

INITIAL DETERMINATION OF ENVIRONMENTAL IMPACT CHECKLIST

Project Name: Air Quality Threshold Standard (AQ14) Update and Implementation Program

This document is an Initial Environmental Checklist (IEC) analyzing the potential environmental effects of amendment of the existing Nitrate Deposition Threshold Standard (AQ14) to a Per Capita Vehicle Miles Traveled (VMT) Standard to reduce reliance on the automobile, reduce greenhouse gas emissions, and promote mobility (Per Capita VMT Threshold) and implementing amendments to the Regional Plan and Code of Ordinances.

An IEC is a preliminary environmental analysis used to determine whether an Environmental Impact Statement (EIS), a Mitigated Finding of No Significant Effect, or a Finding of No Significant Effect (FONSE) is required for a project under TRPA guidelines. This IEC contains a project description, summary of impacts and mitigation measures, identification of environmental effects by checklist, and explanation of environmental effects. This IEC is tiered from the TRPA 2012 *Regional Plan Update* (RPU) Environmental Impact Statement (EIS) and the TRPA *Mobility 2035: Regional Transportation Plan/Sustainable Communities Strategy* (RTP) EIS/Environmental Impact Report (EIR) in accordance with Article 6.12(j) of the TRPA Rules of Procedure.

Project Description:

This Project Description describes the amendment of Threshold Standard (AQ14) that is the subject of this IEC. It provides background on the 1982 Threshold Standard for Nitrogen Deposition being amended, the objectives TRPA is seeking to fulfill with the proposed amendment, and describes the regulatory changes involved.

1. Project Overview

TRPA is proposing to amend the existing Nitrate Deposition Threshold Standard (AQ14) to a Per Capita Vehicle Miles Traveled (VMT) Standard as well as adopt implementing amendments to the Regional Plan and Code of Ordinances. The proposed amendments are designed to reduce reliance on the automobile, support the attainment of the greenhouse gas emissions (GHG) reduction goals of California and Nevada, and increase mobility. The proposed amendments are part of TRPA's efforts to bring its 40-year-old transportation regulatory, planning, and implementation structure up to date to accelerate achieving regional transportation system needs and objectives.

The existing threshold framework lacks a firm connection to current science and the existing Threshold Standard (AQ14) is not an appropriate benchmark to measure progress in implementing needed improvements to the region's transportation system. The existing nitrogen deposition Threshold Standard (AQ14) established a target of reducing nitrogen emissions from in-region mobile sources by 10% from a 1981 baseline. NO_x is a byproduct of combustion, and total NO_x emissions are generally calculated as a function of emissions per mile and the number of miles traveled. As a result of increasingly stringent federal and state tail pipe emissions standards, vehicles today are far cleaner than they were when the standard was adopted in 1982. While VMT in the Region has generally remained within the relatively narrow band since the standard was adopted, NO_x emissions have been significantly reduced and the goal of the standard was accomplished over 20 years ago.

The proposed amendment to Threshold (AQ14) is part of a set of actions being undertaken to align thresholds, plans, funding priorities, and project implementation to advance TRPA's transportation objectives. The actions reviewed in this IEC include this proposed amendment to Threshold (AQ14) and changes to the Regional Plan Implementation Element and Code of Ordinances' Project Impact Assessment (PIA).

A separate action undertaken every four years is the update to the Regional Transportation Plan/Sustainable Communities Strategy Update (RTP/SCS). The 2020 RTP/SCS will complement the amendment to Threshold (AQ14) by also seeking to reduce reliance on the automobile, reduce greenhouse gas emissions, and promote mobility by adding transit to popular destinations, out of basin park-n-ride and transit connections, and more transportation choices once in the Region, like bike, pedestrian, and reservable parking management systems. The RTP/SCS is being amended to address the Tahoe Region's greatest challenge in the form of out-of-basin visitation that clogs roadways at peak times. The 2020 RTP/SCS has been out to the public for review since October and is now being finalized for decision concurrent with the proposed update to Threshold (AQ14) and its impacts are assessed in a separate IEC.

TRPA's unique planning authority allows it to closely coordinate land use (Regional Plan) and transportation (Regional Transportation Plan) planning. The two plans work together to provide visitors and residents with alternatives to personal automobile travel and reduce VMT. For more than twenty years the focus of both has been supporting compact, mixed-use development, and walkable, bikeable, transit-friendly communities. An efficiency based VMT standard better aligns with the identified policies and goals. It also affords consistency with California and Nevada state policies with respect to GHG reduction.

The existing standard reads as follows:

(AQ14) Reduce vehicle miles of travel in the Basin by 10% of the 1981 base year values.

The proposed amended standard reads:

(TCS 1) Reduce Annual Daily Average VMT Per Capita by 6.8% from 12.48, the 2018 baseline, to 11.63 in 2045.

The proposed implementation framework for the updated standard will reduce the distance traveled in automobiles for both visitors and residents, and result in nearly zero growth in VMT over the next 25 years.

The new standard would be attained principally by implementing the 2020 RTP and by amending the TRPA Regional Plan goals and policies to establish a technical advisory body designed to provide guidance, undertake regular reporting, obtain funding sources, establish milestones, and implement adaptive management responses if scheduled milestones are not met.

The standard would be further attained by updating the TRPA's project impact assessment program in Chapter 65 of its Code of Ordinances. The project level transportation impact assessment and mitigation fee updates will provide a streamlined, transparent, and predictable process for evaluating projects that create, modify, change, or expand a new, existing or previous use resulting in additional vehicle miles traveled by requiring all additional VMT to be offset by a mobility fee; screening projects that have a less than significant impact; transparently determining significant impacts and mitigations; and providing detailed analysis for significance and mitigation determination of more complex projects. The outcomes of these updates will be to reduce the approximately 3% of additional VMT projected to result from development and redevelopment within the RTP forecast. The proposed framework demonstrates consistency with the updated per capita VMT threshold standard as it will contribute to the overall effort to attain and maintain that per capita VMT reduction standard.

2. Project Objectives

The primary objectives of the proposed amendment are:

- To establish a specific, relevant numeric target for VMT
- To shift from an outdated threshold standard designed to reduce nitrogen emissions to improve air and water quality to a standard that measures the efficiency of the Region's transportation system operation
- To reduce reliance on the automobile
- To support the attainment of GHG reduction goals of California and Nevada
- To increase mobility
- To provide for implementation of an adaptive management approach designed to monitor progress toward standard attainment
- To update the project level transportation impact assessment and mitigation fee

3. Background on the VMT Threshold Standard for Nitrogen Deposition

Most of the current threshold standards were adopted in 1982 and are based on science that is now over 40 years old. Numerous recommendations for modifying the system have been put forward, including over 90 recommendations in the 2011 Threshold Evaluation Report, and the standards have been repeatedly critiqued by partners, members of the threshold evaluation team, and external scientific peer reviewers. Prior attempts to review and revise the threshold standards, including the multi-year Pathway 2007 process, proposed but failed to bring about significant revisions to the standards.

Following the 2015 Threshold Evaluation, the TRPA Governing Board identified the review and updating of the threshold standards and performance measures as a strategic initiative for the agency. TRPA is currently leading the process and incorporating new scientific information so that the standards that guide millions of dollars of public and private investment in the basin are representative, relevant, and scientifically rigorous. The goals of the initiative are:

- A representative, relevant, and scientifically rigorous set of threshold standards.
- An informative, cost-efficient, and feasible monitoring and evaluation framework to support adaptive management towards threshold standard attainment.
- A robust and repeatable process for review of threshold standards in the future.

In 1982, when TRPA's threshold standards were first adopted, a number of standards were adopted to address loading of algal nutrients to the lake (including nitrogen). While the motivation for the standards was the clarity of the lake, some of the standards were adopted as air quality standards to reflect the pathway (the air) through which the nutrients reached the lake. Included in that set of standard were two standards adopted to reduce nitrate deposition onto the lake in 1982 (TRPA 1982a).

