance (October 6, 1995 memorandum from Joseph W. Paise, EPA Office of Air Planning and Standards to all Air Branch Chiefs, Regions I-X) lists the core requirements for a LMP as follows:

a. Attainment Inventory. The State should develop an attainment emissions inventory to identify a level of emissions in the area which is sufficient to attain the NAAQS. This inventory should be consistent with EPA's most recent guidance on emissions inventories for nonattainment areas available at the time and should represent emissions during the time period associated with the monitoring data showing attainment. The inventory should be based on actual "typical winter day" emissions of CO.

b. Maintenance Demonstration. The maintenance demonstration requirement is considered to be satisfied for nonclassifiable areas if the monitoring data show that the area is meeting the air quality criteria for limited maintenance areas (7.65 ppm or 85% of the CO NAAQS). There is no requirement to project emissions over the maintenance period. The EPA believes if the area begins the maintenance period at or below 85 percent of exceedance levels, the air quality along with the continued applicability of PSD requirements, any control measures already in the SIP, and Federal measures, should provide adequate assurance of maintenance over the initial 10-year maintenance period.

When EPA approves a limited maintenance plan, EPA is concluding that an emissions budget may be treated as essentially not constraining for the length of the maintenance period because it is unreasonable to expect that such an area will experience so much growth in that period that a violation of the CO NAAQS would result.

c. Monitoring Network/Verification of Continued Attainment. To verify the attainment status of the area over the maintenance period, the maintenance plan should contain provisions for continued operation of an appropriate, EPA-approved air quality monitoring network, in accordance with 40 CFR part 58. This is particularly important for areas using a limited maintenance plan because there will be no cap on emissions.

d. Contingency Plan. Section 175A of the Act requires that a maintenance plan include contingency provisions, as necessary, to promptly correct any violation of the NAAQS that occurs after redesignation of the area. These contingency measures do not have to be fully adopted at the time of redesignation. However, the contingency plan is considered to be an enforceable part of the SIP and should ensure that the contingency measures are adopted expeditiously once they are triggered by a specific event. The contingency plan should identify the measures to be promptly adopted and provide a schedule and procedure for adoption and implementation of the measures. The State should also identify specific indicators, or triggers, which will be used to determine when the contingency measures need to be implemented. While a violation of the NAAQS is an acceptable trigger, States may wish to choose a pre-violation action level as a trigger, such as an exceedance of the NAAQS. By taking early action, a State may be able to prevent any actual violation of the NAAQS and, therefore, eliminate any need on the part of EPA to redesignate an area back to nonattainment.

e. Conformity Determinations Under Limited Maintenance Plans. The transportation conformity rule (58 FR 62188; November 24, 1993) and the general conformity rule (58 FR 63214; November 30, 1993) apply to nonattainment areas and maintenance areas operating under maintenance plans. Under either rule, one means of demonstrating conformity of Federal actions is to indicate that expected emissions from planned actions are consistent with the emissions budget for the area. Emissions budgets in limited maintenance plan areas may be treated as essentially not constraining for the length of the initial maintenance period because it is unreasonable to expect that such an

area will experience so much growth in that period that a violation of the CO NAAQS would result. In other words, EPA would be concluding that emissions need not be capped for the maintenance period. Therefore, in areas with approved limited maintenance plans, Federal actions requiring conformity determinations under the transportation conformity rule could be considered to satisfy the "budget test" required in sections 93.118, 93.119, and 93.120 of the rule. Similarly, in these areas, Federal actions subject to the general conformity rule could be considered to satisfy the "budget test" specified in section 93.158(a)(5)(i)(A) of the rule.

Attainment Inventory

The *Lake Tahoe Nevada Area 2001 Emissions Inventory* was prepared by NDEP and is included as Appendix A with backup documentation in Appendix B. Because the overwhelming source of CO in the Tahoe Basin is from motor vehicle exhaust (over 90%), an inventory of emissions from on-road and non-road mobile sources was prepared. EPA's MOBILE6 model was used to estimate the on-road emission inventory. EPA's draft version of NONROAD, updated in June 2000, was used to estimate non-road mobile source emissions. Emissions were calculated for the peak CO season using the month of January in the base year of 2001.

Minor sources of CO, which include wood burning and prescribed burns, were not inventoried because their contribution to total CO is so minimal, and the residential population of the area is quite small. A Washoe County regulation in effect in the Incline Village-Crystal Bay area restricts the installation of new fireplaces to lots of one-quarter acre or larger. Any new or resold woodstove is required to comply with U.S. EPA and county emission standards. Additionally, TRPA requires that all existing wood heaters, excluding legally existing open fireplaces, comply with emission standards prior to any sale, transfer, or conveyance of any building anywhere in the Basin.

The mobile sources emissions calculations used the most recent planning assumptions for transportation network vehicle miles traveled and speed. The high altitude option was chosen for model simulations. This methodology gives an estimate for total daily CO emissions from on-road sources of 17.72 tons/day and 1.06 tons/day from non-road sources. Table 4 presents the mobile sources emissions inventory by vehicle category in tons per year.

