NEVADA DIVISION OF
ENVIRONMENTAL PROTECTION

STATE OF NEVADA
Department of Conservation & Natural Resources
Brian Sandoval, Governor
Leo M. Drozdoff, P.E., Director
David Emme, Administrator

August 26, 2016

Alexis Strauss, Acting Regional Administrator
U.S. Environmental Protection Agency, Region 9
Mail Code ORA-1
75 Hawthorne Street
San Francisco, CA 94105-3901

RE: 2016 Supplement to Nevada's Second 10-Year CO Limited Maintenance Plan for the Nevada Side of the Lake Tahoe Basin

Dear Ms. Strauss:

On behalf of Governor Sandoval, as his appointed designee, this letter transmits to you a supplement (2016 Supplement) to the *2012 Revision to the Nevada State Implementation Plan for Carbon Monoxide: Second 10-Year Limited Maintenance Plan for the Nevada Side of the Lake Tahoe Basin*, submitted to the U.S. Environmental Protection Agency (USEPA) on April 3, 2012. This supplement responds to USEPA comments on the 2012 submittal. Based on Nevada Revised Statutes 445B.205 and Nevada Administrative Code 445B.053, the Administrator of the NDEP has the authority to adopt and submit state implementation plans and revisions to USEPA. I thereby adopt the accompanying supplement to Nevada's April 3, 2012 CO SIP submittal and request USEPA approve the 2012 CO SIP submittal as revised by this supplement into the Nevada applicable SIP.

The following documents comprise the supplemental submittal and are being submitted electronically to USEPA's Central Data Exchange (https://cdx.epa.gov/CDX/LoggedOut):

- 2016 Supplement to Nevada's Second 10-Year CO Limited Maintenance Plan for the Nevada Side of the Lake Tahoe Basin
- 2016 Supplement Strikeout Copy
- Attachment A, 2011 Emissions Inventory; 2024 projection
- Attachment B, 2016 Supplement-Public Participation
- Attachment C, Analysis of MADT v CO levels
- Attachment D, Historic MADT Reports
- Attachment E, Tahoe CO EI Inventory Preparation Plan
- Attachment F, 2012 CO LMP-CONTENTS replacement page

The 2016 Supplement was properly noticed and an opportunity for a public hearing was afforded. Evidence of compliance with the required consultation and public review processes is included as Attachment B.

If you should have any questions about this submittal or require additional clarification, you may contact Danilo Dragoni, Chief, Bureau of Air Quality Planning at (775) 687-9340.

Sincerely,

David Emme
Administrator

Enclosures

cc w/o enclosures:
Charlene Albee, Director, Air Quality Management Division, WCDHD
Sheila Anderson, Policy Analyst, Office of the Governor
Doris Lo, Acting Chief, Planning Office AIR-2, USEPA Region 9
John Kelly, Planning Office AIR-2, USEPA Region 9

ec w/o enclosures:
Leo Drozdoff, Director, Nevada Department of Conservation and Natural Resources
Danilo Dragoni, Chief, Bureau of Air Quality Planning, NDEP

Submitted electronically to USEPA's Central Data Exchange, https://cdx.epa.gov/CDX/LoggedOut

2016 Supplement to Nevada's 2nd 10-Year CO Limited Maintenance Plan at Lake Tahoe

The Nevada Division of Environmental Protection (NDEP) submits the following revisions and clarifications to Nevada's *2012 Revision to the Nevada State Implementation Plan for Carbon Monoxide: Updated Limited Maintenance Plan for the Nevada Side of the Lake Tahoe Basin* (2012 CO LMP) submitted to the U.S. Environmental Protection Agency (USEPA) on April 3, 2012. These revisions respond to USEPA comments on the 2012 submittal. The NDEP requests that the U.S. Environmental Protection Agency (USEPA) approve the 2012 CO LMP with these revisions into the Nevada applicable SIP.

I. REVISION TO SECTION 3.2.4 OF THE 2012 CO LMP

The NDEP requests that USEPA replace Section 3.2.4 of the 2012 CO LMP submittal with the following revised Section 3.2.4.

3.2.4 Surrogate Method for Tracking CO Concentrations

3.2.4.1 Monthly Average Daily Traffic Count Trigger

Because the potential for high CO is typically in the winter months, the NDEP will use monthly average daily traffic (MADT) counts in its surrogate method. The season for MADT will run from October 1 to March 31 of the next year. To use MADT as a surrogate method for tracking CO levels, the NDEP will conduct an annual review of the seasonal traffic volumes in the Basin using the data from the Nevada Department of Transportation's permanent automatic traffic recorders in Stateline and Incline Village. The NDEP will compare the latest rolling 3-year average of the MADT volumes against the baseline MADT average established by the traffic volume data collected during the 2008-09, 2009-10 and 2010-11 seasons. Table 5 shows MADT counts in Stateline and Incline Village from the 2008-09 season through the 2014-15 season.[1] The baseline traffic volumes, calculated by averaging the three winter seasons 2008-09 through 2010-11, are for Stateline: 24,201, and for Incline Village: 10,260.

[1] In response to USEPA's review of the 2012 submittal, the NDEP submitted a supplement in 2016 revising section 3.2.4.1. This explains the inclusion of MADT count data through the 2014-15 season.

TABLE 5

SEASONAL MONTHLY AVERAGE DAILY TRAFFIC COUNTS*

	2008-09 Season	2009-10 Season	2010-11 Season	2011-12 Season	2012-13 Season	2013-14 Season	2014-15 Season
Douglas County, station 0052110 in Stateline, NV							
US 50, 0.6 mi east of the state line	24,791	24,212	23,600	23,122	22,848	23,333	24,319
Washoe County, station 0312240 in Incline Village, NV							
SR 28, 0.2 mi N. of Lake Shore Drive	10,276	10,109	10,396	10,125	10,154	10,348	10,618

*Each seasonal monthly average was derived by taking the average of the MADT counts for the months of October through March (e.g., 2008-09 season = the average MADT for the months of October 2008 through March 2009).
Source: Nevada Department of Transportation *2008-2014 Monthly Average Daily Traffic Report*, Douglas and Washoe Counties. http://apps.nevadadot.com/Trina/ (last viewed 8/18/16)

If the MADT count increases by more than 25 percent when comparing the most recent, consecutive rolling 3-year averaging period to the baseline period, at either the Stateline or the Incline Village monitor, then the state will conduct a CO monitoring study alongside the surrogate method during the period October 1 through March 31 immediately following the MADT review, using the Harvey's SLAMS monitor to determine the actual CO levels in the ambient air. The NDEP retains the monitoring station at Stateline (located at Harvey's Resort and Hotel on Hwy 50) intact, so that monitoring can be resumed soon after it is triggered. The NDEP commits to having the necessary equipment available to meet the timeframe for resumed monitoring.

Initial trigger levels would be 30,251 for the Stateline MADT and 12,825 for the Incline Village MADT. If the percent increase does not exceed 25 percent, then it will be assumed that the ambient CO concentrations in the affected area have remained relatively unchanged. The MADT data review process will be repeated in the spring of each year during the annual monitoring network review, and the new rolling 3-year average will be compared to the 2008-09 through 2010-11 baseline average.

If the MADT review triggers monitoring, the monitoring data will be submitted to USEPA's Air Quality System. If the initial or any subsequent monitoring triggered by the annual MADT count analysis results in two or more verified 8-hour average concentrations in excess of 85 percent of the CO NAAQS, excluding exceptional events or events that would otherwise meet the criteria of the Exceptional Events Rule but are below the level of the standard, then the contingency measures process committed to in the first 10-year LMP (Carbon Monoxide Redesignation Request and Limited Maintenance Plan, October 2003. p.16) will apply. The NDEP will inform USEPA and initiate the contingency process described in Section 4 immediately upon the occurrence of a second verified 8-hour average concentration in excess of 85 percent of the CO NAAQS.

3.2.4.2 Conditions for Discontinuing CO Monitoring

Based on the results of the initial six months of CO monitoring and MADT tracking, the NDEP will determine whether continued CO monitoring is necessary. The NDEP is expecting that fluctuations in the 3-year rolling average seasonal MADT will occur and that such fluctuations should be considered in relation to the monitored CO observations to determine if the CO monitoring can be discontinued and the surrogate approach alone continued. The NDEP recognizes that the priority in establishing appropriate criteria for discontinuing monitoring is to allow fluctuations in MADT to occur, while leaving a sufficient safety buffer between the monitored CO levels and the NAAQS (for instance, to account for variability in climatic conditions). Table 6 shows the decision matrix the NDEP will use in determining whether or not to return to the surrogate method only.

