

TAHOE REGIONAL PLANNING AGENCY
ADVISORY PLANNING COMMISSION
NOTICE OF MEETING

NOTICE IS HEREBY GIVEN that the **Advisory Planning Commission** of the Tahoe Regional Planning Agency will conduct its regular meeting at **9:30 a.m.** on **Wednesday, July 12, 2017** at the **TRPA Offices**, located at **128 Market Street, Stateline, NV**. The agenda for the meeting is attached hereto and made a part of this notice.

July 5, 2017

A handwritten signature in blue ink that reads "Joanne S. Marchetta". The signature is written in a cursive style with a long horizontal stroke extending to the right.

Joanne S. Marchetta
Executive Director

TAHOE REGIONAL PLANNING AGENCY
ADVISORY PLANNING COMMISSION

TRPA
Stateline, NV

July 12, 2017
9:30 a.m.

AGENDA

- I. CALL TO ORDER AND DETERMINATION OF QUORUM
- II. APPROVAL OF AGENDA
- III. PUBLIC INTEREST COMMENTS

Any member of the public wishing to address the Advisory Planning Commission on any item listed or not listed on the agenda may do so at this time. TRPA encourages public comment on items on the agenda to be presented at the time those agenda items are heard. Individuals or groups commenting on items listed on the agenda will be permitted to comment either at this time or when the matter is heard, but not both.

All public comments should be as brief and concise as possible so that all who wish to speak may do so; testimony should not be repeated. The Chair shall have the discretion to set appropriate time allotments for individual speakers (3 minutes for individuals and 5 minutes for group representatives as well as for the total time allotted to oral public comment for a specific agenda item). No extra time for speakers will be permitted by the ceding of time to others. Written comments of any length are always welcome. So that names may be accurately recorded in the minutes, persons who wish to comment are requested to sign in by Agenda Item on the sheets available at each meeting. In the interest of efficient meeting management, the Chair reserves the right to limit the duration of each public comment period to a total of 2 hours. In such an instance, names will be selected from the available sign-in sheet. Any individual or organization that is not selected or otherwise unable to present public comments during this period is encouraged to submit comments in writing to the Advisory Planning Commission. All such comments will be included as part of the public record.

NOTE: THE ADVISORY PLANNING COMMISSION IS PROHIBITED BY LAW FROM TAKING IMMEDIATE ACTION ON, OR DISCUSSING ISSUES RAISED BY THE PUBLIC THAT ARE NOT LISTED ON THIS AGENDA.

- IV. DISPOSITION OF MINUTES
- V. PLANNING MATTERS

A. Transportation Measures Working Group:
Review of Draft Report

**Discussion and
Possible Direction
to Staff**

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B. Tahoe-Truckee Plug-in Electric Vehicle Readiness
Plan Status Report

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VI. REPORTS

A. Executive Director

Informational Only

B. General Counsel

Informational Only

VII. APC Members

Informational Only

VIII. PUBLIC COMMENT

IX. ADJOURNMENT

TAHOE REGIONAL PLANNING AGENCY
ADVISORY PLANNING COMMISSION

TRPA
Stateline, NV

June 14, 2017

Meeting Minutes

I. CALL TO ORDER AND DETERMINATION OF QUORUM

Chair Mr. Teshara called the meeting to order at 9:30 a.m.

Members present: Mr. Buelna, Ms. Carr, Mr. Donohue, Mr. Esswein, Ms. Ferris, Mr. Guevin, Ms. Hill, Mr. Hitchcock, Mr. Hymanson, Ms. Krause, Mr. Larsen, Mr. Plemel, Mr. Teshara, Mr. Trout, Mr. Weavil

Members absent: Mr. Alling, Mr. Drew, Ms. McClung, Washoe Tribe representative

Transportation Measures Working Group Community Members: Ms. Eckmeyer, Policy Analyst, League to Save Lake Tahoe, Andy Chapman, President/CEO, Incline Village Crystal Bay Visitors Bureau

II. APPROVAL OF AGENDA

Mr. Larsen moved approval.
Mr. Hymanson seconded the motion.

Motion carried unanimously.

III. PUBLIC INTEREST COMMENTS

None

IV. DISPOSITION OF MINUTES

Mr. Teshara said he provided his very minor edits to Ms. Ambler.
Mr. Larsen moved approval of the May 10, 2017 minutes as amended.
Ms. Hill, Ms. Krause, Mr. Plemel abstained.

Motion carried.

V. PLANNING MATTERS/PUBLIC HEARINGS

A. Transportation Measures Working Group: State of the Practice Presentations on Identified Focus Areas and Related Matters

TRPA team member Mr. Segan, Mr. Milam, Fehr and Peers, and Mr. Hondorp, Alta Planning

+ Design provided an overview.

Mr. Segan said the six categories used to organize the measures search as part of the transportation measures working group are; Connectivity, Economic Vitality and Quality of Life, Environment, Operations and Congestion Management, Safety, and System Preservation. At the last meeting, there was focus on identifying and connecting the potential gaps or areas to be explored in more detail within this white paper to ensure that the survey of the landscape is complete. Following are some of the focus areas that were identified.