(AQ13) Reduce the transport of nitrates into the Basin and reduce oxides of nitrogen (NOx) produced in the Basin consistent with the water quality thresholds.

(AQ14) Reduce vehicle miles of travel in the Basin by 10% of the 1981 base year values.

A third standard was adopted to that established the goal of stabilizing NOx emission in order as a regulate ozone concentrations.

(AQ4) Maintain oxides of nitrogen (NOx) emissions at or below the 1981 level.

The current threshold VMT standard for nitrogen deposition was based on calculations to achieve the subregional visibility standards and was thereafter repeated as a recommended policy statement that would also promote attainment of other goals. Where standards were focused on a management practice or policy direction (rather than a desired end state), the initial threshold study often included the recommended standard multiple times. For example, prior to the reorganization there were three standards adopted to prevent degradation of stream environment zones, the management standard for inorganic nitrogen loading was repeated verbatim as both a pelagic and littoral standard. As part of the threshold update initiative, the Tahoe Science Advisory Council has recommended that this practice be discontinued to avoid confusion.

VMT can be expressed in absolute terms (total miles traveled) or as a function of another factor (e.g. per worker, or per resident). The latter are collectively referred to as efficiency-based measures. Efficiency based measures express the amount of VMT in a region as a function of a factor thought to be related to that VMT. One of the most common efficiency-based measures is expressing VMT in a region as a function of the region's population. Analyzing VMT as a function of the population (VMT per capita) allows for comparison of trends through time (Circella et al. 2016) or between regions (Clark & Cushing 2004; McMullen & Eckstein 2013) while controlling for differences in population size.

While absolute VMT has historically been of interest because of the relationship between VMT and total vehicle emissions, VMT per capita is a measure of efficiency of a transportation system in moving individuals between destinations. Higher VMT per capita regions are those where individuals are traveling farther distances to get between home, work, shopping, etc. and are generally reliant on the automobile to move between their destinations. Lower VMT per capita regions are those that are characterized by individuals travelling shorter distances between their desired destinations, and where there are options other than the car (e.g. bike paths, transit systems) that are chosen more frequently as a means of taking those trips.

When applied in practice, absolute VMT and per capita VMT provide different information about a region or regions being compared. For example, the New York metro area has the second highest absolute VMT of the 100 largest metro areas in the United States, but the lowest VMT per capita (Robert Puentes & Adie Tomer 2008). This means that New York is responsible for more transportation-based emissions than all but one other metro area in the country, but also that if all residents lived in metro areas like New York, nationwide emissions would be far lower. Jackson, Mississippi and Rochester, New York have about the same total VMT, but in Jackson the average resident drives more than twice as much as a resident of Rochester (Robert Puentes & Adie Tomer 2008). As illustrated by the examples above, per capita VMT is more reflective of auto dependence than absolute VMT, because of the confounding influence of factors like population.

The combination of the development footprint, the transportation infrastructure, and choices made by travelers in the region influence the VMT per traveler. The total amount of VMT is a function of the three factors listed above, and the choices of individuals that influence the total number of travelers in the region. Total number of travelers (i.e., the service population) in the region is influenced by the number of people that chose to live, work, or visit Tahoe. These decisions are largely independent of local policy setting but exert significant influence over the total VMT in the region.

¹ The VMT standard was removed as a measure of sub-regional visibility as part of the 2012 threshold updates which replaced it with four direct measures of Respirable and Fine Particulate Matter in the air, related to human health and regional visibility values (TRPA 2012a, 2012b).

The current threshold standard establishes a target the total amount of VMT in the region. As a result, the attainment status of the threshold standard has varied in response to factors that do not meaningfully reflect the changes in regional land-use or the transportation system.

To protect and preserve the national treasure that is Lake Tahoe for future generations, the Regional Plan places strict controls on the pace of and total amount of development allowed in the region (TRPA 2012b). Despite these strict controls on regional development, the attainment status of the VMT threshold standard has fluctuated over the years. Twenty years ago, the current VMT standard was assessed as out of attainment, while in the 2011 and 2015 threshold evaluations it was found to be in attainment (TRPA 2012a, 2016). The California Department of Transportation (CalTrans) estimates for VMT on the California side of the region during this same time period showed the same general pattern, but with even greater fluctuation than estimated in Tahoe². In 2001, estimated daily VMT on the California side of the Region was 1,073,000 (CalTrans 2018a). In 2014, California side VMT was estimated to have dropped to just over half the volume in 2001, at 560,840 daily (CalTrans 2018b). These changes are likely attributable to macro scale factors, including the loss of resident population, decline in gaming visitation, and the great recession.

Macro scale factors, like choice of residency exert significant influence on absolute VMT. If more people choose to live in the Region, total VMT in the Region will likely increase as VMT generally increases as population increases (FHWA 2010, 2017). If people choose to live elsewhere, in-Region VMT will likely decrease. There are currently 47,655 residential units in the Tahoe Region. Occupancy rates published by the U.S. Census Bureau 2018 American Community Survey (ACS), estimate that 45% of residential units are occupied by full-time residents and 55% are not occupied by full-time residents (US Census Bureau 2019). Housing units not occupied by full time residents may be second homes, time-shares, seasonal rentals, or short-term rentals. Population in the region can and does fluctuate for reasons unrelated to the number of residential units in the region. Expanding the geographic range considered, the dynamics of VMT can also change. If current residents of the region are priced out of the market or chose to move outside the region, but continue to work in the region, the longer commute trips can increase total VMT (inside and outside the region) even if there is a reduction in the VMT within the region.

Similar dynamics exist with visitation and visitor generated VMT. While the total number of rooms available to visitors to the region is limited by the Regional Plan, VMT varies considerably in response to the occupancy rate of the hotels, motels, resorts, and casinos in the region. In the “shoulder” season, when fewer visitors choose Tahoe as a destination, both occupancy rates and VMT decline. The same pattern can be seen in response to macro-economic conditions. During the great recession, there was a considerable decline in the number of overnight visitors in the Region. It was not until about 2017 that the number of rooms rented in the region returned to pre-recession levels. The economic recovery is also evident in CalTrans VMT estimates. CalTrans estimates suggest that after declining during the recession, daily VMT in 2018 was 1,032,960, just shy of the 2001 level (CalTrans 2018c). The decline in gaming visitation is well documented, with estimates suggesting that between 1990-2010, the industry declined by two-thirds (Eadington 2011). That the attainment status of an absolute VMT could fluctuate in response to macroeconomic conditions rather than regional programs and policies, is a core area of concern for indicator selection for the updated threshold standard.

Indicator selection considered responsiveness to the plans, as well as how the indicator would likely respond to specific projects or region changes. Looking at the historic record of VMT in the region, the response of absolute VMT to the great recession raised concerns about absolute VMT as metric. The potential response of the metric to Regional Plan priorities like affordable housing also raised concerns. Throughout the threshold update process, stakeholders have commented on the need to build more workforce and affordable housing units in Tahoe. Affordable and workforce housing would likely increase the resident population of the Region, which in turn would likely increase the in Region VMT.

² Nevada Department of Transportation did not estimate VMT in Nevada portion of the Region until 2016.

The previous standard was relevant to the relationship between VMT and total vehicle emissions. That standard, however, has ultimately not been effective as a measure of the efficiency of the transportation system. Further, as noted above, air quality in Tahoe today is generally good, and nitrogen emissions today are well below the emissions reduction goal established in 1981. Accordingly, the proposed amendment shifts from a measure of absolute VMT to per capita VMT, and through this shift provide the measurements necessary meet the current project goals of supporting the attainment of the GHG reduction goals of California and Nevada, increasing mobility, and reducing reliance on the automobile.