TABLE 6

DECISION MATRIX TO DETERMINE WHETHER TO CONTINUE CO MONITORING *

Percent Change in the 3-Year Rolling Average Seasonal MADT from the Baseline	**2ND HIGH OF THE 8-HOUR AVERAGE CO CONCENTRATIONS AS PERCENT OF NAAQS[2]**			
	≤ 50%	> 50 but ≤ 65%	> 65 but ≤ 75%	> 75%
≤ 20 %	S	S	S	M
> 20 but ≤ 25 %	S	S	M	M
> 25 but ≤ 30 %	S	M	M	M
> 30%	S	M	M	M

Key: S=rely on surrogate method only; M=continue to monitor in following season.
*Assumes monitoring is in effect. The matrix is used to determine whether or not to continue monitoring.

After an initial CO monitoring trigger event and each time CO monitoring is discontinued and the surrogate method only is operative, the MADT threshold for the CO monitoring trigger is increased by an additional factor of 5 percent (e.g., 30%, 35%) above the baseline period. However, the criteria in Table 6 will not change. The NDEP's annual review and evaluation of MADT for the preceding season will be conducted, even if monitoring is ongoing, and included in the NDEP's annual monitoring network plan (due July 1) each year through the end of the second 10-year maintenance period (2024).[3] If the MADT count increases by more than the current threshold when compared to the baseline period, monitoring will be resumed or continued during the CO season immediately following the MADT review.

[2] Exceptional events or events that would otherwise meet the criteria of the Exceptional Events Rule but are below the level of the standard will be excluded from the determination of the second high.
[3] In response to USEPA's review of the 2012 submittal, the NDEP added this sentence in its 2016 revision clarifying the MADT count review reporting method. Historic reports for the rolling three-year averages for MADT through the 2014-15 season were submitted to USEPA Region 9 as Attachment D to the August 2016 supplement.

The NDEP believes that the criteria for discontinuing CO monitoring, as described in the table above, are very well protective of the CO NAAQS. Based on observations taken in the previous years, the NDEP concludes that any increase in MADT below or equal to 20 percent from the baseline has never caused the 2nd high CO concentration to exceed 75 percent of the NAAQS. In fact, under such circumstances, the NDEP has evidence that even the 1st high does not exceed 100 percent of the NAAQS. Historically, there are no MADT increases or fluctuations above 20-25 percent from the baseline and hence there is no indication for how the CO concentrations will change under these conditions. The NDEP recognizes that, because of this uncertainty, thresholds for discontinuing CO monitoring need to be more conservative than 75 percent of the NAAQS. However, the NDEP also believes that continuing CO monitoring when concentrations are well below the NAAQS would use limited State resources that would be better applied to higher priority projects. The NDEP believes that the tiered approach described in Table 6 represents a proper balance between protecting the NAAQS and appropriate use of State resources.

II. REVISION TO SECTION 4 OF THE 2012 CO LMP

The NDEP requests that USEPA replace Section 4 of the 2012 CO LMP submittal with the following revised Section 4.

One of the federal CAA requirements for maintenance plans is to identify contingency measures to offset any unexpected increases in emissions and ensure maintenance of the standard (CAA 175A). The NDEP is committed to ensuring implementation of all applicable CAA programs that will ensure compliance with the CO NAAQS. If these programs should prove to be insufficient, and the contingency measures process is initiated as described in Section 3.2.4.1, the contingency plan committed to in the first 10-year CO LMP (Carbon Monoxide Redesignation Request and Limited Maintenance Plan, October 2003. p.16) will apply. In the case that the contingency measures process indicates no threat of a future violation, the surrogate method in Section 3.2.4 will be followed. Together with future reductions in CO emissions associated with fleet turnover, the NDEP's commitment provides an ample margin of safety to maintain the CO standard on the Nevada side of the Lake Tahoe Basin.

III. EMISSIONS INVENTORY

The NDEP requests that USEPA append the attached *Mobile Source Emissions Inventory and Future Year Projections for the 2012 Lake Tahoe Basin Carbon Monoxide Limited Maintenance Plan* to its April 3, 2012 submittal as Attachment A.

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ATTACHMENT A

To the August 2016 Supplement to Nevada's *2012 Revision to the Nevada State Implementation Plan for Carbon Monoxide: Updated Limited Maintenance Plan for the Nevada Side of the Lake Tahoe Basin*.

Mobile Source Emissions Inventory and Future Year Projections for the 2012 Lake Tahoe Basin Carbon Monoxide Limited Maintenance Plan

1. Introduction

The U.S. Environmental Protection Agency requires that an annual carbon monoxide (CO) season emissions inventory for 2011 and a projected inventory for 2024 be included as part of the second 10-year CO Limited Maintenance Plan (LMP) for the Nevada side of the Lake Tahoe Basin (Basin).

Mobile sources account for the vast majority of CO emissions in the Basin. The Nevada Division of Environmental Protection's (NDEP) initial 10-year maintenance plan included an emissions inventory for onroad and nonroad mobile sources; therefore, the NDEP is providing a similar inventory for the second 10-year CO LMP.

2. Seasonal Adjustment Factor

Data from the National Emissions Inventory (NEI) is used as a starting point for the 2011 Basin CO emissions inventory. The NEI provides annual emissions for both onroad and nonroad source categories at the county level. The county level emissions are apportioned to the Basin based on the ratio of AVMT or population in the Basin versus the totals from the three counties that the Nevada side of the Basin resides in[1]. Annual emissions for the onroad and nonroad sources do not reflect the emission rates during the CO season; so, the NEI emissions are scaled to match CO season emissions using two Seasonal Adjustment Factors (SAF).

The SAF are calculated by taking the Basin-wide onroad and nonroad seasonal emissions from the NDEP's 2001 emissions inventory[2] and dividing each one by the corresponding 2002 NEI annual onroad and nonroad Basin-apportioned emissions.

$$Onroad\ SAF = \left(\frac{2001\ Onroad\ Annual\ CO\ Season\ Emissions}{2002\ Onroad\ Annual\ Basin\ apportioned\ NEI\ Emissions}\right)$$

$$1.824 = \left(\frac{5{,}832\ tons\ of\ CO}{3{,}197\ tons\ of\ CO}\right)$$

$$Nonroad\ SAF = \left(\frac{2001\ Nonroad\ Annual\ CO\ Season\ Emissions}{2002\ Nonroad\ Annual\ Basin\ apportioned\ NEI\ Emissions}\right)$$

[1] Sections 3 and 4 further describe the methodology used to apportion emissions to the Basin.
[2] The 2001 emissions inventory was included with the "Carbon Monoxide Redesignation Request and Limited Maintenance Plan for the Nevada Side of the Lake Tahoe Basin" that was submitted to the USEPA in October 2003.

$$0.241 = \left(\frac{374\ tons\ of\ CO}{1{,}554\ tons\ of\ CO}\right)$$

3. Onroad CO Emissions Inventory

For the 2011 onroad emissions inventory, countywide Annual Vehicle Miles Traveled (AVMT) data is collected from the Nevada Department of Transportation's (Nevada DOT) Annual Vehicle Miles of Travel Report.[3] AVMT for the Basin is calculated as the sum of the arterial and nonarterial (collectors and local roads) AVMT; there are no freeways or ramps in the Basin. The arterial AVMT is calculated by multiplying the Annual Average Daily Traffic[4] counts from the Nevada DOT times the road length for each arterial road segment. The AVMT for the nonarterial roads are assumed to be 10.8 percent of the arterial AVMT. This assumption relies on the assumptions used in the NDEP's 2001 emissions inventory prepared for the first 10-year LMP.

$$Arterial\ AVMT = AADT\ \text{mi/day} \cdot \frac{Days}{Year} \cdot Section\ Length\ \text{mi}$$

$$Total\ AVMT = Arterial\ AVMT + 10.8\% \cdot Arterial\ AVMT$$

Tahoe Basin - Total AVMT by County					
County	**2001**	**2002**	**2005**	**2008**	**2011**
Carson City	10,293,298	10,035,965	10,293,298	9,461,374	9,435,523
Douglas	101,914,091	100,893,856	98,568,761	88,496,348	96,578,327
Washoe	59,230,051	58,553,218	56,058,881	57,255,201	55,971,930
Total	171,437,440	169,483,039	164,920,939	155,212,922	161,985,780