Connectivity and addressing that through non-auto measures. There was discussion about economic vitality and quality of life and the impacts that non-auto infrastructure and congestion have on the user experience within the Basin. Requests were made for additional detail and discussion on water and air quality, and congestion. Specifically, options for measuring and monitoring congestion.

We are not at the point of identifying the best measure for any of these specific items. The focus of today's discussion is to ensure that they have covered the full breadth of measures which will be included in the white paper and serve as a platform for future discussions.

Mr. Milam, Fehr and Peers provided a presentation on congestion.

Evolution of congestion: The transportation land use system has evolved from what was compact growth and a slow network speed. After the automobile came along, speeds increased, there was asphalt and concrete which allowed land uses to spread out especially for residential land uses. Because there was a pattern with residential land uses being far away from employment centers, traffic was funneled to those centers, and when someone got to the highway it ended up with congestion. The pendulum went from having very compact land use forms to one where it was spread out. As a result, there was high speed and congested networks. Now, the pendulum is swinging back the other way. In the planning realm, there are discussions about putting land uses back in close proximity so people can walk, bike, and take transit or make a shorter trip if they drive. There is more focus on managing the network, not expanding it.

Defining congestion: It needs to be clear about what it is you're measuring. This is about network performance and what you expect of the network. The network, when you think about it from a congestion standpoint, you're usually focused on mobility; how fast you move between origins and destinations. Another item is how accessible are the destinations, and by what modes? There's a lot of different ways to define congestion such as travel time and reliability of trips. This is usually reflected using metrics like delay, speeds, and vehicle level of service. Vehicle level of service is graded from A (good) to F (bad), through the driver's lens. Economists don't see congestion necessarily as a problem by itself. They do see it as a symptom of things such as poor seat utilization, because of the larger vehicles, and because we oversubscribe the use during the peak periods. Urban economists look at congestion as a cost function; it's a cost of putting lots of people and activities in close proximity. Strategic planners try to look at the problem more holistically, looking at the metrics and seeing where they start to overlap and where they are connected. You're probably some form of a strategic planner at this point, focusing on access to destinations, multiple travel choices and how those travel choices affect the environment. A high-quality

transportation network has multiple travel choices, it's friendly to the environment, and has a direct connection to livability and the quality of life.

There are also different perspectives, preferences, and priorities in terms of what travel markets should be served. Travel markets are usually broken into freight and passengers. Freight also has subdivisions because of time sensitive products. Bicyclists look at the road system differently than drivers. The economy, safety, and equity are all elements of the metric choices. The level of service is measured on vehicle delay. For example, should a lot of empty seats on the network be considered? Because it goes to the efficiency of the network that has already been built. One of the challenges is most agencies do not have enough revenue through tax sources to pay for the current operation and maintenance of the networks that have already been built. Another question in selecting metrics is should there be more concern about vehicles or are we more concerned about how many people we're moving and how we're moving them? Metric examples are travel times, speed, level of service/delay, seat utilization, and delay. Seat utilization and vehicle miles traveled are not direct measures of congestion, but are related.

Travel time can be measured in a lot of different ways. In the aggregate, or from a household perspective, and commute times. It can be broken down between how much of the time is spent in congestion, versus how much is free flow. It can be compared between geographic areas to see how the network performs. It doesn't help make decisions about how to modify an individual piece of the network, that is usually reserved for more corridor type analysis looking at two different path choices. It could be looking at a trip between a single origin and a single destination, and understanding what the differences are in time. It can also be broken down by travel mode; comparing a single occupant vehicle versus someone that's carpooling. Travel time is usually made up of speed information. There are sources such as INRIX to look at speeds on the ground in real time, review history, and where bottlenecks are occurring in a system.

Level of service is measured during a peak hour and for 15 minutes within that hour. The breakdown of A to F are based on seconds of delay which can be subjective. This information comes from the Transportation Research Board's, Highway Capacity Manual. The level of service F has changed from past editions of 60 seconds of delay to 80 seconds and could go up in future editions as people have become more acclimated to being stuck in congestion. Level of service can measure isolated locations but you need to marry the metrics to the methods to get the complete story.

Seat utilization and vehicle miles traveled: The United States tends to drive relatively large vehicles; about 4000 pounds and an average American is about 180 pounds. If gas is \$4.00 per gallon and you travel one mile, it is 17 cents to move the mass of metal and less than one penny to move the person. Corridor studies are starting to measure the number of empty seats. It measures how many seats are occupied in the peak hour, peak direction on light rail, commuter rail, and on the freeway

Vehicle miles traveled can be measured during peak periods. If the goal is to reduce congestion or manage congestion, it is suggested that you do it in connection with how much vehicle travel is occurring during those peak periods. If you can reduce vehicle miles traveled, it can also reduce or manage congestion, reduce fuel consumption and emissions. Vehicle miles traveled through the VMT per capita lens, will identify how much travel by

vehicle needs to occur.

There are a lot of choices when picking a metric. They are measuring demand or supply and a blend in some cases. The mitigation actions, or improvements, can either be physical, operational, or behavioral on the demand side. On the supply side, typically the network has been expanded.