TABLE 4. MOBILE SOURCE EMISSIONS INVENTORY (tons per year)

ON-ROAD VEHICLES	Vehicle Class	TPY CO	% of Grand Total
	LDGV	2702	39.40
	LDGT	3142	45.82
	HDGV	433	6.31
	LDDV	0.40	0.01
	LDDT	0.76	0.01
	HDDV	161	2.35
	MC	31	0.45
	Category Total*	6470	94.35
OFF-ROAD VEHICLES		387	5.64
GRAND TOTAL		6857	99.99

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* The difference between the total CO emission rate reported in tons per day (17.72 t/day or 6467.80 tpy) and the total CO emission rate reported here (6469.82 tpy) is due to rounding. The 6467.80 tpy figure was calculated using the composite emission factor generated for all vehicle classes by MOBILE6, whereas the 6469.82 tpy figure was arrived at by summing the emission rates for each vehicle class calculated using individual MOBILE6 vehicle class emission factors. This difference is not significant and amounts to less than 0.1%.

Maintenance Demonstration

The maintenance demonstration requirements have been met in that monitoring data shows the Basin is meeting air quality criteria for limited maintenance areas (7.65 ppm or 85% of the CO NAAQS) (see Tables 1 and 2). Based on data from Stateline for calendar years 2001 and 2002, the 8-hour average CO design value is 6.1 ppm, substantially under the required 7.65 ppm. In fact, continuous monitoring at Stateline has shown second highest measured CO levels below 7.65 ppm since 1989. The 8-hour average CO design value for Incline Village, based on calendar years 2000 and 2001, is 1.8 ppm. The State has, therefore, selected the LMP option for the first 10-year maintenance period under section 175A of the CAA. There is no requirement to project emissions over the maintenance period.

Monitoring Network/Verification of Continued Attainment

In accordance with the LMP the state will continue to operate an appropriate, EPA approved air quality monitoring network consistent with 40 CFR 58. The current monitor at Stateline (located at Harvey's Resort Hotel on Hwy 50, Figure 2) will be maintained. Data from the monitoring network has been and will continue to be downloaded to the AIRS database.

Contingency Plan

Under the provisions of the LMP option, contingency measures do not have to be fully adopted at the time of redesignation. However, the contingency plan is considered to be an enforceable part of the ASIP and should ensure that contingency measures are adopted quickly once they are triggered. This contingency plan, therefore, provides a procedure to prevent future violations and promptly correct any violation of the CO NAAQS that might occur after redesignation. By adopting this LMP, NDEP and member jurisdictions promise to adhere to the provisions outlined herein. By submitting this redesignation request on behalf of the Governor of Nevada, as his designated representative, NDEP demonstrates its commitment to the contingency plan. Assurance from the other jurisdictions involved in air quality control activities on the Nevada side of the Basin (Tahoe Metropolitan Planning Organization, Nevada Department of Transportation and the Washoe County District Health Department) is provided in resolutions or letters found in Appendix C.

NDEP has selected two verified 8-hour average concentrations in excess of 7.65 ppm (85% of the CO NAAQS) at any one monitoring site in any CO season (November through February) as the pre-violation action level. When this criterion is first reached, there should be ample time available to complete all necessary studies, technical evaluations, and recommendations and provide for implementation of mitigation measures.

If the pre-violation action level is reached, NDEP will notify the Tahoe Metropolitan Planning Organization (TMPO), which will in turn activate the Conformity Task Force created under the

TMPO Air Quality Transportation Conformity Interagency Consultation Procedures plan. The Interagency Consultation Procedures plan was formulated in 1999 to deal with regional transportation conformity issues throughout the Basin. The procedures are bi-state and multi jurisdictional in nature. Participants in the Conformity Task Force include all of the air quality planning agencies/districts in the Basin, regional planning agencies, state DOTs and federal agencies.[2]

Under the direction of this Task Force, NDEP will analyze historical and current monitoring data from the Stateline site and California's Sandy Way site in South Lake Tahoe (or other appropriate site in South Lake Tahoe) and will conduct field studies using a portable CO monitor to determine whether the event is confined to a local hot spot or if it is an area wide phenomenon. Historically, CO exceedances have mainly occurred at a hot spot location by Stateline (TRPA 2002 Threshold Evaluation report). In the case that the analysis indicates no threat of a future violation, the data acquired will be filed as part of the database to evaluate future trigger events.

If it is determined that the event is confined to a local hot spot and local transportation system improvements at that location can be implemented promptly, and will fully mitigate the problem, the Task Force will recommend that action to the appropriate jurisdiction. With the concurrence of the appropriate jurisdiction(s), a congestion mitigation strategy will be employed to implement traffic operations improvements such as the installation of traffic surveillance and control equipment, computerized signal systems, motorist information systems, integrated traffic control systems, roadway channelization and intersection improvement.