The CO emissions from the NEI are apportioned to the Basin using the ratio of the AVMT within the Basin to the sum of countywide AVMT for the three counties. The sum of the 2011 NEI onroad CO emissions for the three counties is multiplied by this ratio to yield the total, annual, Basin-apportioned onroad CO emissions.

$$NEI\ Basin\ Apportioned\ Emissions = (Total\ NEI\ 3\ County\ Emissions) \cdot \left(\frac{Basin\ AVMT}{Total\ 3\ County\ AVMT}\right)$$

$$2{,}482\ Tons\ CO = (61{,}741\ Tons\ CO) \cdot \left(\frac{161{,}985{,}905\ AVMT}{4{,}028{,}911{,}195\ AVMT}\right)$$

The annual NEI Basin-apportioned onroad emissions are then multiplied by the onroad SAF to convert the emissions to the annual CO season onroad inventory for 2011.

$$Annual\ CO\ Season\ Onroad\ Emissions = (2011\ NEI\ Basin\ Apportioned\ Emissions \cdot Onroad\ SAF)$$

[3] The AVMT data is from the Nevada DOT website (https://www.nevadadot.com/About_NDOT/NDOT_Divisions/Planning/Roadway_Systems/Annual_Vehicle_Miles_of_Travel.aspx) as amended based on email correspondence between NDEP staff, Andrew Tucker, and Nevada DOT staff, Steve Jackson.
[4] AADT data is from the Nevada DOT Traffic Records Information Access (TRINA) web application (http://apps.nevadadot.com/Trina/).

$$4529\ Tons\ CO = (2{,}482\ Tons\ CO\ \cdot\ 1.824)$$

The same methodology is used to develop onroad inventories for 2002, 2005 and 2008. These additional inventories provide points by which trends in the emissions can be identified.

Tahoe Basin - Onroad CO Emissions (tpy)					
Inventory Year	**2001**	**2002**	**2005**	**2008**	**2011**
Annual CO Season Emissions	5,832	5,832	5,766	3,496	4,529

4. Nonroad CO Emissions Inventory

The nonroad CO emissions inventory is developed using a similar methodology to the onroad inventory, except that it uses population instead of AVMT to apportion NEI emissions to the Basin.

Data from the 2000 and 2010 U.S. Census are used to determine the population for the Basin and the populations for the three counties. The populations of the Basin and the three counties are assumed to have changed linearly between 2000 and 2010. Without a second point to reference, the 2011 population is assumed to be the same as in 2010. The Census data is then used to calculate the fraction of the three-county population residing within the Basin. The three-county nonroad emissions from the NEI are multiplied by the fraction of the population residing in the Basin, resulting in the annual, Basin-apportioned NEI nonroad CO emissions.

$$NEI\ Basin\ Apportioned\ Emissions = (Total\ NEI\ 3\ County\ Emissions) \cdot \left(\frac{Basin\ Population}{Total\ 3\ County\ Population}\right)$$

$$862\ Tons\ CO = (30{,}039\ Tons\ CO) \cdot \left(\frac{15{,}042\ Residents}{523{,}679\ Residents}\right)$$

Tahoe Basin Population by County		
County	**2000 Tahoe Basin Pop.**	**2010 Tahoe Basin Pop.**
Carson City[5]	525	553
Douglas	5,853	5,402
Washoe	9,952	9,087
Total	16,330	15,042
% of County Pop.	3.77%	2.87%

The annual NEI Basin-apportioned nonroad emissions are then multiplied by the nonroad SAF to calculate the annual CO season nonroad inventory for 2011.

$$Annual\ CO\ Season\ Nonroad\ Emissions = (2011\ NEI\ Basin\ Apportioned\ Emissions\ \cdot\ Nonroad\ SAF)$$

[5] The population of Carson City County that resides within the Basin is zero according to the 2000 and 2010 Census. The 2001 emissions inventory assumed that 1% of the population of Carson City County contributes to the nonroad inventory for the Basin. The same assumption was used for the 2011 inventory.

$$208\ Tons\ CO = (862\ Tons\ CO\ \cdot\ 0.241)$$

Inventories for the nonroad source category are developed for 2002, 2005, 2008, and 2011. Again, the additional inventories provide data points by which trends in emissions can be identified and which act to inform the reference point for future-year projections.

Tahoe Basin - Nonroad CO Emissions (tpy)					
Inventory Year	**2001**	**2002**	**2005**	**2008**	**2011**
Annual CO Season Emissions	375	375	323	252	208

5. Future Year Projections

The Tahoe Regional Planning Agency (TRPA) provided the NDEP with population projections and data from a travel demand model.[6] TRPA used the travel demand model to estimate Daily Vehicle Miles Traveled (DVMT) for 2010 and to project DVMT for 2020 for five different development scenarios in the Lake Tahoe Basin. DVMT is converted to AVMT for 2010 and 2020 by multiplying the DVMT by the number of days in the year.

The travel demand model was run for both the Nevada and California sections of the Lake Tahoe Basin. The model was validated for the entirety of the Basin, based on the 2010 Regional Transportation Plan Guidelines from the California Transportation Commission. The model significantly over estimates the 2010 Annual Average Daily Traffic (AADT) for Nevada road segments, when compared to the AADT measured by Nevada DOT traffic recorders. Therefore, it is not appropriate to use the absolute magnitude of the 2020-projected Nevada AVMT. Nevertheless, because TRPA maintains control over development in the Lake Tahoe Basin, the underlying assumptions used by TRPA to estimate future development and the change in AVMT remain valid. As such, the relative change in AVMT between the base year of 2010 and the projected year can be used to project the estimated onroad emissions from 2011 to 2024. This approach assumes a constant CO emissions-to-AVMT ratio over the years even though the fleet characteristics, which are from the California Air Resource Board's EMFAC2011 model, indicate a slightly more efficient fleet in 2020.

The five different development scenarios that TRPA modeled result in five different AVMT values. The NDEP projects a range of onroad emissions based on the relative change in AVMT between 2010 and 2020 for TRPA's least conservative (LC) and most conservative (MC) AVMT projections. The relative change in both scenarios is converted to an annual AVMT rate-of-change factor as,

$$AVMT_{Change} = \frac{(\frac{VMT_{2020}}{VMT_{2010}} - 1)}{(2020 - 2010)}$$

The calculation of the annual change in AVMT for the least conservative scenario is,

[6] Development of a Regional Greenhouse Gas Emissions Inventory for the Lake Tahoe Basin, E. Pollard, S. Reid and J. Stilley, Sonoma Technology, Inc. for the California Tahoe Conservancy. May 10, 2012.

$$-0.23\%_{LC} = \frac{\frac{141{,}905{,}787\ VMT}{146{,}196{,}553\ VMT} - 1}{2020 - 2010}$$

And the calculation of the annual change in AVMT for the most conservative scenario is,

$$0.95\%_{MC} = \frac{\frac{164{,}301{,}349\ VMT}{146{,}196{,}553\ VMT} - 1}{2020 - 2010}$$

Then, both rates of change are applied to the 2011 annual Basin-apportioned CO season emissions for the 13 year period until 2024.[7] The results are added to the 2011 Basin-adjusted CO emissions, resulting in the projected range of 2024 annual CO emissions.

$$Onroad\ Projected\ Emissions_{2024} = AVMT_{change} \cdot (2024 - 2011) \cdot Emissions^{onroad}_{Basin,2011} + Emissions^{onroad}_{Basin,2011}$$

$$4{,}396\ Tons\ CO_{LC} = -0.23\%_{LC} \cdot (2024 - 2011) \cdot 4{,}529\ Tons\ CO + 4{,}529\ Tons\ CO$$

$$5{,}089\ Tons\ CO_{MC} = 0.95\%_{MC} \cdot (2024 - 2011) \cdot 4{,}529\ Tons\ CO + 4{,}529\ Tons\ CO$$

The emissions projections for the nonroad sources are estimated using population from the 2010 U.S. Census and the TRPA population projections. The relative population changes from the least and most conservative projections are used to calculate the annual rate of change as,

$$Population_{change} = \frac{\frac{Population_{2020}}{Population_{2010}} - 1}{2020 - 2010}$$

The calculation of the annual change in population for the least conservative scenario is,

$$-1.08\%_{LC} = \frac{\frac{13{,}423\ Residents}{15{,}042\ Residents} - 1}{2020 - 2010}$$

And the calculation of the annual change in population for the most conservative scenario is,

$$-0.62\%_{MC} = \frac{\frac{14{,}115\ Residents}{15{,}042\ Residents} - 1}{2020 - 2010}$$

Then, both rates of change are applied over the 2011 to 2024 period and added to the 2011 annual Basin-apportioned CO season emissions to provide a projected range of emissions for nonroad sources in 2024.