Presentation can be viewed at:

<http://www.trpa.org/wp-content/uploads/Agenda-Item-No.-V.A-Transportation-Measures-Congestion-Fehr-Peers-1.pdf>

Commission Comments & Questions

Mr. Hymanson said in terms of guiding the metric choice, wouldn't we want to think about the questions we have and the types of metrics that best answer those questions, and the kinds of information that we want for the implementation of a transportation plan?

Mr. Milam said to some degree, this has been done in both the Regional Transportation Plan and the Active Transportation Plan. There's three basic questions he would ask; What is it you're trying to create? What is it you're trying to protect? And, what is it you're trying to avoid? These should be answered in deciding what the future outcome should consist of and then work backwards from that vision, to decide what metrics are most aligned with where you want to go

Public Comments & Question

None

(presentation continued)

Mr. Hondorp, Alta Planning + Design provided a presentation on active transportation performance measures.

Mr. Hondorp said his presentation will not cover everything that's being done in terms of metrics in active transportation, but will focus on some of these at a high level. There are new guidebooks, studies, new research coming out. There is good national level guidance from the National Association of city transportation officials and the Federal Highway Administration but there is a lot happening at the local level with the bicycle and pedestrian master plan. This may be the one taking that step to identify some performance measures that are unique to study and track. How does that all filter up? It's still emerging.

Environment is a performance measure within the Regional Transportation Plan that covers a lot of existing elements that are more vehicular oriented, vehicle miles traveled, through trips, and other standard environmental items such as air pollution. Even though this is a transportation policy document, thinking about the health and physical activity element is a critical nexus. It is an important partnership that they have seen with public health agencies in understanding that influence of the built environment and travel choices on public health and physical activity. If information can be tracked and progress is shown, there are a lot of grant programs including California's Active Transportation Program and Transportation

Investment Generating Economic Recovery grants.

An example, is in Southern California they have a composite physical activity environmental index. A lot of this data is readily available through a statewide index that looks at a variety of health and environmental quality factors that can relate directly back to transportation investments.

Connectivity has some clear active transportation elements in terms of mode share, miles of bicycle or pedestrian facilities that are being built, and bicycle pedestrian counts. Other metrics to consider relate to the quality of that connectivity, how well-connected these facilities are and how well they're serving that user base. It's more than just building the mileage, it is understanding if that mileage is usable in terms of challenging places in the network, places that might be uncomfortable for a bicyclist or a pedestrian to walk or cycle, or a challenging crossing. A single intersection or a single crossing point can serve as a barrier that cuts off your network. There's been a lot of analytics that can map that connectivity and point out those barriers and help to pinpoint those investments. It is looking at more than just mileage of things getting built and thinking of what's the actual quality, functionality, and directness, completeness, items that are moving towards more of a grid network. This is called the connected node ratio, looking at how well-connected the street network is.

Lake Tahoe has topographic constraints and it is not going to be as simple as an urban street grid, but Lake Tahoe also has an off-street trail network in many places. You need to see how that connects, opportunities where the road or vehicle network doesn't connect, how can you expand the non-motorized network to provide additional connectivity and nodes and reduce that travel time to encourage people to use that transportation?

Safety is another metric that staff is doing a lot to measure with a move towards the Vision Zero approach, which is focusing on fatalities and serious injuries. Within the Regional Transportation Plan there is vehicle collisions per mile traveled. Applying that same type of rate to active transportation in terms of an exposure metric, it is not just the number of bicycle or pedestrian collisions. It is applying what is called an exposure rate to the location. That is challenging because that requires that there is data on the number of users, which isn't always available for bikes and pedestrians in the way that we have for traffic counts that can be applied more easily. That is something to consider as the collision or safety metric is enhanced. The other element is a more proactive safety analysis. It is not looking at collisions that have already happened, but looking at design factors or behavior factors that result in collisions. Then how to mitigate that with design enhancements, curb extensions or adjusting signal timing.

The operation measure is about vehicles and the efficiency of the system. For the active transportation, it is about the quality and the function of the system. It is not just about building miles of bike lanes, but understanding who is using those and if they are appealing to those people. One idea is more of a multi-modal level of service that is in the Highway Capacity Manual. It provides a consistent level of service analysis for vehicles, transit, pedestrians and bicycles. It's not a composite, but provides a consistent way to compare those modes. It is an improvement over those analytics that were done in the past. There still needs to be enhancements in terms of land uses and other factors that make a quality pedestrian environment, what are the reasons people want to walk? For the bicycle

level of service, that's part of the multi-modal level of service. It does take buffers and things into account but it does not account for a lot of the bike facility types such as cycle tracks and separated bikeways that have emerged in the last few years. It still can rate a facility very high, even though it may be on a high-speed roadway. If it is a wide bike lane and there is not a lot of traffic, that could get a bicycle level service A. The level of traffic stress looks at the bicycle user's perception of safety on the route; how safe do they feel? or what is their sense of danger in riding next to traffic? It creates a rating system from one to four, with four being the most stressful and one being the least stressful. This rating can be linked to specific bicycle user types. An LTS 1 facility is something that a child could ride on. LTS 2 is for families and the average casual cyclist. LTS 3 facilities are for folks with a higher traffic tolerance. The LTS 4 facility is for the fearless who will ride anything. The LTS 3 and LTS 4 are the types of bikeways that have largely been designed over the past 40 years. Those types of riders are approximately one or two percent of the population. LTS 2 facilities are 40 to 70 percent of the population. The level traffic stress provides a way to quantify these things that are a bit qualitative and subjective to map them out and conduct analysis. Thresholds can be set for performance measures based on what you want for your network.