If the problem is area wide, the Task Force will examine, prioritize and recommend general control measures, such as cleaner burning fuel, employer-based trip reduction, non-work trip reduction, parking supply and pricing management, high occupancy vehicle system or transit improvement plan. Section 210 of Chapter 445B of the Nevada Revised Statutes (see endnote) gives the Nevada SEC authority to adopt regulations to prevent, abate and control air pollution and to establish fuel standards for both stationary and mobile sources of air contaminants if such are necessary to protect human health. Although the TMPO does not have any regulatory authority, the task force may determine that TRPA's assistance is needed. TRPA's authority to implement control measures is found in the Tahoe Regional Planning Compact (NRS 277.200; PL 96-551). The SEC and its operating arm, NDEP, will work with all appropriate local air pollution control agencies in developing required control measures. An actual monitored exceedance of the CO NAAQS will trigger the same contingency plan action described above.

Finally, NDEP has committed to track CO concentrations and to adopt, submit as a SIP revision, and implement expeditiously any and all measures to achieve the level of CO emissions reductions needed to maintain the CO NAAQS in the event that an exceedance of the CO NAAQS is monitored. NDEP intends to work with the involved jurisdictions to ensure that sufficient measures are adopted and implemented in a timely fashion to prevent a violation.

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[2] Conformity Task Force participants include: Nevada Division of Environmental Protection, California Air Resources Board, Washoe County District Health Department, El Dorado County Air Pollution Control District, Placer County Air Pollution Control District, Tahoe Regional Planning Agency, Tahoe Metropolitan Planning Organization, Nevada DOT, California DOT, U.S. EPA, Federal Highway Administration and Federal Transit Administration.

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In addition to the plan presented above, Nevada believes it will also benefit from the contingency measures adopted on the California side of the Basin. On March 31, 1998 EPA issued a direct final rule redesignating California's ten federal CO planning areas to attainment.[3] In their 1996 redesignation request document, California claimed that its on-going motor vehicle program with regulations scheduled to come on line between 1996 and 2003 would generate new reductions in CO emissions. These reductions would occur regardless of monitored CO levels, providing an ample margin of safety to ensure maintenance of the NAAQS and covering contingency requirements. California's motor vehicle program continues to produce innovative regulations and programs to further reduce pollution from motor vehicles.

Conformity Determinations Under Limited Maintenance Plans

Under the transportation conformity rule (58 FR 62188) and the general conformity rule (58 FR 63214) one means of demonstrating conformity is to show that expected emissions from planned actions are consistent with the emissions budget for the area. EPA guidance asserts that in LMP areas emissions budgets may be treated as essentially not constraining for the initial 10-year maintenance period because the area is unlikely to grow enough that a violation of the NAAQS would occur. In other words, emissions need not be capped for the maintenance period. It follows, then, that any actions requiring transportation or general conformity determinations can either be considered to satisfy the budget test, or conversely, the budget test does not apply.

Requirements Have Been Met as Defined in Section 110 and Part D of the CAA

NDEP is confident that all applicable requirements of the CAA as defined in Section 110 and Part D for the Lake Tahoe Basin have been adopted, implemented and/or attained. The public hearing process is documented in Appendix D.

ENDNOTE: NRS 445B.210 Powers of commission. The commission may:

1. Subject to the provisions of NRS 445B.215, adopt regulations consistent with the general intent and purposes of NRS 445B.100 to 445B.640, inclusive, to prevent, abate and control air pollution.
2. Establish standards for air quality.
3. Require access to records relating to emissions which cause or contribute to air pollution.
4. Cooperate with other governmental agencies, including other states and the Federal Government.
5. Establish such requirements for the control of emissions as may be necessary to prevent, abate or control air pollution.
6. By regulation:

(a) Designate as a hazardous air pollutant any substance which, on or after October 1, 1993, is on the federal list of hazardous air pollutants pursuant to 42 U.S.C. § 7412(b); and

(b) Delete from designation as a hazardous air pollutant any substance which, after October 1, 1993, is deleted from the federal list of hazardous air pollutants pursuant to 42 U.S.C. § 7412(b),

[3] The ten areas that were redesignated are: Bakersfield Metropolitan Area; Chico Urbanized Area; Fresno Urbanized Area; Lake Tahoe No. Shore Area (Placer County part of Lake Tahoe Air Basin); Lake Tahoe So. Shore Area (El Dorado County part of Lake Tahoe Air Basin); Modesto Urbanized Area; Sacramento Area (urbanized parts of Sacramento, Placer and Yolo Counties); San Diego Area (western part of County only); San Francisco-Oakland-San Jose Area (urbanized parts of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano and Sonoma Counties) and Stockton Urbanized Area. See 63 FR 15305.

based upon the commission's determination of the extent to which such a substance presents a risk to the public health.

7. Hold hearings to carry out the provisions of NRS 445B.100 to 445B.640, inclusive, except as otherwise provided in those sections.