4. Regional Plan Amendments

Effectuating the new per capita VMT threshold standard requires amendment to the Regional Plan Goals and Policies. The proposed amendment adds a new goal in the Development and Implementation Priorities sub-element and six associated policies. See Attachments D for proposed amendments. The amendment includes a suite of actions to achieve the new VMT reduction standard that include:

- Establishing a technical advisory body to provide guidance on attaining and maintaining the new threshold standard
- Requiring the technical advisory body to prepare and transmit to the TRPA and TMPO governing boards a regular report including past performance, findings, and recommendations
- Establishing a schedule of milestones to measure progress towards the per capita VMT reduction goal
- Implementing identified adaptive management responses if scheduled milestones are not met
- Obtaining regional funding sources for transportation projects and programs per scheduled milestones

5. Ordinance Code Amendments

To fully implement the new VMT per capita threshold standard, the project proposes to update the Code to specify how the new threshold measure will apply to development projects. The proposed Code changes to Chapter 65 specify the framework to assess whether a development project would have a significant impact with VMT at the project level and how projects would be required to mitigate those potential VMT threshold effects. The proposed Project Impact Assessment (PIA) framework for this update is presented in more detail in Attachment G (Project Impact Assessment and Fee Framework). The project impact assessment framework proposes changes to key facets of the current project impact assessment and mitigation fee processes that include:

- Replacing Daily Vehicle Trip Ends (DVTE) with Vehicle Miles Travelled (VMT) in each process
- Simplifying project evaluation using specific targets for land use equivalents
- Requiring all projects to mitigate their VMT through implementation of VMT mitigations and/or paying a fee
- Imposing a higher rate mitigation fee on significant projects that produce unmitigated VMT
- Establishing geographic boundaries (i.e., zones) for project impact assessment
- Defining unique project types to be assessed on a case-by-case basis

Significant substantive elements of the updates are:

- Standards of Significance: Establish minimum expectations for projects, and ensure all development and redevelopment are consistent with the regional goal.

- Screening Criteria: Screen smaller and less complex projects where fee contribution to regional projects is more appropriate and promote projects in town centers and areas where regional investments in VMT mitigation are focused.
- Project Tool: Provide a streamlined, transparent, and predictable process that empowers applicants with information they need to design better projects.

Other changes to the Ordinance Code include minor alterations for consistency:

Proposed changes to the Regional Plan Policy 2.2 and Chapter 50 will remove the linkage between VMT and Level of Service (LOS) monitoring and residential allocations. The current VMT threshold standard and implementation mechanisms purport to control VMT growth by stopping residential development through the small number of residential allocations distributed every two years when modeling shows that VMT is or will shortly be above the existing standard of 10% of 1981 VMT. However, it has become apparent after years of data collection and development of modeling and other studies, applying the current VMT standard in this manner cannot feasibly achieve material reductions in VMT. Because the Tahoe Region is nearly at buildout under the Regional Plan's growth control system, new residential development from residential allocations in Tahoe accounts for a very small portion of VMT. Therefore, limiting new allocations in Tahoe is an ineffective strategy to control VMT. The proposal replaces the Chapter 50 residential allocation linkage with the above-described adaptive management system that assesses progress towards the per capita standard every two years and recommends management actions.

The existing Chapter 50 linkage to allocations was originally created as mitigation for potential VMT and LOS impacts identified in the EIS for the 2012 RPU and RTP. These mitigation measures were then codified into the Regional Plan and Code of Ordinances. The mitigation measures have been relied upon in prior environmental documents to address impacts to LOS and VMT as measured by the current absolute standard.

This IEC will assess potential impacts that may be created by the substitution of the existing linkage to residential allocations with the proposed new per capita standard, including the monitoring, reporting and adaptive management framework. TRPA is not proposing to alter any specific mitigation measures for any particular project or plan approval. For example, all specific mitigation measures for projects like the US 50 Community Redevelopment Project or Tahoe Events Center will remain in place and be unaffected. Second, as LOS is now considered a social impact and no longer identified as an environmental impact, removal of the LOS portion of the linkage will not affect the environment. Third, this IEC uses the per capita VMT as the appropriate standard of significance to assess VMT impacts as well as for impacts to other categories, such as air quality and water quality. Fourth, the removal of the linkage between VMT and residential allocations is not singled out for particularized analysis because the IEC assesses the whole of the project, including the amendments replacing the previous standard with an updated threshold, adaptive management framework, and project implementation analysis.

Current Conditions and Impact Analysis Framework:

This IEC compares the impacts of the proposed Threshold, Regional Plan, and Code amendments to a baseline of the existing environment. The current conditions of the Lake Tahoe environment are set forth in the draft 2020 Threshold Evaluation Report, released March 2021.

Because an IEC focuses on the impact of the proposed activity, an alternatives analysis is not required. Therefore, this document does not compare implementation of the proposal with other potential scenarios, like a no-project alternative (continued application of the current regulatory system) or other potential options for the threshold or implementation framework (such as a lower or higher value for the per capita standard).

For each area of impact in the checklist below, this IEC compares the existing environmental baseline conditions with those conditions reasonably anticipated to occur under the proposed amended VMT per capita threshold standard, Regional Plan Goals and Policies and Code of Ordinances.

II. Environmental Impacts

1. Land Will the proposal result in:	Yes	No	No, with mitigation	Data insufficient
a. Compaction or covering of the soil beyond the limits allowed in the land capability or Individual Parcel Evaluation System (IPES)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. A change in the topography or ground surface relief features of site inconsistent with the natural surrounding conditions?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Unstable soil conditions during or after completion of the proposal?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Changes in the undisturbed soil or native geologic substructures or grading in excess of 5 feet?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. The continuation of or increase in wind or water erosion of soils, either on or off the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Changes in deposition or erosion of beach sand, or changes in siltation, deposition or erosion, including natural littoral processes, which may modify the channel of a river or stream or the bed of a lake?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Exposure of people or property to geologic hazards such as earthquakes, landslides, backshore erosion, avalanches, mud slides, ground failure, or similar hazards?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Not applicable

2. Air Quality Will the proposal result in:	Yes	No	No, with mitigation	Data insufficient
a. Substantial air pollutant emissions?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Deterioration of ambient (existing) air quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. The creation of objectionable odors?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Increased use of diesel fuel?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

No adverse impacts to air quality associated with the proposed threshold amendment will occur. The proposed program has been designed to reduce per capita GHG emissions and improve air quality. The proposed update to the VMT threshold standard together with the 2020 RTP and project impact assessment framework not only encompasses contemporary and current state policies and approaches -- AB 32, SB 375, and now SB 743 -- but also achieves implementation over and above California state policy. The goal that the updated threshold standard sets for Tahoe is more ambitious than the state's own transportation policies. Based on development, demographic, and visitation forecasts for the region, achieving the target through implementation of the RTP will result in little to no change in net VMT, over the next 25 years, despite forecasted increases in visitation and resident population. It achieves this by anchoring to regional implementation of interim RTP project and program targets as the most effective means of controlling the growth of regional VMT rather than looking solely to development restrictions as we do today. As a practical matter, population growth is occurring all around Tahoe, and this growth will likely place upward pressure on VMT within the Basin. The proposed target is more stringent than CARB adopted targets under SB375 for the region, in that it focuses solely on VMT per capita, and does not include reductions for other programs that reduce GHG emissions but not VMT (e.g. promotion of electric vehicles). The proposed targets also encompass a wider region, establishing a goal for VMT reduction on both the California and Nevada sides of the region. Based on development, demographic, and visitation for the region, the 2020 RTP is designed to limit Tahoe's VMT growth per capita to near zero.