Quality of life is the reliability or consistency of travel time and is an important one for active transportation. He has seen where the economic data supports these investments and leads to future funding. A lot of grant applications want to see a cost benefit ratio and the economic support.

Preservation: Pavement condition is important to a bicyclist as the slightest variation in pavement can have an impact. They have worked with a lot with municipalities for a higher standard of care for the maintenance of facilities that are on a bike or trail network.

Presentation can be viewed at:

<http://www.trpa.org/wp-content/uploads/Agenda-Item-No.-V.A-Active-Transportation-Performance-Measures-Alta-Planning.pdf>

Commission Comments & Questions

Ms. Hill asked if the slide with the lidar was a Utah highway.

Mr. Hondorp said yes, that was correct.

Ms. Hill asked if bicycles were allowed on Highway 50 or 80.

Mr. Hondorp said there is not bike lane on Highway 50, but you can ride on the shoulder.

Ms. Hill asked if electric bikes were allowed on bike lanes.

Mr. Hondorp said yes, there is legislation that allows certain classifications of electric bikes on the bike paths. They cannot exceed around 28 miles per hour on these paths.

Ms. Carr asked where the metrics start to overlap with active transportation and vehicle transportation. At what point does the driver stress go up because they are trying to navigate the roadway with a cyclist.

Mr. Hondorp said it comes down to the user mix and understanding them. Some of the information he showed was more from an urban type of bike way development where the focus is on facilities that are trying to meet an urban bicyclist need. In places where there is a high percentage of strong and fearless recreational cyclist, you need to think about a parallel system. For example, if you build a system that will meet the needs of students traveling to South Tahoe High, it doesn't mean that we can remove all the road shoulders. There are different types of facilities. A road cyclist can easily go 25 miles an hour. He wouldn't suggest eliminating their dedicated space, in terms of taking over the shoulder.

Mr. Hymanson asked for further detail on human health as a characteristic of the environment. The graphic seems like it is based on humans; pedestrian or cyclist. Is the idea that if they are getting physical activity that is going to help their health, or is it that we want to ensure that we're doing everything possible from an air quality or noise perspective to make the environment most healthy for them.

Mr. Hondorp said it is both. Health could be under the environmental measure or quality of life as well. The built environment influences people's health. We have strong data that correlates if you provide people with facilities that they can move around as part of their daily activity, they are healthier. While that may not be something that's traditionally seen as a transportation performance metric, having a health metric built into this is important for you as a region that is thinking about the environment, health, air and water quality. Physical activity is an important part of that. It fits well and can set you up for potential funding. It aligns with the way funding sources for active transportation are moving towards equity, disadvantaged communities, and health indicators. Those are all things that are factors in grant decisions for active transportation projects.

Mr. Hester said California Senate Bill 1000 would add to the general plan an environmental justice element with five public health factors that they are now going to require. Reduced pollution, access to public facilities, access to food, housing, and access to physical activity.

Mr. Hymanson said a lot of the stresses on our system are related to visitors. There is a huge influx in the summer and then again in the winter when the ski season starts. He asked how to measure a system that is influenced by "transient occupants."

Mr. Hondorp said the ultimate solution is continuing to build out things such as the Sand Harbor pathway. The first step is to provide the connection. Also doing the study to understand who is using it, how did they hear about it, do people feel like they can have the same experience getting there on their bike, then when they came in their car? Long term and the outcomes are to make the active transportation trip part of the experience. There needs to be a qualitative survey to help understand the barriers to using some of these facilities from that visitor perspective.

Mr. Chapman, Incline Village Crystal Bay Visitors Bureau said for the quality of pavement, what tends to happen is that the vehicle lane is repaved to the white stripe and doesn't include the bike line. This then pushes the rider to the other side of the white line. How we take these measurements to then affect how the refurbishment of these roads would happen is an important element as well.

Mr. Guevin asked how they are receiving the crowdsourcing information.

Mr. Hondorp said it can be set up with apps or websites. There are existing apps and crowdsourcing websites where someone can report a pothole, for example.

Mr. Guevin asked if that is how they are assessing their comfort level.

Mr. Hondorp said a lot of what they have done is visual preference surveys. It's a survey that uses photographs to show situations and ask people their comfort level. They calibrate that by taking people on bike rides and having them provide a rating. He feels that staff doesn't necessarily need to do their own survey. He said 50 to 70 percent of people who live in Lake Tahoe and visit here are in that "interested but, concerned cyclists."