8. Establish fuel standards for both stationary and mobile sources of air contaminants. Fuel standards for mobile sources of air contaminants must be established to achieve air quality standards that protect the health of the residents of the State of Nevada.

9. Require elimination of devices or practices which cannot be reasonably allowed without generation of undue amounts of air contaminants

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APPENDIX A

LAKE TAHOE NEVADA AREA 2001 EMISSIONS INVENTORY

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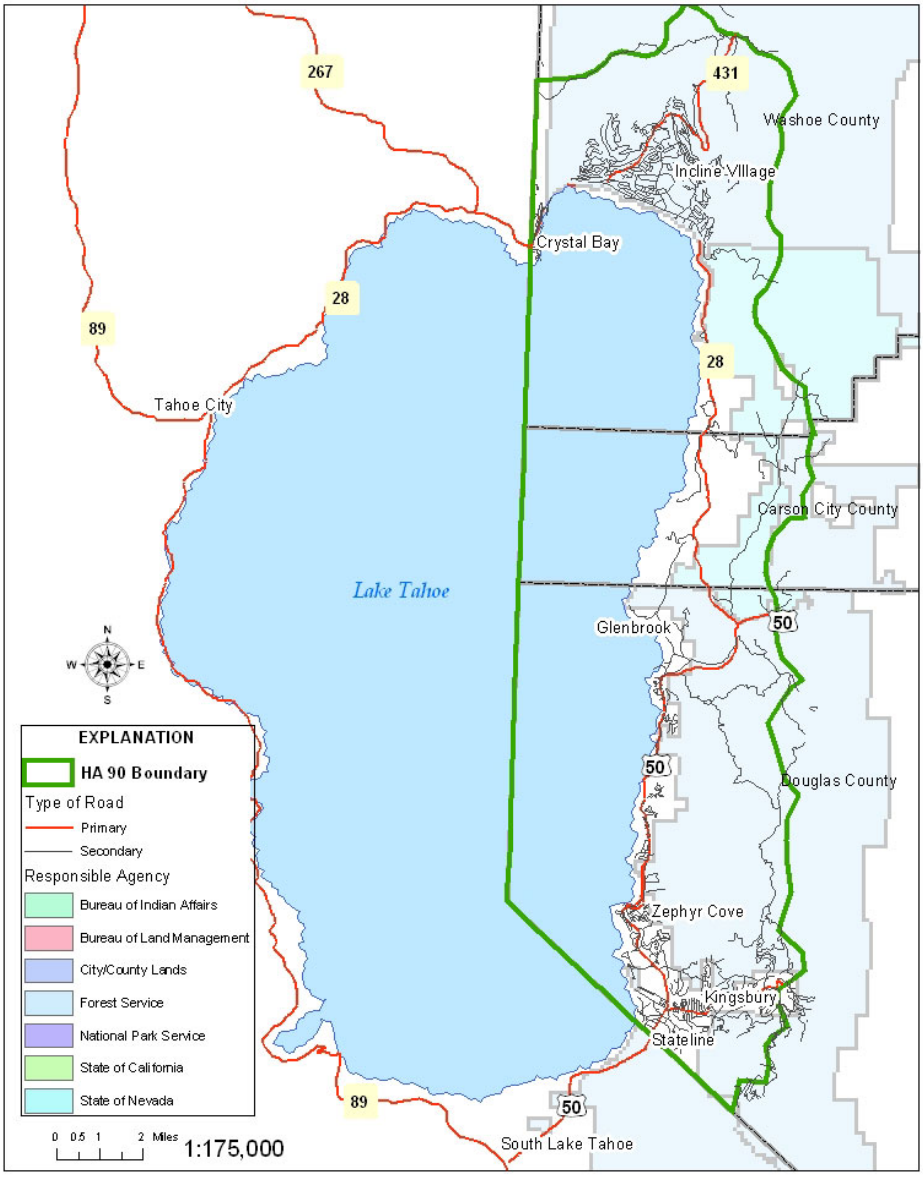
APPENDIX A

LAKE TAHOE NEVADA AREA 2001 EMISSIONS INVENTORY

On-Road Mobile Sources

On-road motor vehicles in the Lake Tahoe Basin contribute over 90 percent of the carbon monoxide (CO) emissions in the basin. Almost 90 percent of the vehicle miles traveled (VMT) on the Nevada side of the Basin occur on rural arterials that connect either to the California side of the lake or to points outside the basin in Nevada. Motor vehicle traffic also occurs on local streets and collectors in several urbanized areas within the basin. A map of the road systems on the Nevada side of the Basin is shown as Figure A-1.