The nitrate impacts resulting from activity in the Tahoe Region will continue to be monitored under Thresholds (AQ4) and (AQ13). Please see the detailed discussion in Section 3 Water Quality regarding the project impacts to NOx emissions and atmospheric nitrogen. As discussed, the standards for emissions under existing Threshold (AQ 14) have been met as a result of reductions in vehicle emissions per mile.

3. Water Quality Will the proposal result in:	Yes	No	No, with mitigation	Data insufficient
a. Changes in currents, or the course or direction of water movements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff so that a 20 yr. 1 hr. storm runoff (approximately 1 inch per hour) cannot be contained on the site?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Alterations to the course or flow of 100-year flood waters?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Change in the amount of surface water in any water body?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Alteration of the direction or rate of flow of ground water?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Change in the quantity of groundwater, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Substantial reduction in the amount of water otherwise available for public water supplies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Exposure of people or property to water related hazards such as flooding and/or wave action from 100-year storm occurrence or seiches?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. The potential discharge of contaminants to the groundwater or any alteration of groundwater quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

No adverse impacts to water quality associated with the proposed threshold amendment will occur.

In 1982, when the threshold standards were first adopted, a number of standards were adopted to address loading of algal nutrients to the lake. Lake Tahoe's famed clarity has declined significantly since UC-Davis began regular monitoring in the 1960s (TERC 2020). The declines prompted the concerns of managers and stakeholders alike and led the implementation of numerous development controls and restoration projects designed to restore the lake's famed clarity. Declining lake clarity was also the primary motivation for the adoption of the current nitrogen deposition VMT threshold standard (AQ14). The threshold update process reviewed the current knowledge of the relationship between VMT and lake clarity to assess the potential for a VMT based water quality standard. That review concluded that a VMT based standard would not meaningfully contribute to attainment of the Lake Tahoe Total Maximum Daily Load (TMDL) identified load reduction targets.

A. Lake Tahoe TMDL

The Lake Tahoe TMDL is a science-based strategy to restore the historic clarity of Lake Tahoe over 65 years (Lahontan & NDEP 2010a). A TMDL identifies the pollutants of concern, and the load of each pollutant a waterbody can tolerate and still achieve the desired standards.

For the 30 years prior to the science that informed the development of the Lake Tahoe TMDL, increased nutrient loading and the resulting algal growth were thought to be primarily responsible for the declining clarity of lake Tahoe (Goldman 1988). The science for the Lake Tahoe TMDL, however, pointed not to nutrients as the primary driver of clarity loss, but to fine sediments (Jassby et al. 1999; Swift et al. 2006; Lahontan & NDEP 2010a; Sahoo et al. 2010). The work found that excess inorganic fine sediments were responsible for two-thirds of clarity loss and algal growth was responsible for the remaining third (Lahontan & NDEP 2010a).

B. VMT and Nitrogen

Prior to the science conducted to support development of the TMDL, increased algal growth was thought to be the primary driver of declining clarity. Nitrogen and phosphorus are nutrients that promote algal growth and excess nutrient loading was widely believed to be the primary reason the clarity of the lake was declining. The Lake Tahoe Total Maximum Daily Load (TMDL) identified atmospheric deposition as the primary source of nitrogen reaching the lake (Lahontan & NDEP 2010a). Atmospheric deposition was estimated to account for 55 percent of the nitrogen reaching the lake (Lahontan & NDEP 2010a). Emissions from on-road mobile sources are estimated to account for between 37-46 percent of nitrogen emissions in the Tahoe Basin (Pollard et al. 2012).

NO_x Emissions

NO_x is a byproduct of the high-temperature combustion of fossil fuel in engines. NO_x is emitted from automobile and truck engines, as well as off-road vehicles and other sources including power plants, and residential and industrial oil combustion. The relationship between VMT and NO_x emissions has changed significantly over the last 40 years as a result of increasingly stringent tailpipe emissions standards, improvement in the overall fuel economy of the nation's vehicle, and changes in fuel mix technology. Nationally, NO_x emissions have decreased by 57 percent since 1980 despite a 49 percent increase in VMT since 1990 (TSAC 2018a). In the 1950s the average new car released 3.6 grams of NO_x emissions for each mile travelled (EPA 2018). The U.S. Environmental Protection Agency (EPA) established the first NO_x emission standard (3.1 grams per mile of NO_x) for cars and light duty trucks in 1975 (EPA 1999). Since that time, NO_x emissions standards per mile have become increasingly strict (Figure 2). EPA tier 3 emission standards began in the 2017 vehicle model year, and grouped NO_x emissions regulation with regulation of non-methane organic gases (NMOG), and established a light duty fleet average of 0.03 g/mile (EPA 2020). Thus, relative to the standards in place at the time the original threshold standard was adopted, a modern car would have to drive 103 miles to emit the same amount of NO_x as was emitted by a single mile traveled by a vehicle under the tier one standards. The new fleet average emission standards established an immediate 46 percent reduction from the tier 2 requirements and become increasingly stringent leading to a 81 percent reduction by 2025 (EPA 2014).

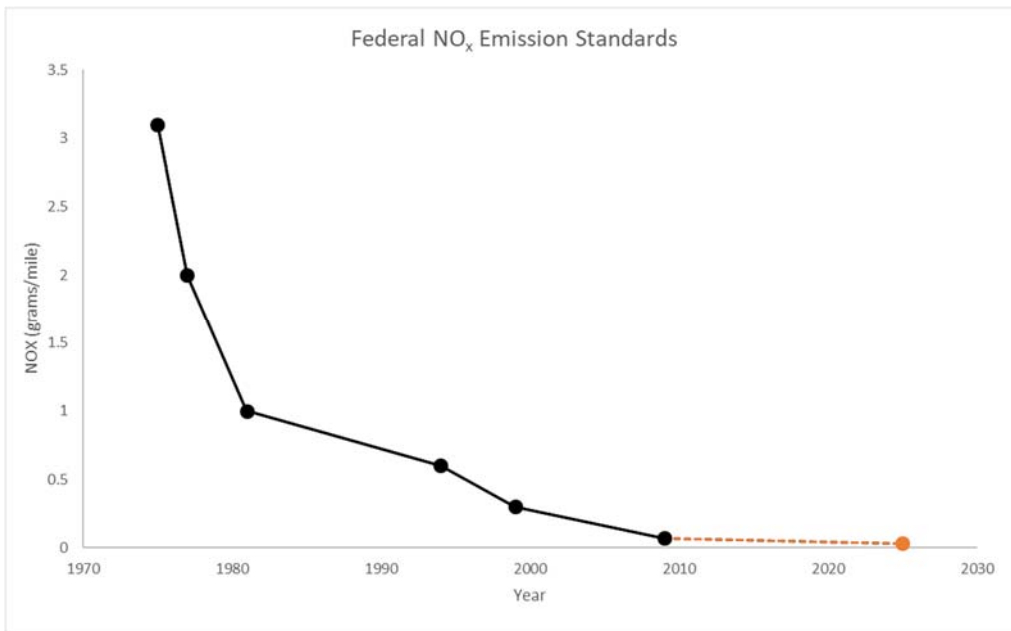


Figure 1: NO_x Emissions per mile emissions standards (1975-2025)

As a result of increasingly strict emission standards, the California Air Resources Board estimates that NO_x emissions from mobile sources in the California side of the region have decreased from 5.7 tons/day in 2000 to 2 tons/day in 2015. Current forecasts suggest that NO_x emissions will decrease further to 0.6 tons/day by 2030 (CARB 2016). The trend suggests that current emissions are approximately 25 percent of emissions in 2000. Current forecasts suggest that NO_x emissions will continue to decrease to 0.6 tons per day by 2030 (CARB 2016).