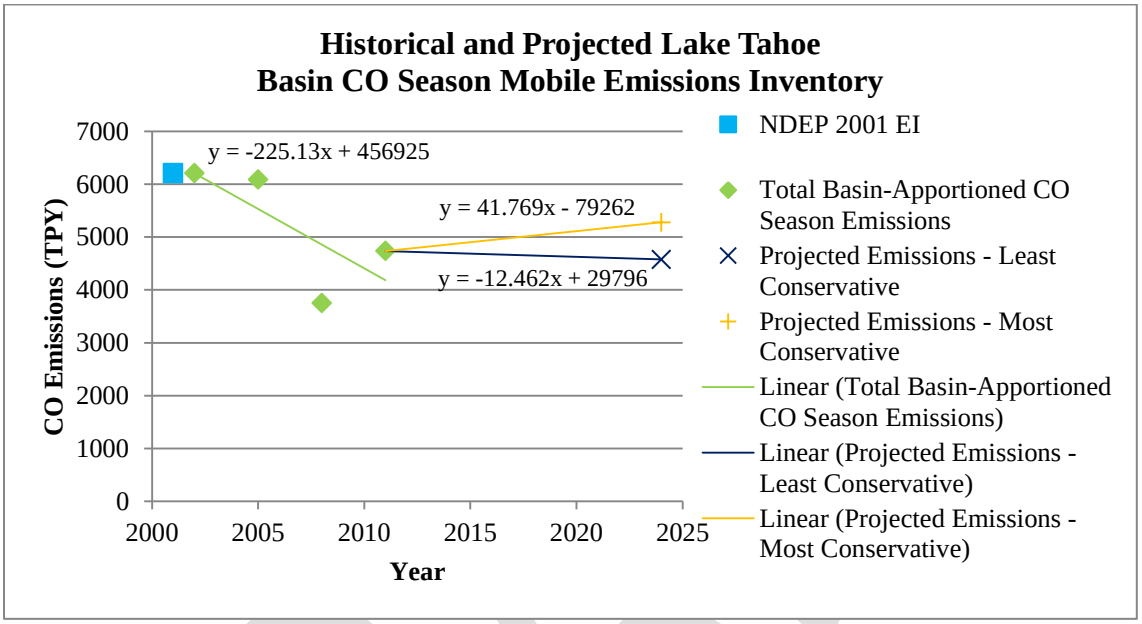
$$Nonroad\ Projected\ Emissions_{2024} = Population_{change} \cdot (2024 - 2011) \cdot Emissions^{nonroad}_{Basin,2011} + Emissions^{nonroad}_{Basin,2011}$$

$$179\ Tons\ CO_{LC} = -1.08\%_{LC} \cdot (2024 - 2011) \cdot 208\ Tons\ CO + 208\ Tons\ CO$$

$$191\ Tons\ CO_{MC} = -0.62\%_{MC} \cdot (2024 - 2011) \cdot 208\ Tons\ CO + 208\ Tons\ CO$$

[7] Note: Reported 2011 CO emissions are above the trend line, making the 2024 projected emissions more conservative, i.e., higher that what the trend would project.

The 2024 projected emissions inventory range falls between the sum of the onroad and nonroad emissions for the least conservative development scenario and the sum of the onroad and nonroad emissions for the most conservative development scenario. The final emissions inventory is a range of projected emissions which fall between the least and most conservative scenarios. The graph below shows the downward trend in the total emissions from both onroad and nonroad sources in the Basin, along with the projected range of emissions for 2024.



The table below displays the annual CO season emissions for each NEI year and the projected emissions from both the most conservative and least conservative scenarios. The inventory shows that the emissions in 2011 are 23 percent lower than in 2001. Annual emissions in 2024 are projected to be between 13 percent and 25 percent lower than the 2001 emissions.

Tahoe Basin CO Season Mobile Emissions Inventory (tpy)							
Year	**2001**	**2002**	**2005**	**2008**	**2011**	**2024_{LC}**	**2024_{MC}**
Onroad Emissions	5,832	5,832	5,766	3,496	4,529	4,396	5,089
Nonroad Emissions	375	375	323	252	207	178	190
Total Emissions	6,207	6,207	6,089	3,748	4,736	4,574	5,279

Key: LC = least conservative; MC = most conservative.

ATTACHMENT B

EVIDENCE OF PUBLIC PARTICIPATION

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ATTACHMENT B
August 2016

NOTICE OF PUBLIC COMMENT PERIOD BEGINNING JULY 13, 2016 AND A PUBLIC HEARING ON AUGUST 17, 2016, IF REQUESTED

Conducted by the Nevada Division of Environmental Protection
Bureau of Air Quality Planning

Pursuant to the public hearing requirements in Title 40 of the Code of Federal Regulations Part 51 section 102, the Nevada Division of Environmental Protection (NDEP) is issuing the following notice.

In 2003, the NDEP adopted and submitted a revision to the Nevada State Implementation Plan (SIP) requesting that Nevada's side of the Lake Tahoe Basin (Basin) be redesignated as attainment for the federal 8-hour carbon monoxide standard. The U.S. Environmental Protection Agency (USEPA) approved Nevada's 10-Year Limited Maintenance Plan and redesignated the Nevada side of the Basin attainment effective February 13, 2004. Section 175A of the Clean Air Act requires the initial maintenance plan to cover at least a ten-year period after redesignation, with a second plan revision due within eight years of redesignation to demonstrate that the area will maintain the standard for another ten years (i.e., a full 20 years from the date of redesignation to attainment, or February 2024 in this case). The NDEP submitted Nevada's second 10-Year Limited Maintenance Plan on April 3, 2012.

At USEPA's request, the NDEP has drafted a revision and supplement to the April 2012 submittal. This draft applies to the second ten-year period following redesignation, 2014-2024. The NDEP's draft and related materials are available on the NDEP website at http://ndep.nv.gov/admin/public.htm, click on "Air Quality Planning." Access to the draft plan update may also be obtained by contacting Adele Malone at NDEP, 901 S. Stewart Street, Suite 4001, Carson City, NV 89701; (775) 687-9356; or e-mail to amalone@ndep.nv.gov.

Persons wishing to comment on the proposed revisions to the second 10-Year Limited Maintenance Plan or to request a public hearing should submit their comments or request **in writing** either in person or by mail or fax to Adele Malone at the above address or by FAX at (775) 687-6396. ***A request for a hearing must be received by August 9, 2016. Written comments will be received by the NDEP until 5:00 PM PDT, August 17, 2016 and will be retained and considered.***

Upon receipt of a valid written request, the NDEP will hold a public hearing in Carson City on:

August 17, 2016
10:00 a.m. to 11:30 a.m.
Great Basin Conference Room, 4th Floor
901 South Stewart Street
Carson City, Nevada

An agenda will be posted on the NDEP web site at least 3 working days before the hearing. Oral comments will be received at the hearing. If no request for a public hearing is received by August 9, 2016, the hearing will be cancelled. Persons may check on the status of the hearing on the NDEP web site at http://ndep.nv.gov/admin/public.htm, click on "Air Quality Planning," or you may call the NDEP Bureau of Air Quality Planning at (775) 687-9349.