FIGURE A-1. ROADS IN HYDROGRAPHIC AREA 90



A computer modeling approach was taken to estimate on-road emission inventories using the U.S. Environmental Protection Agency MOBILE6.0 (2002) model. Separate CO emission factors were calculated for the two roadway facility types present in the Lake Tahoe Basin, arterial/collector roads and local roads. These emission factors were then applied to VMT estimates derived for the arterial/collector and local facilities, respectively. The product of the emission factors and the VMT estimates produced a calculated prediction of total on-road CO emissions during the peak annual CO season. Input data were supplied by local agencies where available, or taken from default values that are included in MOBILE6.

Vehicle Miles Traveled Estimation

The Nevada Department of Transportation (NDOT) is responsible for administering all the principal arterials, as well as several minor arterials and collector roads, within the Lake Tahoe Basin. NDOT routinely collects statewide traffic volume data, which are published in *The Annual Traffic Report (2001)*. Annual Average Daily Traffic (AADT) is monitored by NDOT on portable short-term traffic counters at numerous locations along the roads they administer in the Lake Tahoe Basin. Additionally, hourly traffic volume is monitored continuously at two Automatic Traffic Recorders located on the principal arterials of U.S. Highway 50 in Stateline and State Route 28 in Incline Village. There are no freeways or ramps in the basin. The VMT data used in the modeling effort were apportioned by facility type only and were not available by vehicle class.

NDOT divides each arterial and collector route into sections. Using the measured section lengths along with the traffic counts, NDOT calculates Annual Vehicle Miles (AVM) traveled for each section. The AVM for each section of arterial and collector in the Lake Tahoe Basin were summed to produce a total AVM. When converted to daily Vehicle Miles Traveled (VMT) for input to the MOBILE6 model, the total arterial and collector VMT amounted to 464,174 vehicle-miles per day.

The three Nevada counties in the Basin (Carson City, Douglas and Washoe) administer some of the local roads. The general improvement districts maintain the other local streets. Traffic volume data are not collected with any consistency on these streets. Due to the paucity of local street AADT or VMT data, an approach was used similar to one taken by Washoe County in estimating local VMT. This approach is based on the assumption that local VMT is a fractional percentage of the combined VMT on arterials, collectors, freeways, and ramps. Washoe County has a fractional percentage of VMT on local streets that is 10.8% of the combined VMT on arterials and collectors. Using this same percentage of 10.8% resulted in a local VMT estimate of 50,131 vehicle-miles per day for the Nevada portion of the Lake Tahoe Basin.

MOBILE6 Input Parameters

User-supplied input parameters are listed below along with an explanation of how they were derived. MOBILE6 default values were used for all other input parameters not addressed in this section.

Month and Year. The model was used to simulate CO emissions during the month of January, the peak of the annual high CO season. The year chosen for the base year model

run was 2001. That year provided the most complete data set in terms of VMT and fuel parameters.

Altitude. Roadways in the modeled area range in elevation from approximately 6200 feet to well over 8000 feet. The high altitude option, which uses parameters representative of conditions at 5500 feet, was chosen for model simulations.

Min/Max Temp. Temperature data were taken from the Western Regional Climate Center at the Desert Research Institute, Reno. Period of record monthly climate summaries were available for Glenbrook and Stateline. Model input for Average Maximum Temperature (41.6° F) was calculated as the arithmetic mean of the January Avg. Max Temperatures for Glenbrook (41.3° F) and Stateline (41.9° F). Model input for Average Minimum Temperature (23.4° F) was obtained by taking the arithmetic mean of the January Avg. Min Temperatures for Glenbrook (23.8° F) and Stateline (23.0° F).

Oxygenated Fuels. Fuel data concerning market share were obtained from local fuel supplier Berry-Hinckley Industries. Fuel is available in two of the three Nevada counties in the Tahoe Basin: Washoe County and Douglas County. The mandated average oxygen content is 2.7% in the Reno-Sparks area of Washoe County (Truckee Meadows Hydrographic Area 87, in nonattainment for CO). Though not required, the close proximity of Incline Village to the Reno-Sparks area results in the fuel sold in that portion of the Tahoe Basin as being an oxygenated alcohol blend with a 100% market share. Fuel sold in the Stateline area of Douglas County is not oxygenated. Total market share of oxygenated fuels sold in the two Nevada counties where it is available in the Tahoe Basin was estimated using a population-weighted mean. The total Nevada population of the Tahoe Basin was surveyed as 16,691 using U.S. Census Bureau data for year 2000. Of those 16,691 inhabitants, Washoe County residents numbered 9952 or 60%. Therefore, total market share of oxygenated fuels sold on the Nevada side of the Tahoe Basin is estimated at 60%. State regulations provide a Reid Vapor Pressure (RVP) waiver for blending alcohol-based oxygenates. (Gasoline containing 9.0 percent ethanol by volume or more is permitted an additional 1.0 pound per square inch on the vapor pressure specification.)

Fuel RVP. RVP data are routinely collected by the Nevada Department of Agriculture. This is a measure of the volatility of the gasoline with lower numbers representing lower volatility. Refineries can adjust this fuel characteristic (or specification), and in the winter season, RVP is usually increased to avoid drivability problems. The model input value of 12.5 psi was obtained from the average January 2001 RVP as measured by the Nevada Department of Agriculture at fuel retailers in Washoe County.