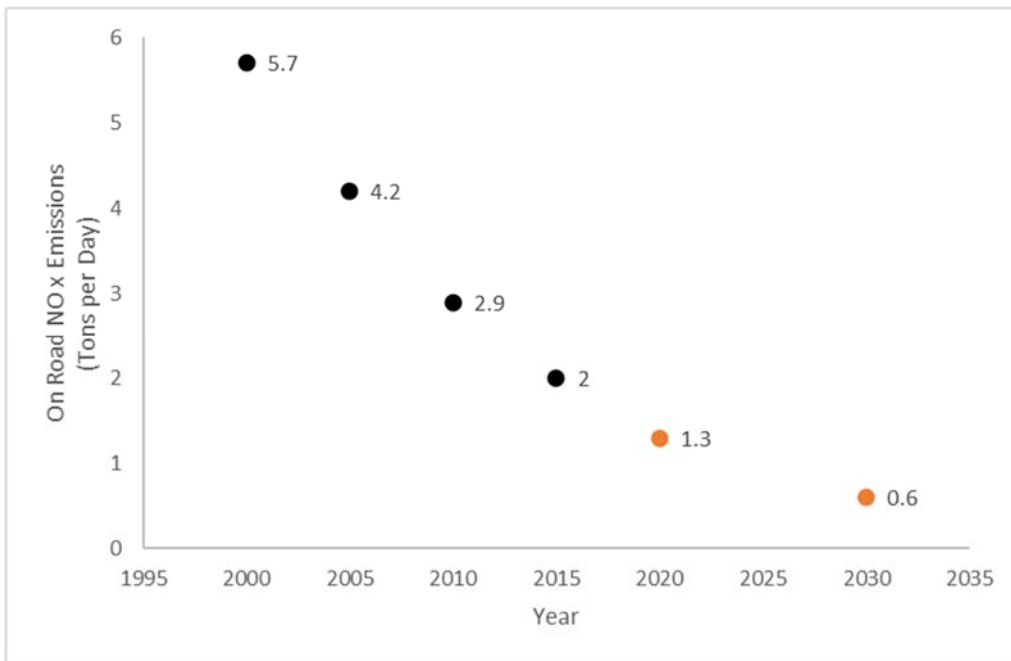


Figure 2: On road daily NO_x emissions in the Tahoe Basin. Source: CARB 2016

The reduction in transportation sector related NO_x emissions is the result of reduced tailpipe emissions from automobiles.

VMT Based Atmospheric Nitrogen Load Reduction Target

As part of the threshold update process, TRPA considered establishing a new VMT based nitrogen load reduction target. The simplest version of this would be to recalculate the amount of VMT today that would generate 10% less NO_x emission than was emitted in 1981. Because of the reductions in emissions per mile, cars in the region could travel 90 times more vehicle miles, and still emit less NO_x than a 10% reduction from 1981 emissions level. There is no realistic scenario in which that level of VMT could ever occur in the region.

Staff also considered aligning the standard with the science of the TMDL and current work to restore the clarity of the Lake. The baseline for atmospheric deposition was calculated based on emissions and deposition estimates from 2002-2003 (Lahontan & NDEP 2008; Dolislager et al. 2012). As explained above the TMDL establishes pollutant load reduction goals relative to a 2010 baseline. The TMDL estimated that atmospheric deposition accounted for 63% of annual average nitrogen load to the lake (Lahontan & NDEP 2010a, 2010b). To restore the lake's historic clarity the TMDL established a target of reducing atmospheric deposition of nitrogen by 2% over 65 years.

At least two considerations inform potential VMT based target setting relative to the nitrogen loading to the lake. The first consideration is what portion of the atmospheric loading target should the regional VMT target be responsible for achieving. Preliminary work by the Tahoe Science Advisory Council estimated that 20% of nitrogen deposition was the result of vehicle travel within the Tahoe region (TSAC 2018b). Treating the target in absolute terms would mean that 20% of the absolute TMDL target should be achieved through in basin vehicle emissions/deposition reductions.

The second consideration is the forecast for the relationship between VMT and NO_x emissions over the planning horizon. While VMT in the region has remained relatively constant since 2010, CARB estimates that NO_x emissions from on road mobile sources decreased by nearly a third between 2010 and 2015, from 2.9 tons per day in 2010 to 2.0 tons per day in 2015 and is expected to be 1.9 tons per day in 2020 (Figure 1). CARB forecasts suggest that NO_x emissions will continue to decrease to 0.6 tons per day by 2030 (CARB 2016). Tier 3 national fleet average emissions standards gradually increase to full implementation by 2025 at which point NO_x emissions per mile will be less than 20% of what it was under the previous requirements (EPA 2014). The TMDL load reduction target extends to 2075, and there is reason to believe that emissions per mile will be even lower at that time. Executive Order N-79-20 establishes a goal that all passenger car and trucks sold in California be zero emissions by 2035 and all trucks be zero emissions by 2045 (Newsom, Gavin 2020). Zero emissions vehicles mean there would no longer be a link between VMT and NO_x emissions. Even if the goal attainment took three times longer (achieved in 45 years, not in 15), all passenger vehicles sold would be zero emission 10 years prior to the TMDL established target of 2075.

Applying the precautionary principle for both considerations would result in requiring 100% of load reduction target come from local emissions reductions and that there are no additional reductions in emissions per mile. This approach runs contrary to earlier suggestions from the Tahoe Science Advisory Council which suggested it would be reasonable to assume NO_x emissions would continue to decline in the future (TSAC 2018b). It also runs counter to more recent source analysis work for atmospheric NO_x which suggested that a lower fraction of NO_x was locally generated that was assumed by the TMDL (Lahontan & NDEP 2008; TSAC 2018b).

To establish the allowable level of VMT to still achieve the NO_x emissions reduction target, regionally specific estimates for emissions per mile were compared from the 2003 (TMDL base year) and 2020. Emissions estimates were sourced from the 2017 EMFAC database utilizing aggregated emissions across model years and operation speeds (CARB 2020). Fleetwide estimates for emission reduction were developed by weighting emissions per mile emissions rates by the proportion of all vehicle miles traveled in the Region by vehicles of that category and fuel

type. VMT estimates by vehicle category were generated by averaging 2003 and 2020 estimates by class, excluding electric vehicle classes not included in the 2003 EMFAC database. The exclusion of electric vehicle classes not included in 2003 EMFAC database likely results in a small underestimate in overall emissions reductions between 2003 and 2020. In 2020, VMT weighted NOx emissions per mile across all vehicle types in the region was 79.5% lower than it was in 200. Based on the 79.5% reduction in emissions per mile, even if no additional emissions reductions were achieved, VMT in the region could increase nearly five-fold (478%) above the levels currently observed and the TMDL target could still be attained. The 478% increase above today's levels in a conservative estimate. Incorporation of the expected reductions from the current emissions standards or executive order would result in an even higher allowable level of VMT.

VMT within the Tahoe region has remained within a relatively narrow band since the 1980s, never varying by more than 15% of VMT in 1980. Given the unlikelihood of ever reaching this level of VMT, establishing a VMT based goal for rooted in concerns about nitrogen impacts on water quality is unlikely to result in meaningful action. The conclusion that VMT is not suitable for target setting for nitrogen loading is consistent with that of the TMDL. The Lake Tahoe TMDL Pollutant Reduction Opportunity Report analyzed the potential efficacy and costs associated with those alternative pollutant load reduction methods (Lahontan & NDEP 2008). Report suggested that reducing atmospheric loads through "non-mobile" methods was far cheaper than through "mobile" methods, *"Atmospheric non-mobile costs (\$35-\$88 million) are orders of magnitude less than mobile costs (\$2.9 to \$7.2 billion) (Lahontan & NDEP 2008)."* The total cost to achieve all load reductions necessary in the first 15 years of TMDL implementation was estimated to be \$1.5 billion (Lahontan & NDEP 2010a).