Public Comments & Questions

None

(presentation continued)

Mr. Larsen, Lahontan Regional Water Quality Control Board provided a presentation on how the transportation system is influencing water quality.

Mr. Larsen said there has been a lot of discussion about how transportation may or may not be influencing Lake Tahoe's clarity. Think about the Total Maximum Daily Load (TMDL) in three phases. The first 50 years was more research and monitoring to understand what was happening with the Lake and its clarity. That information provided his agency with a red flag that the Lake was losing clarity. That data also provided framework to understand what the cause of the problem was; what are the pollutants that are causing the problem? where are those pollutants coming from? and how much can the Lake accept of those pollutants and still meet the clarity goals? Although, the program started in the early 1960s but in earnest, it started in about 2000 through 2010.

The second phase, concurrently with the TMDL development, looked at how to incorporate the findings and the TMDL approach into the regulatory structure? This looked at how to incorporate it into their Agency's water quality control plan for the water board on the California side, the Nevada Division of Environmental Protection regulations, and also looking at the Regional Plan. The last phase of implementation is where we are today. Along with the implementation, a tracking system is needed to understand if the program is working. Are the goals being accomplished? If not, why and how can adjustments be made? They looked at a lot of different factors that influence the clarity. The Lake has physical, chemical, and biological dynamics. There are inputs coming from streams, disturbed forest lands, vegetation management, and urbanized area. Clarity is measured by a Secchi disk. There are brown and green particles in the water that block the view of that disk. The consensus in the 1990s was that algae was causing the loss of clarity.

The big shift that came from the TMDL process was the identification of the importance of the brown particles; fine sediment particles that are 16 microns and less in size. These particles stay in suspension for a very long time and have great surface area and are effective at refracting light. The concentration of those particles at any given time is

responsible for two thirds of the clarity condition. The sediment particles are having a bigger influence on Lake Tahoe's clarity than the algal particles. The algal particles account for about one third of the clarity loss. The growth of those particles is influenced by nitrogen and phosphorus.

The transportation system influence is generically a couple of variables. The brown particles and fine sediment come from the transportation infrastructure. The green particles; the nitrogen oxide emissions, the emissions from automobiles that are increasing the nitrogen concentration in the atmosphere, are really one of the drivers influencing the growth of algal particles in the Lake.

The focus is on surface runoff in the TMDL because it is the primary driver. We looked very closely about what we had to do in terms of a reduction. To achieve clarity improvements the focus needed to be on sediment particles. Most of those particles are coming from the urbanized areas. The urbanized area in Lake Tahoe makes up about ten percent of the watershed, contributing almost three quarters of the fine sediment particles that are entering the Lake and influencing the clarity. The roads are a part of that. Is there a link between the number of cars on the road and those fine sediment particles? It has been suggested that more cars are causing a loss in clarity. Vehicle miles traveled is about 40 to 50 percent less in the winter but the fine sediment particles in the winter are much greater. There are a lot of variables in the winter that are likely influencing the fine sediment particles rather than just the number of cars on the road. How do we track and assess this? In trying to understand what the drivers are to the amount of sediment on a road show that the overwhelming variables are traction abrasives. It breaks down to what type of equipment is used? what type of sand do you use? when do you apply? how do you apply? when does it rain, snow, and freeze? These things are not static, there are a number of variables influencing the fine sediment particles on the road, making that question more complicated.

Lake Tahoe's clarity doesn't respond immediately to change, so it doesn't make sense to just to monitor clarity and nothing else. We need a way to see whether we are moving the needle.

In the 1980s, they were implementing erosion control projects and BMPs. They were tracking the miles of curb and gutter, the amount of abrasives picked up and removed, the number of projects built, and the miles of stream restoration. Tracking was being done without a clear understanding of how those activities were influencing the outcome. The only intermediate result that was being tracked and reported on was the number of dollars spent. The TMDL has provided the possibility to look at a more meaningful intermediate result. Through the TMDL science there is a clear understanding of the relationship between Lake Tahoe's clarity and the pollutants that are driving it, the fine sediment particles and the nutrients.

As they look at transportation metrics holistically, it's important to better understand whether the metric is telling them what they want to know about the desired outcome and whether there is a linkage between the outcome and that metric or intermediate result. They have developed a detailed quantitative system particularly for the urban area. The stormwater tracking system used at Lake Tahoe more detailed and of a higher level than what is being done elsewhere throughout the state and the nation.

The first step is to provide an estimate. They use a pollutant load reduction model to provide an estimate of conditions on the ground, a standardized baseline condition, and then an expected condition after projects are built, roadway conditions change, or otherwise improve the environment. That model is based on the US Environmental Protection Agency's Stormwater Management Five Model. This model is the nationally accepted urban hydrology model that is used for a variety of different planning purposes. That is coupled that with three different systems that evaluate different types of treatment or source control within the system to understand loading. The modeling provides a good estimate of what is being done but is not sufficient in of itself. They need to verify that what's happening on the ground is consistent with what been modeled. To do that, they developed the Road Rapid Assessment Methodology (RAM) and the BMP RAM for field inspections and condition assessments. It is not clear whether there is a connection between traffic and fine sediment particles. Is there a connection between the types abrasives, the frequency of street sweeping, or whether it was a dry or a wet winter?