Vehicle Fleet Characteristics. Although efforts are underway by the Tahoe Metropolitan Planning Organization to gather local data on fleet mix, it was not available for this analysis. The percentage of SUVs is probably higher around Tahoe than the national average, however, given the low volume of traffic on the Nevada side of the Basin the effect on emissions output would be minimal. Therefore, the assumption was made that vehicle fleet characteristics in the Lake Tahoe Basin are similar to nationally derived fleet models, and default values were used in the MOBILE6 model. This includes vehicle registration distributions, diesel fractions, mileage accumulation, and natural gas vehicle fractions.

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Emission Factor Estimates

Emission factor estimates for local and arterial/collector roads were generated in separate modeling simulations. The local CO emission factor was calculated by using the VMT BY FACILITY command with 100% of all facility types assigned to LOCAL. This is done for each hour of the day for every vehicle class. The emission factor calculated was 32.587 grams per vehicle-mile. This is a composite CO emission factor reported in the MOBILE6 descriptive output and comprises a weighted average of all emission factors calculated for local roads, at all hours, and from all default vehicle types and ages.

For the purposes of modeling, arterial and collector roadways were combined into the arterial facility type. The calculation was complicated by the fact that for the arterial facility type MOBILE6 CO emission factors are a function of vehicle speed. Accounting for this required using both the VMT BY FACILITY and SPEED VMT commands. For this estimate, 100% of all facility types were assigned to ARTERIAL using the VMT BY FACILITY command; default speed distribution for arterials was used for SPEED VMT. This resulted in a simulation of emissions from vehicle travel in the basin on arterials only, at default speeds through each hour of the day, for all default vehicle types and ages. The simulation produced an emission factor of 31.114 grams per vehicle-mile.

Calculation of Emission Rates

Carbon monoxide emission rates were computed by multiplying the traffic activity level (VMT) with the emission factor. For local roadways, the daily CO emissions were calculated as:

$$\text{VMT}_{(local)} \text{ (v-mi/day) x Emission Factor}_{(local)} \text{ (gm/v-mi) = CO Emission Rate}_{(local)} \text{ (gm/day)}$$
$$50130.79 \text{ v-mi/day x } 32.722 \text{ gm/v-mi} = 1{,}640{,}379.71 \text{ gm/day.}$$

For arterials, the daily CO emissions were calculated as:

$$\text{VMT}_{(arterial)} \text{ (v-mi/day) x Emission Factor}_{(arterial)} \text{ (gm/v-mi) = CO Emission Rate}_{(arterial)} \text{ (gm/day)}$$
$$464{,}174 \text{ v-mi/day x } 31.230 \text{ gm/v-mi} = 14{,}496{,}154.02 \text{ gm/day.}$$

The summation of the two emission rates for total daily CO emissions from on-road sources results in an estimate of:

$$\text{CO Emission Rate}_{(local)} \text{ (gm/day) + CO Emission Rate}_{(arterial)} \text{ (gm/day) = CO Emission Rate}_{(total)} \text{ (gm/day)}$$
$$1{,}640{,}379.71 \text{ gm/day} + 14{,}496{,}154.02 \text{ gm/day} = 16{,}136{,}533.73 \text{ gm/day}$$
$$\text{or } 17.79 \text{ tons/day.}$$

Non-Road Mobile Sources

Non-road mobile sources in the Lake Tahoe Basin consist of a variety of equipment used in both rural and urban settings. These include both gasoline and diesel-powered vehicles and equipment. The Lake Tahoe Basin is a regional recreation center that attracts recreational vehicles such as off-road motorcycles and all-terrain vehicles, snowmobiles, marine pleasure

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craft, golf carts, and campers (auxiliary generators). Lawn and garden equipment are used in the populated areas of the north shore and south shore, as is construction equipment. Some light commercial and industrial equipment is in use, including snow-grooming equipment at the ski resorts located within the study area. Agriculture and the associated equipment used in that industry is limited to occasional timber harvesting and thinning performed as a forest management practice. There are no airports or railroads within the Nevada portion of the Lake Tahoe Basin.

The approach taken to estimate emissions from non-road mobile sources involved the use of the U.S. Environmental Protection Agency's National Nonroad Emissions Inventory Model (NONROAD). The draft version of NONROAD, updated in June 2000, was used to calculate non-road CO emissions generated in the three Nevada counties present in the Lake Tahoe Basin: Washoe, Carson City, and Douglas. NONROAD uses emission factors, growth estimates, seasonal and monthly allocation fractions, and other measures of motorized non-road equipment use to calculate emissions for specific geographic regions including the three Nevada counties selected. Emission rates were calculated for the peak CO season using the month of January in the base year of 2001. The countywide estimates were then corrected for the percentage of each respective county's population residing within the Lake Tahoe Basin.