This notice has been posted at the NDEP offices in Carson City and Las Vegas, at the State Library in Carson City, at the South Lake Tahoe Branch of the El Dorado County, CA, library, and County libraries throughout Nevada. Members of the public who are disabled and require special accommodations or assistance at the meeting are requested to notify Adele Malone or Patricia Bobo (775-687-9543) no later than 3 working days before the hearing. *7/11/16*

Summary of Public Notice Distribution for the Carbon Monoxide LMP, Sent Out 7/13/16

Mailing List:	**Number of Recipients:**
• General List	5
• County Commissioners	18
• Tahoe Basin Stakeholders Mail List	47

E-Mail List:

• Tahoe Basin Stakeholders Email List	36
• Environmental Organizations	21
• General List (Federal, state/local gov't, industry)	33
• Libraries	18
• Tribal Organizations	6
• Regional Planning Agencies	5
• ASIP Working Group (Industry)	34
• Legislators	61
• Newspapers	14
• Las Vegas DEP	2

Total: 300

NEVADA DIVISION OF
ENVIRONMENTAL
PROTECTION

STATE OF NEVADA
Department of Conservation & Natural Resources
Brian Sandoval, Governor
Leo M. Drozdoff, P.E., Director
David Emme, Administrator

NOTICE OF CANCELLATION OF PUBLIC HEARING ON AUGUST 17, 2016

Nevada Division of Environmental Protection
Bureau of Air Quality Planning

Pursuant to the public hearing provisions in Title 40 of the Code of Federal Regulations Part 51 section 102, the Nevada Division of Environmental Protection (NDEP) is cancelling the following public hearing because no request for a hearing was received:

August 17, 2016
10:00 a.m. to 11:30 a.m.
Great Basin Conference Room, 4th Floor
901 South Stewart Street
Carson City, Nevada

The NDEP's 2016 supplement to its *2012 Revision to the Nevada State Implementation Plan for Carbon Monoxide: Updated Limited Maintenance Plan for the Nevada Side of the Lake Tahoe Basin* is available on the NDEP website at http://ndep.nv.gov/admin/public.htm, click on "Air Quality Planning." Persons may also check on the status of the NDEP's supplement to the second 10-year carbon monoxide limited maintenance plan for the Lake Tahoe basin by telephone at (775) 687-9356.

Public Comments and Nevada's Responses

(No comments were received)

ATTACHMENT C
To the August 2016 Supplement to Nevada's *2012 Revision to the Nevada State Implementation Plan for Carbon Monoxide: Updated Limited Maintenance Plan for the Nevada Side of the Lake Tahoe Basin*. (Not for inclusion in Nevada's SIP.)

Statistical Support for Criteria Used to Determine Whether to Continue CO Monitoring

Determination to Discontinue Monitoring

The NDEP proposes to continue or discontinue monitoring whenever it is triggered based on the decision matrix below.

DECISION MATRIX TO DETERMINE WHETHER TO CONTINUE CO MONITORING *

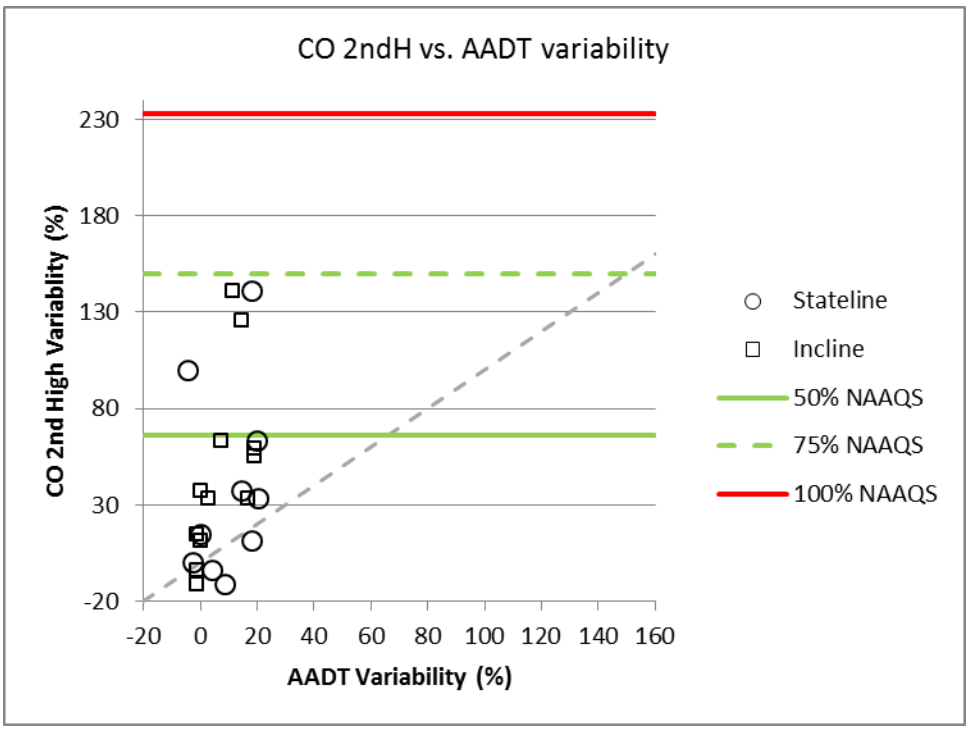
Percent Change in the 3-year Rolling Average Seasonal MADT from the Baseline	**2ND HIGH OF THE 8-HOUR AVERAGE CO CONCENTRATIONS AS PERCENT OF NAAQS[1]**			
	≤ 50%	> 50 but ≤ 65%	> 65 but ≤ 75%	> 75%
≤ 20 %	S	S	S	M
> 20 but ≤ 25 %	S	S	M	M
> 25 but ≤ 30 %	S	M	M	M
> 30%	S	M	M	M

Key: S=rely on surrogate method only; M=continue to monitor in following season.
*Assumes monitoring is in effect. The matrix is used to determine whether to continue monitoring or not.

An assumption of linearity between percent annual increases in MADT and CO concentration from the respective baseline, as used in the Montana strategy, [2] is not realistic for the Tahoe Basin. The nature of the two statistics used to characterize the two measurements (3-year rolling average and 2nd highest monitored value) is such that we are expecting a much higher variability in CO concentrations than in MADT, even with both measurements well below levels of concern. Figure 1 shows the variability of the CO 2nd highest monitored value vs. the variability of the 3-year rolling average of Annual ADT (AADT), with respect to their respective baseline, as observed in the Tahoe basin from 2003 through 2012. As used in Figure 1, the AADT baseline is the average of the 2008-2010 AADT counts, and the CO baseline is the mean of the 2nd high for the 2008-2010 measured CO concentrations.

[1] Exceptional events or events that would otherwise meet the criteria of the Exceptional Events Rule but are below the level of the standard will be excluded from the determination of the 2nd high.
[2] https://www.regulations.gov/. Enter EPA-R08-OAR-2012-0352-0003 in search. (last viewed 6/28/16)

Figure 1. CO 2nd High vs. the Variability of the 3-Year Rolling Average of Annual ADT

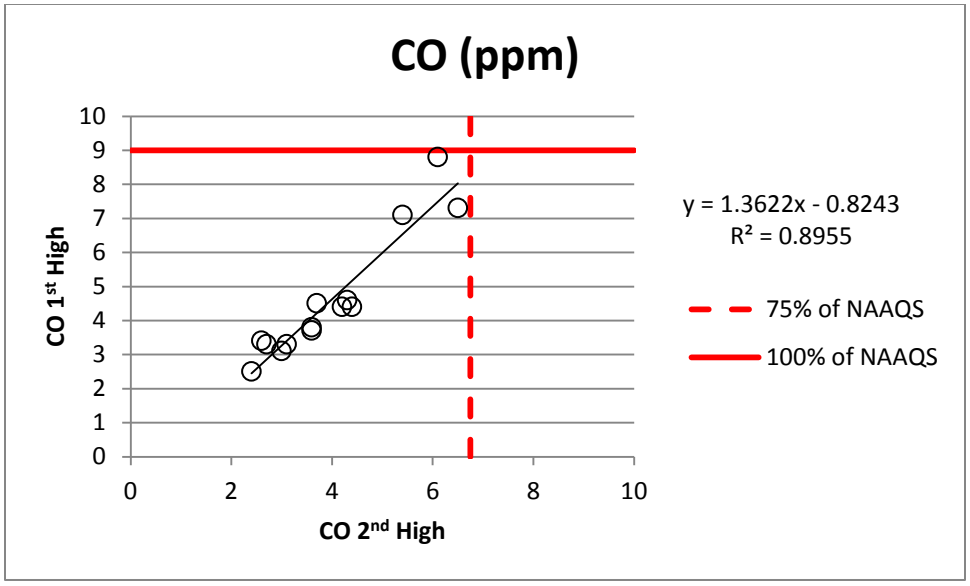


In Figure 1, the gray dashed line is the pattern expected if the CO concentration would show an increase (in percentage) that is equal to the increase in AADT. In fact and as expected, CO variability is much larger that AADT variability. The solid green, dashed green and red lines represent 50%, 75% and 100% of the CO NAAQS, respectively. Notice that the highest variability in CO (140%, recorded in 2003), is still below 75% of the NAAQS and that the highest variability in AADT is around 20%, well below the initial threshold of 25% adopted to trigger monitoring.