C. VMT and Fine Sediment Particles

The TMDL identified excess loading of fine sediment particles (FSP) as the primary cause of clarity loss in Lake Tahoe (Lahontan & NDEP 2010a). Unlike nitrogen, which is a byproduct of combustion, there is no direct relationship between VMT and FSP. VMT is indirectly related to FSP, in that FSP (dust) present on paved roadways can be resuspended by vehicle travel (Lahontan & NDEP 2008; Dolislager et al. 2012). The indirect relationship between vehicle travel and road dust varies based on road surface. CARB and the TMDL estimate loading from paved road surfaces based on the area of roadway surface, while loading from unpaved road surfaces is a function of VMT on the roads (Lahontan & NDEP 2008). The difference is a function of the source of FSP. On unpaved roads the road itself is the source of the FSP, while on paved roads the source is "material previously deposited" on the roadway (Lahontan & NDEP 2008). Paving roads that are currently unpaved was estimated to reduce dust emissions by 99% (Lahontan & NDEP 2008).

FSP from roads are primarily influenced by road operation and management practices and the application of winter traction material (Zhu et al. 2009). FSP and loading from Tahoe's roadways are on average five times higher in the winter than they are in the summer, and can be 10 times higher following the application of winter traction material (Zhu et al. 2009, 2011). VMT patterns in the basin are marked by an inverse seasonality pattern of FSP loading from roads. VMT in the Tahoe region is higher in the summer months, when there are more visitors in Region, and lower in the winter months (Figure 3). The observation is consistent traffic counts from the States of Nevada and California, as well the observations that informed the TMDL (Dolislager et al. 2012).

Average Daily VMT by Month, 2018 - StreetLight Data

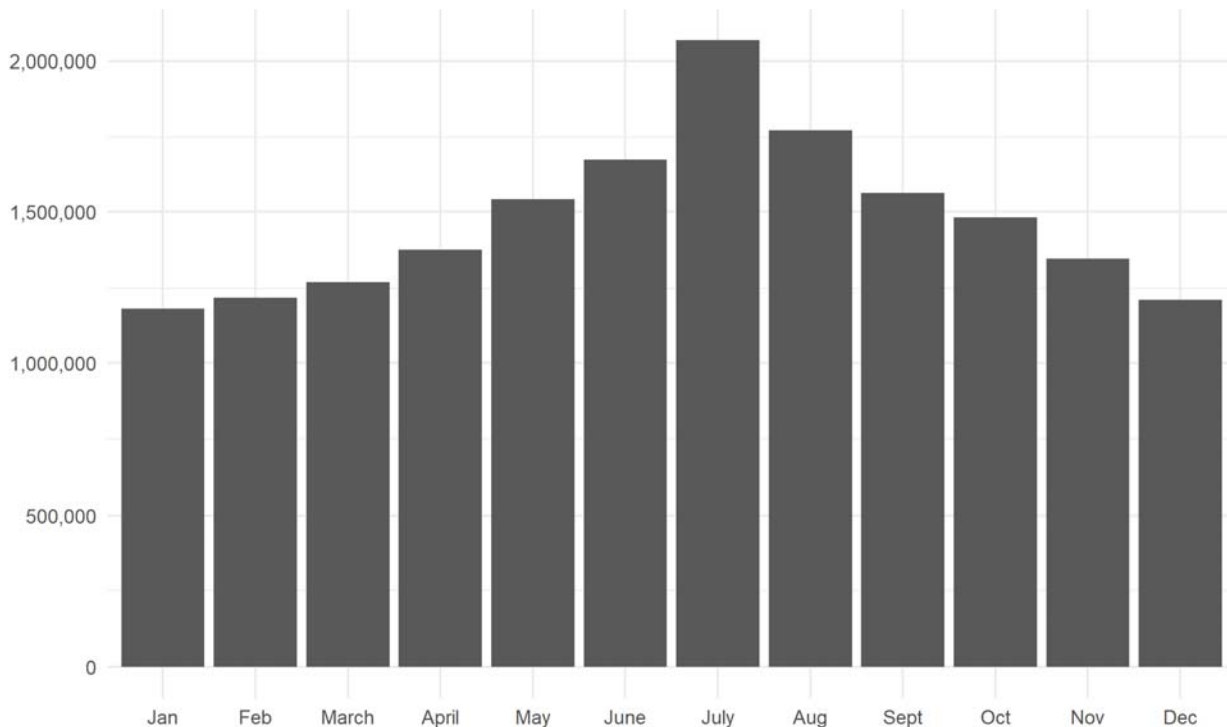


Figure 3: Tahoe Region Monthly VMT (2018)

After adoption of the TMDL in 2010, managers and scientists continued to leverage Southern Nevada Public Land Management Act (SNPLMA) funds to augment earlier research on control and influence of the FSP from roadways. The additional research suggests that the estimates for FSP deposition to the lake from travel on paved roads may have been overestimated in the Lake Tahoe Atmospheric Deposition Study (LTADS) used in the Lake Tahoe TMDL (Zhu et al. 2011). Zhu et al. suggest that atmospheric dry deposition may have been overestimated by 95%. "The results support much lower estimates of dry deposition to the lake than calculated by LTADS. We estimate that from paved road travel, the atmospheric dry deposition to the lake is approximately 6% of the total LTADS dry deposition (Zhu et al. 2011)." The refined estimates suggested that atmospheric dry deposition accounts for less than 1% of the TMDL estimated FSP loading to the lake (Zhu et al. 2014). The work suggested that 99% of FSP retained as a result of vehicle traffic on paved roadways was deposited back on the landscape (Zhu et al. 2014). "Only ~2% of road emissions of PM₁₀ (20 Mg/year) and ~1.5% of TSP (35 Mg/year) is estimated to reach the lake. The vast majority of PM_{large} emitted into the air is deposited within minutes, especially in the presence of dense vegetation (Zhu et al. 2011)."

VMT Based Atmospheric Fine Sediment Particle Load Reduction Target

The TMDL estimated that atmospheric deposition accounted for 16% of annual average FSP load to the lake (Lahontan & NDEP 2010a, 2010b). To restore the lake's historic clarity the TMDL established a target of reducing atmospheric deposition of FSP by 55% over 65 years. TMDL development considered a number of management strategies for FSP load reduction. Preliminary studies conducted for the TMDL also explored the efficacy of VMT reduction as a strategy to reduce atmospheric fine sediment loading. The preliminary understanding of the system suggested that VMT reduction would likely not be a cost-effective strategy for FSP load reduction (Lahontan & NDEP 2008). This understanding was further supported by subsequent work that estimated that, "a 25 percent reduction in VMT would reduce FSP loads by less than half of one percent (Lahontan & NDEP 2008)." Instead of focusing on traffic volumes, the TMDL focused on a) preventive controls – to prevent FSP from being deposited, and mitigative controls – to remove FSP already deposited on roadways (Lahontan & NDEP 2008) for

both roadways and parking lots. Because of the indirect nature of the relationship between VMT and FSP loading it is not possible to develop a meaningful VMT target for phosphorus.

D. VMT and Phosphorus

TMDL source analysis for atmospheric phosphorus reveals a profile similar to FSP. Phosphorus is not a by-product of combustion, so there is no direct relationship between VMT and phosphorus emissions or deposition. Phosphorus is indirectly related to VMT through road dust (Lahontan & NDEP 2008; Dolislager et al. 2012). The TMDL estimated that atmospheric deposition accounted for 18% of annual average phosphorus load to the lake (Lahontan & NDEP 2010a, 2010b). The TMDL identified three sources of atmospheric phosphorus deposited on the lake; road dust, residential wood combustion and dust from construction activities (Lahontan & NDEP 2008).