The activities do not need to be tracked, instead, they look at the condition on the ground and relationship between a condition and the expected fine sediment concentration that allows them to bypass that need to understand the activity. Road RAM was developed over eight years to identify what factors can be physically observed that relate to the fine sediment particle concentrations that are in runoff. More than 1,000 samples were taken relating Road Ram scores to expected water quality condition. The change in the road condition is driven by a variety of different things. It may be driven by the number of cars on the road, the type of traction abrasives, and the type of street sweeper.

Presentation can be viewed at:

<http://www.trpa.org/wp-content/uploads/Agenda-Item-No.-V.A-Transportation-Measures.pdf>

Commission Comments & Questions

Ms. Hill said when she worked at TRPA and they checked air quality monitoring stations, the one at Sierra Ski Ranch (Sierra at Tahoe Ski Resort) was gray and the one at El Dorado Beach was black. It seemed that a lot of particulate matter was coming out of the air from vehicle emissions.

Mr. Larsen said there has been direct deposition monitoring on Lake Tahoe for about 25 years, off and on. There is deposition of material directly onto the lake surface, and the closer to the roads, the more likely you would see increased deposition. Atmospheric deposition makes up about 15 percent of the fine sediment particle load that reaches the Lake. That is probably more of the brown "stuff." What Ms. Hill is referring to is the organic particulates which are different. They don't influence clarity in the same way. However, they are being monitored and measured and there is a relationship there. They are seeing air quality indices that are measured have been improving over time and is likely due to cleaner running cars.

Mr. Hymanson asked how they used the intermediate results to decide what should be done.

Mr. Larsen said from a water quality regulatory perspective, there is not a tight enough relationship between the transportation elements and the number of cars on the road, to suggest that that is a meaningful way to influence clarity. If reducing cars was the way to save Lake Tahoe's clarity, it would be a different conversation. From a clarity perspective, they have identified a different implementation approach that is more linked to the management of the roadways and other urbanized environment. There is a regulatory structure that allows them to work with the local jurisdictions to track and mandate that those improvements occur. It doesn't necessarily provide information on how to influence the transportation system. He would argue that Lake clarity is not necessarily an outcome that is related to transportation that should drive the conversation.

Mr. Hymanson said from a transportation perspective related to water quality, the strategy is to make the roads the best they can be. In the best condition, with stormwater pollution control infrastructure, well paved and maintained.

Mr. Larsen said from a clarity and TMDL perspective, he would like to see the roadways, particularly the state highway system, maintained at a Road RAM condition of four or greater. That would dramatically influence the clarity of Lake Tahoe. If there was a link with the reduction of the number of cars and Road RAM scores, that would be another conversation. All the other variables are more compelling at this point, particularly from a traction abrasive management standpoint. There's a lot of discussions about pavement types, pavement breakdown, and degradation.

Mr. Hymanson said is it correct that it is not just the number of cars, but the infrastructure itself that is a critical factor.

Mr. Larsen said yes. There is no information to suggest that the number of cars relates to fine sediment particles. It is more the condition of the road. There are other variables that are more important, other than the traffic and volume.

Mr. Hymanson said from a water quality perspective, would it matter if it was decided to solve our problems in Lake Tahoe that another road around the Lake was needed.

Mr. Larsen said that would increase the transportation infrastructure and increase the run-off. We know that roadways are a conduit and a source of pollutant. Essentially, there would be an increase in the pollutant sources. Theoretically, traction abrasives would be applied to those roads and would need to be managed. It would be up to the local jurisdiction to include that in their overall modeling exercise, and demonstrate that whatever action they're going to do is going to improve the loads, which would be extremely challenging, if not impossible.

Ms. Marchetta said the Regional Transportation Plans for the last 15 to 25 years have stated that there were not going to be any road expansions.

Mr. Larsen agreed with Ms. Marchetta. What struck him with the previous presentation was that if you have already decided to not increase the capacity, that is an important part of the planning decision. Creating more roads has already been taken off the table. The type of metrics and planning that we do can already assume that variable, which is useful for us.

Mr. Hymanson said he was not suggesting an expansion of roads, rather just pushing on the edges to get a better sense of boundary conditions.

Mr. Marshall said a good point is that it is the infrastructure not necessarily the amount of traffic.

Ms. Carr said that helps to inform how we sell and fund projects. For example, if we need the funding to ensure that repaving occurs all the way out to the edge of the pavement, not just to the white line." If you tried to sell that based on the bicyclists being happy, it's not necessarily going to win the funding argument. If there is a co-benefit of reducing fine sediment particles because the roads are in better shape then there is more impact on that planning and funding element to make multiple improvements across different metrics.

Mr. Larsen said the infrastructure itself is important. They have found that it is the management of that infrastructure that is the driver. Stormwater data shows that the water quality in Incline Village was consistently cleaner than it was in the South Shore. Incline Village has more resources available to maintain higher pavement quality That was the genesis of Road RAM, trying to relate the condition and management of the roadway to the water quality element. Caltrans alone used to apply 15 to 20 tons of traction abrasives per year in the 1990s. They're down to about six to eight tons. There are dramatic changes in the management of the infrastructure that is undoubtedly having a positive impact on the water quality.