AADT counts were used instead of seasonal MADT in this analysis because of data availability. However, the NDEP believes that the results would not have been substantially different if MADT were used. This plot clearly shows that the assumption of a linear correlation between variability in AADT (or MADT) and CO concentration does not work for the Tahoe basin. However, this does not mean that the alternative or surrogate approach to tracking CO levels is inadequate. As the figure above also clearly shows, based on the CO data recorded between 2003 and 2012, an increase in AADT of about 20-25% from the baseline can result in a wide range of CO 2nd highs, but none of them above 75% of the NAAQS. We believe that this condition is strong evidence that the surrogate approach and the threshold selected for triggering actual CO monitoring are very protective of the NAAQS.

Further evidence supporting this statement can be observed when the CO 1st high is plotted as a function of the CO 2nd high, as in Figure 2 (data from 1999 to 2012).

Figure 2. CO 1st High as a Function of the CO 2nd High



This plot shows that there is a very strong linear correlation between the two quantiles. Most importantly, it shows that when the CO 2nd high is around 75% of the NAAQS, the CO 1st high is still below 100% of the NAAQS. We have no reason to suspect that this relation will change in the future.

Based on the two graphs presented here, it is reasonable to assume that MADT constitutes a proper surrogate of the continuous CO monitoring and that an initial 25% threshold on the MADT increase from the baseline is an efficient safeguard before resuming CO monitoring, even in the absence of direct linear correlation between the two variables. It is also reasonable to assume that with a CO 2nd and 1st high below 75% and 100% of the NAAQS, respectively, resuming the surrogate approach alone after a season of actual CO monitoring provides enough protection for the CO NAAQS.

ATTACHMENT D
To the August 2016 Supplement to Nevada's *2012 Revision to the Nevada State Implementation Plan for Carbon Monoxide: Updated Limited Maintenance Plan for the Nevada Side of the Lake Tahoe Basin*. (Not for inclusion in Nevada's SIP.)

Surrogate Method Report for Tracking Carbon Monoxide at Lake Tahoe, Nevada, 2011 - 2015

SEASONAL* MONTHLY AVERAGE DAILY TRAFFIC COUNTS

	2008-09 Season	2009-10 Season	2010-11 Season	2011-12 Season	2012-13 Season	2013-14 Season	2014-15 Season
Douglas County, station 0052110 in Stateline, NV							
US 50, 0.6 mi east of the state line	24,791	24,212	23,600	23,122	22,848	23,333	24,319
Washoe County, station 0312240 in Incline Village, NV							
SR 28, 0.2 mi N. of Lake Shore Drive	10,276	10,109	10,396	10,125	10,154	10,348	10,618

Source: Nevada Department of Transportation *2008-2014 Monthly Average Daily Traffic Report*, Douglas and Washoe Counties. http://apps.nevadadot.com/Trina/

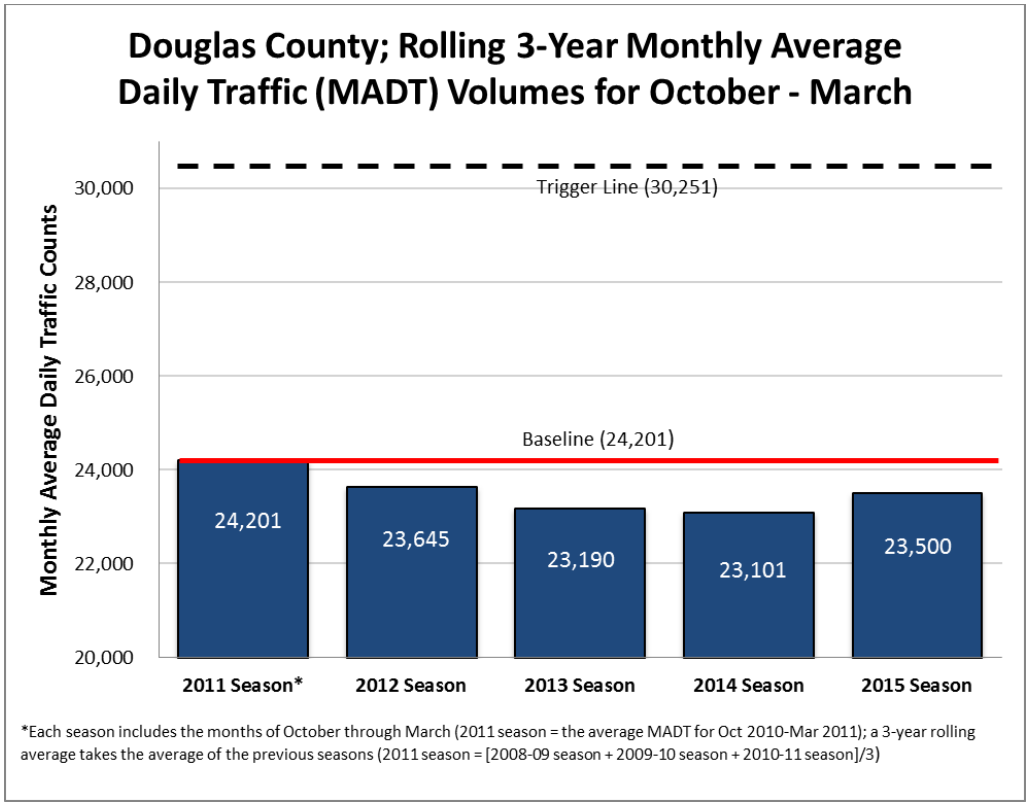
*Each Season was derived by taking the average of the Monthly Average Daily Traffic (MADT) count for the months of October through March (e.g., 2008-09 season = the average MADT for the months of October 2008 through March 2009)

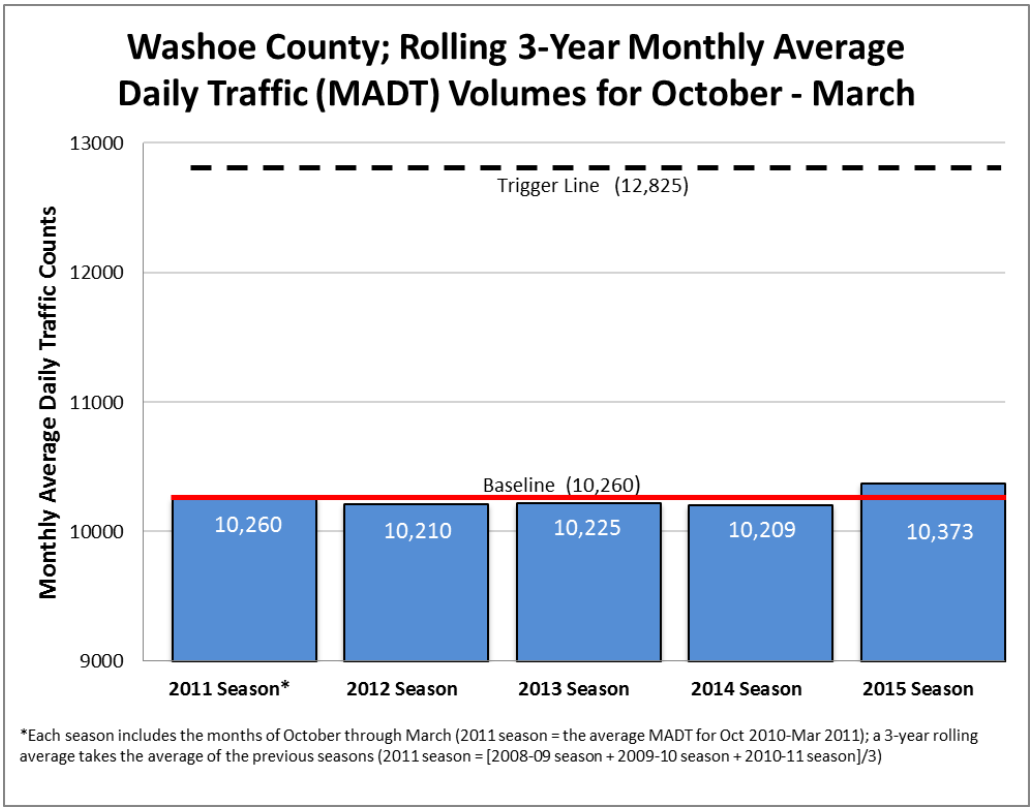
ROLLING 3-YEAR SEASONAL AVERAGE FOR MONTHLY AVERAGE DAILY TRAFFIC VOLUMES

	2011 Season* (Baseline year)	2012 Season	2013 Season	2014 Season	2015 Season
Douglas County, station 0052110 in Stateline, NV					
US 50, 0.6 mi east of the state line	**24,201**	23,645	23,190	23,101	23,500
Washoe County, station 0312240 in Incline Village, NV					
SR 28, 0.2 mi N. of Lake Shore Drive	**10,260**	10,210	10,225	10,209	10,373