VMT Based Atmospheric Phosphorus Load Reduction Target

The TMDL estimated that atmospheric deposition accounted for 18% of annual average phosphorus load to the lake (Lahontan & NDEP 2010a, 2010b). To restore the lake's historic clarity the TMDL established a target of reducing atmospheric deposition of phosphorus by 61% over 65 years. Because of the indirect nature of the relationship between VMT and phosphorus loading it is not possible to develop a meaningful VMT target for phosphorus.

4. Vegetation Will the proposal result in:	Yes	No	No, with mitigation	Data insufficient
a. Removal of native vegetation in excess of the area utilized for the actual development permitted by the land capability/IPES system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Removal of riparian vegetation or other vegetation associated with critical wildlife habitat, either through direct removal or indirect lowering of the groundwater table?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Introduction of new vegetation that will require excessive fertilizer or water, or will provide a barrier to the normal replenishment of existing species?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Change in the diversity or distribution of species, or number of any species of plants (including trees, shrubs, grass, crops, micro flora and aquatic plants)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Reduction of the numbers of any unique, rare or endangered species of plants?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Removal of stream bank and/or backshore vegetation, including woody vegetation such as willows?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Removal of any native live, dead or dying trees 30 inches or greater in diameter at breast height (dbh) within TRPA's Conservation or Recreation land use classifications?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. A change in the natural functioning of an old growth ecosystem?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Not applicable

5. Wildlife				
Will the proposal result in:	Yes	No	No, with mitigation	Data insufficient
a. Change in the diversity or distribution of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, insects, mammals, amphibians or microfauna)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Reduction of the number of any unique, rare or endangered species of animals?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Deterioration of existing fish or wildlife habitat quantity or quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Not applicable

6. Noise				
Will the proposal result in:	Yes	No	No, with mitigation	Data insufficient
a. Increases in existing Community Noise Equivalency Levels (CNEL) beyond those permitted in the applicable Area Plan, Plan Area Statement, Community Plan or Master Plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Exposure of people to severe noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Single event noise levels greater than those set forth in the TRPA Noise Environmental Threshold?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. The placement of residential or tourist accommodation uses in areas where the existing CNEL exceeds 60 dBA or is otherwise incompatible?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. The placement of uses that would generate an incompatible noise level in close proximity to existing residential or tourist accommodation uses?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Exposure of existing structures to levels of ground vibration that could result in structural damage?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Not applicable

7. Light and Glare				
Will the proposal:	Yes	No	No, with mitigation	Data insufficient
a. Include new or modified sources of exterior lighting?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Create new illumination which is more substantial than other lighting, if any, within the surrounding area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Cause light from exterior sources to be cast off -site or onto public lands?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Create new sources of glare through the siting of the improvements or through the use of reflective materials?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Not applicable

8. Land Use				
Will the proposal:	Yes	No	No, with mitigation	Data insufficient
a. Include uses which are not listed as permissible uses in the applicable Area Plan, Plan Area Statement, adopted Community Plan, or Master Plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Expand or intensify an existing non-conforming use?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Not applicable

9. Natural Resources				
Will the proposal result in:	Yes	No	No, with mitigation	Data insufficient
a. A substantial increase in the rate of use of any natural resources?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Substantial depletion of any non-renewable natural resource?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Not applicable

10. Risk of Upset				
Will the proposal:	Yes	No	No, with mitigation	Data insufficient
a. Involve a risk of an explosion or the release of hazardous substances including, but not limited to, oil, pesticides, chemicals, or radiation in the event of an accident or upset conditions?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Involve possible interference with an emergency evacuation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Not applicable

11. Population				
Will the proposal:	Yes	No	No, with mitigation	Data insufficient
a. Alter the location, distribution, density, or growth rate of the human population planned for the Region?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Include or result in the temporary or permanent displacement of residents?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Not applicable

12. Housing Will the proposal:	Yes	No	No, with mitigation	Data insufficient
a. Affect existing housing, or create a demand for additional housing? To determine if the proposal will affect existing housing or create a demand for additional housing, please answer the following questions:				
1. Will the proposal decrease the amount of housing in the Tahoe Region?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Will the proposal decrease the amount of housing in the Tahoe Region historically or currently being rented at rates affordable by lower and very-low-income households?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Will the proposal result in the loss of housing for lower-income and very-low-income households?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Total development in the Tahoe Region is capped by the Regional Plan. The type and rate of that development is further controlled by a complex system governing development rights in the Region. The proposed amendment does not alter the total amount of development allowed in the Regional Plan.

The proposed amendment would have a positive impact on housing in the Tahoe Region as it provides an incentive program to build 100% deed-restricted affordable, moderate, and achievable housing that is in an area eligible for affordable housing bonus units by exempting the project from additional project impact assessment. This screen is supported by data that demonstrates an association between lower VMT rates and lower household incomes.

The Tahoe Region household travel survey revealed that low-income households generate less VMT than moderate- and high-income households. These differences in VMT generation will be accounted for during project impact assessment to more accurately estimate VMT impacts from affordable housing. All projects exempt from analysis under this category would be required to pay the mobility mitigation fee(s).

Adding affordable housing to infill locations generally improves jobs-housing match, in turn shortening commutes and reducing VMT. In areas where existing jobs/housing match is closer to optimal, low-income housing nevertheless generates less VMT than market-rate housing.

13. Transportation / Circulation Will the proposal result in:	Yes	No	No, with mitigation	Data insufficient
a. Generation of 100 or more new Daily Vehicle Trip Ends (DVTE)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Changes to existing parking facilities, or demand for new parking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Substantial impact upon existing transportation systems, including highway, transit, bicycle or pedestrian facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Alterations to present patterns of circulation or movement of people and/or goods?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Alterations to waterborne, rail or air traffic?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Increase in traffic hazards to motor vehicles, bicyclists, or pedestrians?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The proposed amendment to the threshold standard aligns the standard goal with the Bi-State Compact directive to; "reduce dependency on the automobile by making more effective use of existing transportation modes and of public transit to move people and goods within the region." The proposed VMT per capita based threshold standard provides a more effective measure of automobile dependence.

The proposed amendment aligns with the Regional Plan (RP) and transportation (Regional Transportation Plan) planning. The two plans work together to provide visitors and residents with alternatives to personal automobile travel and reduce VMT. Both plans support compact, mixed-use development, and walkable, bikeable, transit-friendly communities. An efficiency based VMT standard better aligns with the identified policies and goals.

Roadway capacity in Tahoe is limited (i.e., new roads or lanes are unlikely due to geographic and environmental constraints) so increasing mobility requires a transportation system that improves connectivity and mobility through implementing new trails and transit service, adaptive corridor management with transit priority and/or reversible travel lanes, and parking management. The Bi-State Compact also expressly directs that, "Where increases in capacity are required, the agency shall give preference to providing such capacity through public transportation and public programs and projects related to transportation." VMT per capita more directly measures auto dependency than total VMT. The implementation framework for the threshold standard directly links funding for the RTP with the threshold standard. This direct link between funding, the RTP, and the threshold standard formalizes what has long been apparent. A lack of funding to implement the projects and programs in the RTP has hindered attainment of the vision of the RTP. The proposed amendment will support attainment of the goals and policies of the Regional Plan and the RTP.

Some stakeholders have expressed concern that the current VMT standard serves to increase public health and safety and its removal could be associated with increased risk during evacuation in the event of a wildfire

or natural disaster. While absolute VMT and evacuation capacity are often confused because both can be related to overall population, they measure fundamentally different things. Total VMT is a measure of the overall amount of travel volume in an area, while evacuation is a specific concern related to ensuring the safety of people within an area. As the number of people in an area increases, both VMT and the number of people to be moved, in the event an evacuation is necessary, generally increase, but that does not mean that the two are equivalent.