Public Comments & Questions

None

(presentation continued)

Mr. Segan provided a presentation on air quality.

Mr. Segan said part of the genesis for this discussion is the vehicle miles traveled (VMT) standard. They have heard a lot of comments about the VMT standard living in the air quality section of the threshold standards. It is an air quality standard but it's one that is really a water quality standard masquerading as an air quality standard. The standard calls for a reduction in nitrogen deposition. When the threshold standards were being framed, it was thought that algal growth was driving clarity loss. One of the sources of nitrogen reaching the lake is atmospheric deposition. The Lake Tahoe Atmospheric Deposition Study conducted by California Air Resources Board as part of the TMDL confirmed the dominant source of nitrogen was atmospheric deposition. About 50 percent of the nitrogen reaching the Lake comes from atmospheric deposition. In 1982, the dominant source of nitrogen in the Basin and atmospheric nitrous oxides were auto emissions. The framers of the threshold standard identified this and two different policies that were adopted as threshold standards to reduce the transport of nitrogen in the Basin. At the time, it was thought that there was a lot of nitrogen that was flowing over the hills and being deposited. It's about 85 percent of in-Basin sources and 15 percent blowing over the hills. Two standards were targeted. The first is to reduce external transport, and the second was to reduce vehicle miles traveled in the Basin by about ten percent. The goal is to reduce the nitrogen deposition to the Lake,

and the mechanism is to track vehicle miles traveled. Since 1990, nitrogen oxides emissions have decreased by about 50 percent while vehicle miles traveled has done the opposite, it is 50 percent higher.

Since 2000, there has been about a 60 percent drop in nitrogen oxide emissions within the Basin and by 2030 the projections are to be one tenth of the 2000 level of nitrogen oxide emissions from automobiles. Cars are far cleaner than they were in 1970. There's been a dramatic reduction in the emissions from these autos and that's primarily responsible for what we've seen in that massive declining trend.

It also shapes how we think about the system and what we measure. Mr. Larsen talked about measuring the intermediate result. What are we focused on? What are we trying to achieve? From a nitrogen management standpoint, and managing the nitrogen reaching the Lake. In 1982, there were programs proposed to reduce vehicle miles traveled and keep nitrogen from getting to the Lake. There were proposals for mass transit. At the time, people collecting their mail from the Post Office was seen as a dramatic source of new trips. There was ridesharing and inspecting all autos to ensure that they were as fine-tuned as possible. This was going to be tracked through vehicle miles traveled and that would be the benchmark for success, for whether there was a reduction of nitrogen getting into the Lake. The thinking has dramatically evolved, there are now discussions about land use planning which is a focus of both the Regional Plan and the Regional Transportation Plan. Things used to be compact, then we spread out, and now we're promoting this compactness because we're trying to reduce trips, trip length, and reduced emissions per mile. There is focus on plug-in electric vehicles and providing infrastructure. They are also trying to bend the needle on the fleet mix within the Basin and what that means for emissions per mile driven. Those results are being monitored in different ways, not just looking vehicle miles traveled but looking at overall nitrogen oxide emissions. Emissions inventories are produced for nitrogen oxide and all greenhouse gasses. The atmospheric deposition of nitrogen onto the Lake is also directly monitored. Staff tracks a whole host of air quality measures such as concentrations of carbon monoxide, nitrogen, ozone, and particulate matter.

They track vehicle miles traveled, not just how much someone is driving, but tracking the emissions from autos and other sources. As part of that Lake Tahoe Atmospheric Deposition Study, there was a host of source attributions trying to identify when there is particulate matter in the air and what the source is. The primary source of that within the Basin is burning; campfires, pile burning, and wood stoves.

Presentation can be viewed at:

<http://www.trpa.org/wp-content/uploads/Agenda-Item-No.-V.A-Transportation-Measures.pdf>

Commission Comments & Questions

Mr. Esswein said with drastic reduction in nitrogen oxide over the last 40 years or so, has there been a drastic reduction in algal growth?

Mr. Segan said no, there has not.

Mr. Esswein said it would suggest that the assumption that nitrogen oxide was causing the algal growth, wasn't totally accurate?

Mr. Larsen said algal growth in Lake Tahoe is complicated. The University of California, Davis does a series of biological assessments to determine what the limiting nutrient is, which nutrient is driving algal growth. In the late 1980s and early 1990s, it was nitrogen. As the 1990s progressed, they started to see co-limitation and sometimes phosphorous limitation. It is leaning more towards phosphorous limitation in the recent years and this is primarily due to the overwhelming source of nitrogen in the atmosphere. The amount of nitrogen can be reduced, but at some point, the amount of phosphorus is the limiting nutrient.

Mr. Segan said the Lake is very large and has a reservoir of nitrogen that has built up over the years. A lot of the algal growth is the cycling of nitrogen that's already in the Lake. If you were to cut off all nitrogen delivery to the Lake, there would not be an immediate end to algal growth.