*Each season was derived by taking the average of the previous three seasons (2011 Season = [(2008-09 Season + 2009-10 Season + 2010-11 Season) / 3]

COMPARING ROLLING 3-YEAR MADT VOLUMES AGAINST THE BASELINE





ATTACHMENT E

To the August 2016 Supplement to Nevada's *2012 Revision to the Nevada State Implementation Plan for Carbon Monoxide: Updated Limited Maintenance Plan for the Nevada Side of the Lake Tahoe Basin*. (Not for inclusion in Nevada's SIP.)

Inventory Preparation Plan for the Mobile Source Emissions Inventory and Future Year Projections for the 2012 Lake Tahoe Basin Carbon Monoxide Limited Maintenance Plan

1. Historical Background

On November 25, 1977 the Nevada side of the Lake Tahoe Basin (Basin) was designated nonattainment for carbon monoxide (CO). The designation was based on violations of the 8-hour CO national ambient air quality standards (NAAQS), which were recorded by a monitor located at Stateline, Nevada.

In 2003, the Nevada Division of Environmental Protection (NDEP) requested that the U.S. Environmental Protection Agency (USEPA) redesignate the Nevada side of the Basin to attainment for the 8-hour CO NAAQS. Along with the redesignation request, the first of two 10-year Limited Maintenance Plans (LMP) was submitted to the USEPA. The first LMP covered the period of February 13, 2004 to February 13, 2014.

On April 3, 2012, the Nevada Division of Environmental Protection (NDEP) submitted a second 10-year LMP for the period of February 13, 2014 to February 13, 2024. After reviewing the submittal, the USEPA determined that an emissions inventory would be required to make the maintenance plan approvable and that an inventory for 2011 would be appropriate. Additionally, USEPA requested a 2024 projected emissions inventory for onroad and nonroad mobile sources.

2. Inventory Background

The Basin consists of the entire watershed that feeds Lake Tahoe; it is bisected by the Nevada-California border. The extent of the Nevada portion of the Basin is defined as hydrographic area 90, which is composed of the Basin portions of three counties: Carson City, Douglas and Washoe Counties (three counties).

Carbon monoxide emissions in the Basin are largely caused by mobile activities, both on- and nonroad, and are difficult at best to characterize. There are a number of factors that act to complicate the development of a reasonably accurate mobile source emissions inventory. First, the resolution of existing data sets, such as the National Emissions Inventory (NEI), is too coarse to be able to directly provide emissions for the Basin. Second, the assumptions that are used to develop countywide emissions for the three counties in which the basin resides do not correlate to the Basin in a meaningful way. For example, all major highway trucking routes in the three counties are located outside of the basin; this causes the fleet in the Basin to have a smaller proportion of heavy duty onroad vehicles relative to the county level fleets. This, along with other Basin-specific fleet attributes, make the implementation of any existing emission simulator that uses county-level fleet characteristics (e.g., EPA MOVES) very arbitrary, unless a large amount of resources are devoted to defining detailed and local traffic patterns, vehicle types, fuel

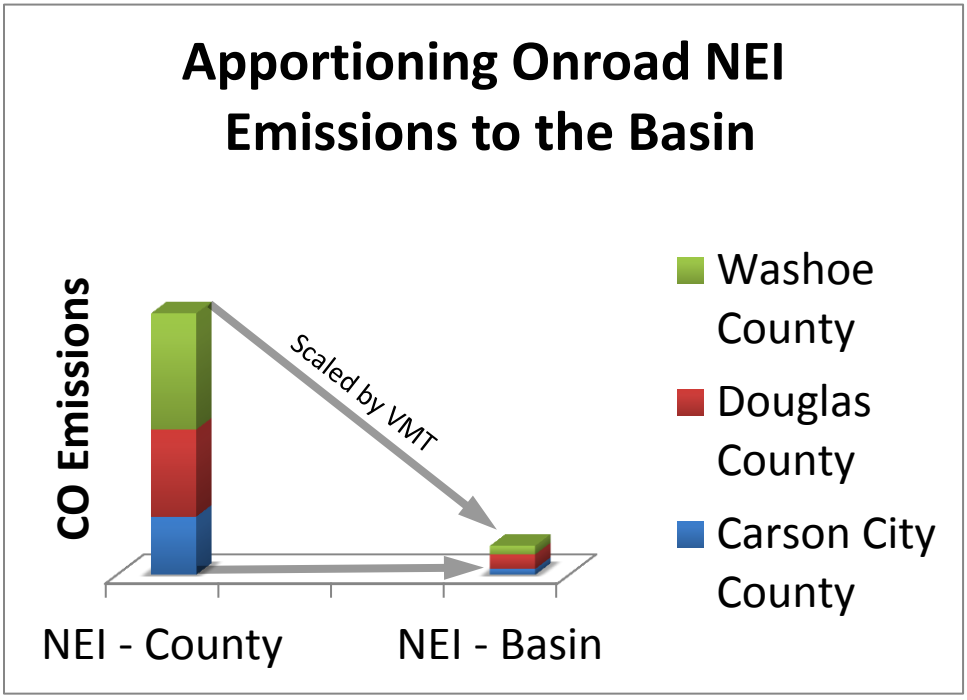
usage, etc. Lastly, the Tahoe Regional Planning Agency (TRPA) restricts residential and commercial development, which means population trends do not necessarily correlate with regional or national trends.

Due to the unique nature of the factors affecting CO sources in the Basin, an alternative approach is appropriate to create a reliable emissions inventory for the onroad and nonroad sources. The results of this approach help illustrate the trend in emissions and inform future-year projections.

3. Onroad CO Emissions Inventory Methodology

For the 2011 onroad emissions inventory, countywide Annual Vehicle Miles Traveled (AVMT) data is collected from the Nevada Department of Transportation's (Nevada DOT) Annual Vehicle Miles of Travel Report. AVMT for the Basin is calculated as the sum of the arterial and nonarterial (collectors and local roads) AVMT; there are no freeways or ramps in the Basin. The arterial AVMT is calculated by multiplying the Annual Average Daily Traffic counts from the Nevada DOT times the road length for each arterial road segment. The AVMT for the nonarterial roads are assumed to be 10.8 percent of the arterial AVMT. This assumption relies on the assumptions used in the NDEP's 2001 emissions inventory prepared for the first 10-year LMP.

The CO emissions from the NEI are apportioned to the Basin using the ratio of the AVMT within the Basin to the sum of countywide AVMT for the three counties. The sum of the 2011 NEI onroad CO emissions for the three counties is multiplied by this ratio to yield the total, annual, Basin-apportioned onroad CO emissions.