When considering exposure to risks such as wildfire, it is important to recognize that the goal is ensuring the safety of people within an area, and this is related to existing emergency response and evacuation plans. This goal is addressed throughout the Tahoe Region by a variety of agencies. For example, the City of South Lake Tahoe, the Tahoe Keys Property Owners Association, and the Counties within the Tahoe Region all manage their own emergency preparedness plans. The proposed amendment will be part of the overall strategy to improve transportation efficiency, so it will not conflict with existing emergency preparedness efforts.

Wildfire safety and risk mitigation begins long before evacuation route planning, and generally begins with focusing on actions that reduce the likelihood and potential intensity of wildfires. A priority principle is land use planning that prevents additional spread of development, also known as sprawl. The Regional Plan prevents new subdivisions, thereby reducing risk and minimizing the urban areas that need to be protected from wildfires. The forest health treatments of EIP program partners reduce the fuels on the landscape, helping to reduce the severity of a fire in event that one begins. Wildfire safety also includes actions at the neighborhood and home level, where EIP partners support property owners in the region with creating defensible space and home hardening.

Returning to the measures themselves, the difference between the two measures is perhaps most evident when looking at the potential solution to each challenge. Projects, such as expansion of existing roadway capacity or creation of new roadways make evacuation easier, but also increase VMT. Evacuation planning, such as phased evacuation zones, and providing safe shelter in place options, also reduce evacuation risk but are likely to have little to no impact on VMT. There is not a direct relationship between VMT and evacuation planning, and the emergency preparedness strategies in place take many variables into account. Therefore, no adverse impacts to the transportation system will occur as a result of the shift from the nitrate VMT standard to the VMT per capita measure.

14. Public Services				
Will the proposal have an unplanned effect upon, or result in a need for new or altered governmental services in any of the following areas:	Yes	No	No, with mitigation	Data insufficient
a. Fire protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Police protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Schools?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Parks or other recreational facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Maintenance of public facilities, including roads?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Other governmental services?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

See discussion above on evacuation routes.

15. Energy				
Will the proposal result in:	Yes	No	No, with mitigation	Data insufficient
a. Use of substantial amounts of fuel or energy?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Substantial increase in demand upon existing sources of energy, or require the development of new sources of energy?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Not applicable

16. Utilities Except for planned improvements, will the proposal result in a need for new systems, or substantial alterations to the following utilities:	Yes	No	No, with mitigation	Data insufficient
a. Power or natural gas?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Communication systems?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Utilize additional water which amount will exceed the maximum permitted capacity of the service provider?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Utilize additional sewage treatment capacity which amount will exceed the maximum permitted capacity of the sewage treatment provider?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Storm water drainage?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Solid waste and disposal?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Not applicable

17. Human Health Will the proposal result in:	Yes	No	No, with mitigation	Data insufficient
a. Creation of any health hazard or potential health hazard (excluding mental health)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Exposure of people to potential health hazards?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

See discussion above on evacuation routes.

18. Scenic Resources / Community Design				
Will the proposal:	Yes	No	No, with mitigation	Data insufficient
a. Be visible from any state or federal highway, Pioneer Trail or from Lake Tahoe?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Be visible from any public recreation area or TRPA designated bicycle trail?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Block or modify an existing view of Lake Tahoe or other scenic vista seen from a public road or other public area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Be inconsistent with the height and design standards required by the applicable ordinance or Community Plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Be inconsistent with the TRPA Scenic Quality Improvement Program (SQIP) or Design Review Guidelines?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Not applicable

19. Recreation				
Will the proposal:	Yes	No	No, with mitigation	Data insufficient
a. Create additional demand for recreation facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Create additional recreation capacity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Have the potential to create conflicts between recreation uses, either existing or proposed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Result in a decrease or loss of public access to any lake, waterway, or public lands?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The proposed amendment will not create additional demand for recreation facilities. The overarching impact of the proposed amendment, coupled with implementation of the 2020 RTP, will be to enhance the recreation experience in the Region by supporting an increase in access via bus routes, shuttles, and bike and pedestrian paths. The Mobility Mitigation Fee (the renamed Air Quality Management (AQM) fee) will be used by the region’s jurisdictions and agencies to fund projects that will enhance multi-modal transportation for Tahoe residents and visitors between communities and recreation sites. The RTP strategies will augment the existing recreation facilities and shift visitor travel to other modes.

The proposed amendment would not create additional demand for recreation capacity, and as noted above, the overall impact of implementation of the RTP and the proposed amendment will be to enhance access to existing recreation facilities.

The proposed amendment will not create conflict between exiting or proposed recreation uses, as it does not conflict with existing goals and policies that provide for type, location, and rate of development of recreational uses and facilities.

The proposed amendment will not result in any decrease or loss of public access to recreation. While the changes to the Regional Plan Implementation Element and Code of Ordinances' Project Impact Assessment (PIA) would require no net increase in VMT for recreation projects, access will not be adversely impacted because the fee program will fund "Discover Tahoe" strategies, and support the RTP goals of adding transit to popular destinations, out of basin park-n-ride and transit connections, and more transportation choices once in the Region, like bike, pedestrian, and reservable parking management systems.

While the analysis for new recreation projects must demonstrate no net unmitigated VMT, new recreation projects would be integrated with the more efficient system envisioned in the RTP, which distributes vehicle trips and provides alternative modes of travel to and from popular recreation destinations. Therefore, a no net unmitigated VMT objective for these projects is achievable, and there is no evidence to suggest that the no-net VMT standard will reduce access.

20. Archaeological / Historical	Yes	No	No, with mitigation	Data insuffic ient
a. Will the proposal result in an alteration of or adverse physical or aesthetic effect to a significant archaeological or historical site, structure, object or building?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Is the proposed project located on a property with any known cultural, historical, and/or archaeological resources, including resources on TRPA or other regulatory official maps or records?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Is the property associated with any historically significant events and/or sites or persons?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Does the proposal have the potential to cause a physical change which would affect unique ethnic cultural values?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Will the proposal restrict historic or pre-historic religious or sacred uses within the potential impact area?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

Not applicable

21. Findings of Significance	Yes	No	No, with mitigation	Data insufficient
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California or Nevada history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one which occurs in a relatively brief, definitive period of time, while long-term impacts will endure well into the future.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Does the project have impacts which are individually limited, but cumulatively considerable? (A project may impact on two or more separate resources where the impact on each resource is relatively small, but where the effect of the total of those impacts on the environmental is significant?)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Does the project have environmental impacts which will cause substantial adverse effects on human being, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Discussion

The proposed Threshold, Regional Plan and Code amendments will result in a beneficial environmental impact by updating to a more relevant VMT standard tied directly to the Region’s longstanding ambition to achieve its regional transportation system vision. When implemented through the strategies and funding of Tahoe’s RTP it will achieve a reduction in per capita VMT while holding VMT growth essentially to zero and is fully consistent with related statewide policies (AB 32, SB375, SB743, and NV’s Climate Plan goals).

Determination:

On the basis of this evaluation:

. The proposed project could not have a significant effect on the environment and a finding of no significant effect shall be prepared in accordance with TRPA's Rules of Procedure	<input checked="" type="checkbox"/>	YES	<input type="checkbox"/>	NO
a. The proposed project could have a significant effect on the environment, but due to the listed mitigation measures which have been added to the project, could have no significant effect on the environment and a mitigated finding of no significant effect shall be prepared in accordance with TRPA's Rules and Procedures.	<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	NO
b. The proposed project may have a significant effect on the environment and an environmental impact statement shall be prepared in accordance with this chapter and TRPA's Rules of Procedures.	<input type="checkbox"/>	YES	<input checked="" type="checkbox"/>	NO

Signature of Evaluator

Date _____

Title of Evaluator