Nonroad Emissions Inventory Model Input Parameters

The following parameters constitute the input for the NONROAD model. The complete listing of input parameters is available from the Nevada Division of Environmental Protection (see Appendix B for contact information).

Fuel RVP for gas: 12.5
Oxygen Weight %: 2.7
Gas sulfur %: 0.020
Diesel sulfur %: 0.030
CNG/LPG sulfur %: 0.003
Minimum temper. (F): 27
Maximum temper. (F): 47
Average temper. (F): 37
Altitude of region: HIGH
Stage II Control %: 0
Month: January
Year: 2001
Day: weekday
Region: Carson City County, Douglas County, Washoe County
Sources: All Sources

Nonroad Emissions Inventory Model Results

Non-road emissions estimates for CO were calculated for each Nevada county in the Lake Tahoe Basin. The NONROAD model resulted in the following estimates, uncorrected for the study area's population:

Carson City County	2.97 tons/day

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Douglas County	2.63 tons/day
Washoe County	22.29 tons/day

The majority of the population in these counties resides outside of the Lake Tahoe Basin in the cities of Reno, Sparks, Carson City proper, Minden, and Gardnerville. To correct the estimates presented above for population required multiplying the emission rate by a population percentage factor. This factor was derived from the ratio of each county's population residing within the Lake Tahoe Basin compared to total county population using year 2000 census data.

For Carson City County, the 2000 federal census reports that no residents live within the Lake Tahoe Basin. It is reasonable to assume, however, that non-road motorized equipment is nevertheless in use in this portion of Carson City County. A conservative estimate of 1% of the total Carson City County emissions was used to calculate CO emissions in the Lake Tahoe portion. Population estimates for residents in the Lake Tahoe Basin portions of Douglas County and Washoe County were used to obtain the following population percentage factors: Douglas County 14.19% and Washoe County 2.93%. When applied, these factors resulted in the following corrected emission estimates:

Carson City County	2.97 tons/day x 0.01 = 0.0297 tons/day
Douglas County	2.63 tons/day x 0.14186 = 0.37309 tons/day
Washoe County	22.29 tons/day x 0.0293149 = 0.65343 tons/day

The combined non-road emission estimate for CO in the Nevada portion of the Lake Tahoe Basin during January 2001 is 1.06 tons/day.

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U.S. Environmental Protection Agency. National Nonroad Emissions Inventory Model (NONROAD), 2000.

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APPENDIX B

MOBILE6 INPUT AND OUTPUT FILES; NONROAD EMISSION TOTALS

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For additional information on the MOBILE6 and NONROAD model runs contact the Planning Branch, Bureau of Air Quality Control, Nevada Division of Environmental Protection, 333 West Nye Lane, Carson City, Nevada 89706. Telephone (775) 687- 9347.

Input for Arterial Scenario

```
*        1         2         3         4
*234567890123456789012345678901234567890123 45
*HEADER SECTION
MOBILE6 INPUT FILE :
DATABASE OUTPUT    :
DAILY OUTPUT       :
WITH FIELDNAMES    :
DATABASE EMISSIONS : 2222 2222
DATABASE FACILITIES: Arterial
DATABASE VEHICLES  : 22222 22222222 2 222 22222222 222
POLLUTANTS         : CO
RUN DATA           :
*FIRST RUN DATA SECTION
*FIRST SCENARIO DATA SECTION
SCENARIO RECORD    : Tahoe Arterial MOBILE6 Run
VMT BY FACILITY    : tarfvmt.def
SPEED VMT          : tarsvmt.def
CALENDAR YEAR      : 2001
MIN/MAX TEMP       : 23.4 41.6
FUEL RVP           : 12.5
ALTITUDE           : 2
OXYGENATED FUELS   : .000 .600 .000 .027 2
END OF RUN         :
```

Output for Arterial Scenario

```
*************************************************************************
* MOBILE6 (16-Jan-2002)                                                 *
* Input file: C:\MOBILE6\TAHOEWK\TAHOEAR2.IN (file 1, run 1).           *
*************************************************************************

* # # # # # # # # # # # # # # # # # # # # # # # # # # #
* Tahoe Arterial MOBILE6 Run
* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # # # #

* Reading Hourly Roadway VMT distribution from the following external
* data file: TARFVMT.DEF

  Reading User Supplied ROADWAY VMT Factors

* Reading Hourly, Roadway, and Speed VMT dist. from the following external
* data file: TARSVMT.DEF
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2001
```

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```
                          Month:  Jan.
                       Altitude:  High
             Minimum Temperature:  23.4 (F)
             Maximum Temperature:  41.6 (F)
               Absolute Humidity:   75. grains/lb
                Nominal Fuel RVP:  12.5 psi
                   Weathered RVP:  12.9 psi
             Fuel Sulfur Content:  299. ppm