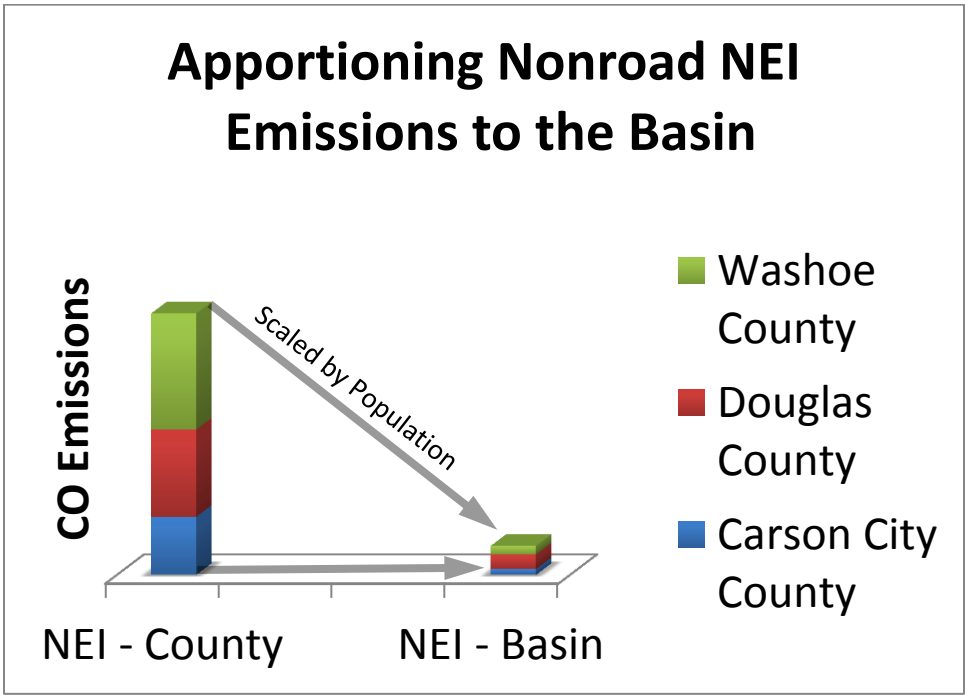
$$NEI\ Basin\ Apportioned\ Emissions = (Total\ NEI\ 3\ County\ Emissions) \cdot \left(\frac{Basin\ AVMT}{Total\ 3\ County\ AVMT}\right)$$

The same methodology is used to develop onroad inventories for 2002, 2005 and 2008. These additional inventories provide points by which trends in the emissions can be identified.

4. Nonroad CO Emissions Inventory Methodology

The nonroad CO emissions inventory is developed using a similar methodology to the onroad inventory, except that it uses population instead of AVMT to apportion NEI emissions to the Basin.

Data from the 2000 and 2010 U.S. Census are used to determine the population for the Basin and the populations for the three counties. The populations of the Basin and the three counties are assumed to have changed linearly between 2000 and 2010. Without a second point to reference, the 2011 population is assumed to be the same as in 2010. The Census data is then used to calculate the fraction of the three-county population residing within the Basin. The three-county nonroad emissions from the NEI are multiplied by the fraction of the population residing in the Basin, resulting in the annual, Basin-apportioned NEI nonroad CO emissions.



$$NEI\ Basin\ Apportioned\ Emissions = (Total\ NEI\ 3\ County\ Emissions) \cdot \left(\frac{Basin\ Population}{Total\ 3\ County\ Population}\right)$$

Inventories for the nonroad source category are developed for 2002, 2005, 2008, and 2011. Again, the additional inventories provide data points by which trends in emissions can be identified and which act to inform the reference point for future-year projections.

5. Developing the Seasonal Adjustment Factor

The NDEP's first 10-year LMP included a CO emissions inventory for onroad and nonroad mobile sources for the year 2001. The inventory was developed using data from state and local regulatory sources as model inputs processed using MOBILE6. For the second 10-year LMP, the onroad and nonroad emissions from the 2001 modeling results are used to develop two Seasonal Adjustment Factors.[1] This is appropriate because of the unique conditions and factors influencing CO emissions in the Basin as compared to the remainder of the three counties (*see* discussion in section 2). The Seasonal Adjustment Factors are calculated by taking the Basin-wide onroad and nonroad seasonal emissions from the NDEP's 2001 emissions inventory and dividing each one by the corresponding annual onroad and nonroad Basin-apportioned emissions described in sections 3 and 4.

The Seasonal Adjustment Factors are used to scale the annual Basin-apportioned CO emissions to the Basin-apportioned CO season emissions for the years 2002, 2005, 2008 and 2011. The calculation of the Seasonal Adjustment Factors assumes that there is not a significant difference in the onroad and nonroad activity between 2001 and 2002. This is reasonable given the consistent decrease in population in the Basin, including the California side, from 2000 to 2010 (*see* April 2012 LMP). It also assumes that the differences in the modeled emissions are due to the difference in CO season environmental conditions and the use of local data that are specific to the Basin, instead of the more generalized assumptions made when modeling for the NEI.

6. Future Year Projection Methodology

The seasonal 2001 NDEP emissions inventory and the 2002, 2005, 2008 and 2011 seasonal emission inventories (as estimated using the approach described above) provide the historical trends in emissions over a 10-year period. However, projecting onroad and nonroad emissions for a future year requires not only an understanding of the historical trends in emissions, but also the expected changes in population and AVMT and any significant changes in the fleet mix.

The TRPA provided the NDEP with population projections and data from a travel demand model.[2] TRPA used the travel demand model to estimate Daily Vehicle Miles Traveled (DVMT) for 2010 and to project DVMT for 2020 for five different development scenarios in the Basin. DVMT is converted to AVMT for 2010 and 2020 by multiplying the DVMT by the number of days in the year.

The travel demand model was run for both the Nevada and California sections of the Lake Tahoe Basin. The model was validated for the entirety of the Basin, based on the 2010 Regional Transportation Plan Guidelines from the California Transportation Commission. The model significantly over estimates the 2010 Annual Average Daily Traffic (AADT) for Nevada road segments, when compared to the AADT measured by Nevada DOT traffic recorders. Therefore, it is not be appropriate to use the absolute magnitude of the 2020-projected Nevada AVMT. Nevertheless, because TRPA maintains control over development in the Basin, the underlying assumptions used by TRPA to estimate future development and the change in AVMT remain valid. As such, the relative change in AVMT between the base year of 2010 and the projected

[1] The concept of Seasonal Adjustment Factors is discussed in EPA 450/4-91-016, Procedures for the Preparation of Emissions Inventories for Carbon Monoxide and Precursors of Ozone, Section 5.8. May 1991.
[2] Development of a Regional Greenhouse Gas Emissions Inventory for the Lake Tahoe Basin, E. Pollard, S. Reid and J. Stilley, Sonoma Technology, Inc. for the California Tahoe Conservancy. May 10, 2012.

year can be used to project the estimated onroad emissions from 2011 to 2024. This approach assumes a constant CO emissions-to-AVMT ratio over the years even though the fleet characteristics, which are from the California Air Resource Board's EMFAC2011 model, indicate a slightly more efficient fleet in 2020.

The five different development scenarios that TRPA modeled result in five different AVMT values. The NDEP projects a range of onroad emissions based on the relative change in AVMT between 2010 and 2020 for TRPA's least and most conservative AVMT projections. The relative change in both scenarios is converted to an annual AVMT rate-of-change factor as,

$$AVMT_{change} = \frac{\frac{VMT_{2020}}{VMT_{2010}} - 1}{2020 - 2010}$$

Then, both rates of change are applied to the 2011annual Basin-apportioned CO season emissions for the 13 year period until 2024.[3] The results are added to the 2011 Basin-adjusted CO emissions, resulting in the projected range of 2024 annual CO emissions.

$$Onroad\ Projected\ Emissions_{2024} = AVMT_{change} \cdot (2024 - 2011) \cdot Emissions^{onroad}_{Basin,2011} + Emissions^{onroad}_{Basin,2011}$$

The emissions projections for the nonroad sources are estimated using population from the 2010 U.S. Census and the TRPA population projections. The relative population changes from the least and most conservative projections are used to calculate the annual rate of change as,

$$Population_{change} = \frac{\frac{Population_{2020}}{Population_{2010}} - 1}{2020 - 2010}$$

Then, both rates of change are applied over the 2011 to 2024 period and added to the 2011 annual Basin-apportioned CO season emissions to provide a projected range of emissions for nonroad sources in 2024.

$$Nonroad\ Projected\ Emissions_{2024} = Population_{change} \cdot (2024 - 2011) \cdot Emissions^{nonroad}_{Basin,2011} + Emissions^{nonroad}_{Basin,2011}$$

The final projected emissions inventory range is calculated by summing the projected onroad and nonroad emissions first for the most conservative and then for the least conservative development scenarios. The final emissions inventory is a range of projected emissions which fall between the least and most conservative scenarios.

[3] Note: Reported 2011 CO emissions are above the trend line, making the 2024 projected emissions more conservative, i.e., higher that what the trend would project.

ATTACHMENT F

REPLACEMENT FOR 2012 CO LMP CONTENTS PAGE

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