             Exhaust I/M Program:  No
                Evap I/M Program:  No
                     ATP Program:  No
                Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.600
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.027
                                          Alcohol Blend RVP Waiver: Yes
       Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV
LDDV      LDDT      HDDV        MC   All Veh
               GVWR:                <6000     >6000     (All)
                        ------    ------    ------    ------    ------    ---
---    ------    ------    ------    ------
   VMT Distribution:    0.4775    0.2953    0.1009              0.0357
0.0009    0.0016    0.0820    0.0061    1.0000
  ---------------------------------------------------------------------------
-----------------------------------------
 Composite Emission Factors (g/mi):
     Composite CO  :     27.66     34.84     50.06     38.71     51.91
2.015     2.140     8.324     23.51    31.230
  ---------------------------------------------------------------------------
-----------------------------------------
```

Input for Local Roads Scenario

```
*         1         2         3         4
*234567890123456789012345678901234567890123 45
*HEADER SECTION
MOBILE6 INPUT FILE :
DATABASE OUTPUT    :
DAILY OUTPUT       :
WITH FIELDNAMES    :
DATABASE EMISSIONS : 2222 2222
DATABASE FACILITIES: Local
DATABASE VEHICLES  : 22222 22222222 2 222 22222222 222
POLLUTANTS         : CO
RUN DATA           :
*FIRST RUN DATA SECTION
*FIRST SCENARIO DATA SECTION
SCENARIO RECORD    : Tahoe Local MOBILE6 Run
VMT BY FACILITY    : tlofvmt.def
CALENDAR YEAR      : 2001
MIN/MAX TEMP       : 23.4 41.6
FUEL RVP           : 12.5
ALTITUDE           : 2
OXYGENATED FUELS   : .000 .600 .000 .027 2
END OF RUN         :
```

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Output for Local Roads Scenario

```
*************************************************************************
* MOBILE6 (16-Jan-2002)                                                 *
* Input file: C:\MOBILE6\TAHOEWK\TAHOELO2.IN (file 1, run 1).           *
*************************************************************************

* # # # # # # # # # # # # # # # # # # # # # # # # # # #
* Tahoe Local MOBILE6 Run
* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # # # #

* Reading Hourly Roadway VMT distribution from the following external
* data file: TLOFVMT.DEF

  Reading User Supplied ROADWAY VMT Factors
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2001
                            Month:  Jan.
                         Altitude:  High
              Minimum Temperature:  23.4 (F)
              Maximum Temperature:  41.6 (F)
                Absolute Humidity:   75. grains/lb
                 Nominal Fuel RVP:  12.5 psi
                    Weathered RVP:  12.9 psi
              Fuel Sulfur Content:  299. ppm

              Exhaust I/M Program:  No
                 Evap I/M Program:  No
                      ATP Program:  No
                Reformulated Gas:  No

   Ether Blend Market Share: 0.000       Alcohol Blend Market Share: 0.600
   Ether Blend Oxygen Content: 0.000     Alcohol Blend Oxygen Content: 0.027
                                          Alcohol Blend RVP Waiver: Yes
       Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV
LDDV      LDDT      HDDV        MC   All Veh
               GVWR:                <6000     >6000     (All)
                        ------    ------    ------    ------    ------    ---
---    ------    ------    ------    ------
   VMT Distribution:    0.4775    0.2953    0.1009              0.0357
0.0009    0.0016    0.0820    0.0061    1.0000
  ---------------------------------------------------------------------------
-----------------------------------------
 Composite Emission Factors (g/mi):
     Composite CO  :     25.24     31.97     48.55     36.19    125.21
3.355     3.587    19.973     35.46    32.722
  ---------------------------------------------------------------------------
-----------------------------------------
```

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NONROAD EMISSION TOTALS BY COUNTY AND POLLUTANT

All Fuels, Tons per Day

WASHOE COUNTY, DOUGLAS COUNTY, CARSON CITY COUNTY

Typical Weekday for January 2001
Date of Model Run: Feb 14 15:44:09: 2003 Today's Date: 4/28/03

County	Exhaust THC	Exhaust NO_x	Exhaust CO	Exhaust PM_{10}	Exhaust SO_x	Exhaust CO_2	Crankcase THC	Diurnal THC	Vapor Displace-ment THC	Spillage THC	Total THC
Carson City	0.26	1.02	2.97	0.08	0.03	89.50	0.01	0.04	0.01	0.01	0.33
Douglas	0.30	0.91	2.63	0.08	0.02	81.75	0.01	0.06	0.00	0.02	0.39
Washoe	2.25	6.01	22.29	0.53	0.16	546.65	0.07	0.44	0.04	0.14	2.94
Totals:	**2.81**	**7.94**	**27.89**	**0.68**	**0.22**	**717.90**	**0.09**	**0.54**	**0.05**	**0.17**	**3.66**

NONROAD Core Model Ver.2.1, Dec 1998

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APPENDIX C

EVIDENCE OF COMMITMENT TO CONTINGENCY MEASURES

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APPENDIX D

PUBLIC HEARING PROCESS DOCUMENTATION

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