Ms. Eckmeyer, League to Save Lake Tahoe said they are looking forward to what this white paper produces in terms of traffic metrics and what it looks like region wide. They are open to multi-modal and different measures on permitting projects, specifically within the Lake Tahoe Basin. They asked that TRPA continue to consider the impacts of projects outside of the Basin and if TRPA is going to continue to use vehicle miles traveled or another threshold or metric in deeming what is cumulatively significant.

Mr. Hymanson asked if any of the monitoring of the air quality in the Tahoe Basin geared towards understanding its effects on human health as we heard in earlier presentations about the importance of characterizing human health as a dimension of the transportation.

Mr. Segan said he would classify the majority of the air quality monitoring as focused on human health. Performance Measure 10 and Performance Measure 2.5, ozone standards are primarily related to human health. There is an indication that excessive ozone may impact trees in the Basin, but the standards that we have are primarily to protect human health.

Mr. Hymanson said is it correct that we are using some of those same data sets to understand environmental effects of air quality such as nitrogen deposition, fine sediment deposition, etc.

Public Comments & Questions

None

Commission Comments & Questions

Mr. Hymanson said it occurs though all the presentations, there's a host of items that could be measured or monitored in terms of transportation or items that are related to the transportation infrastructure. Perhaps a goal of this exercise is to reduce the quantity of indicators or standards and increase the quality. He suggested that we could think about how we structure this evaluation program. Maybe we should to measure just four or five

items for status and trends monitoring that would give us the high level 20,000-foot view. We should reserve funds for applied research to answer specific questions. Today,

Mr. Teshara said most of our major roads through our communities are state highways. Mr. Hondorp's presentation stated that a lot of the leadership or forward thinking on multi-modal levels of services is coming from the local level. The Basin does not get to do as much of that here as he would like us to be able to do, because we have these state highways. There is continual dialog with Caltrans who still view the roads principally for vehicles and not so much on the multi-modal. We have this conundrum of trying to get the state to catch up with us. Is the state starting to look at this differently in Mr. Hondorp's experience or how can we think better about the opportunity to use the exposure metric?

Mr. Hondorp said the first statewide bicycle and pedestrian plan was just adopted by Caltrans. It is a policy document, and the level of traffic stress came out through that process. That wasn't an adopted metric at the statewide level, but it's out there for consideration. It is good timing to start to push on that, Caltrans recognizes the need to make movement. They've adopted this document and so items such as systemic safety analysis, is something they are already starting to do more. There is a lot of good solid policy foundation that the region can use. He is not as familiar with the Nevada Department of Transportation. Leveraging on this statewide plan is a good opportunity to push on some of the emerging designs as well.

Mr. Milam said there are two other important documents, Caltrans Strategic Management Plan that includes metric for mode split, calling for a tripling of bicycle mode split, mode share, and doubling of pedestrian and transit mode shares. Those are statewide goals and supposed to be applied by districts when they measure projects or decisions that Caltrans is making. It also includes a vehicle miles traveled reduction metric. It's a VMT per capita measured between 2015 and 2020, expecting a three percent reduction per year. That's more aggressive than the state's targets for greenhouse gas reduction under SB375. The other document from a land development perspective is their recent interim guidance to their intergovernmental review staff who write the comment letters on land development projects for Caltrans. That guidance endorses the use of VMT now and replacing a level of service. Caltrans is not supposed to be asking for level of service in those types of analysis, instead looking for VMT, and looking for places where there are multi-modal conflicts and improve bicycle pedestrian active mode safety.

Mr. Teshara said he appreciated Mr. Milam's statement of create, protect, and avoid. That is a framework on how we should look at these metrics. Maybe, there is an opportunity to reduce the number of items we are measuring for transportation. The recently adopted Lake Tahoe Transit Master Plan by the Tahoe Transportation District has a target to get 20 percent mode shift by moving to transit. That's a very tangible target that we should keep in mind.

(presentation continued)

Mr. Segan said at the last meeting there was discussion on classifying the measures in this framework. Measures of inputs and activities, measures of intermediate results, and outcomes. One of the themes that staff heard many times over the course of today's

discussions are the need to focus on what are your planning objectives, and what are the goals. Then working backwards from there to identify the appropriate measure to enter the questions at hand. Are you trying to better allocate funds within that system? Are you trying to track the effectiveness of any individual action? And the goals and information needs of that exercise dictate which measures you will focus on. What we are trying to do with this white paper is lay the groundwork for a robust discussion. Once we get further direction on what are these goals and what are the information needs for the questions we are trying to answer, then we can then select the appropriate measures for the job.

Through the course of this working group, they identified a number of gaps in the system related to congestion and measures of that, measures of non-auto, and measures of the environment. These impact the quality of life, that is an overarching theme. Working back from there, we can think about the outcomes. What are we trying to create, protect, avoid? Both this congestion and non-auto move us towards this Compact directive to reduce reliance on the automobile. If that's our outcome, what are intermediate measures that might fit the bill? We could look at things like mode share, multi-modal level of service, auto level of service, bike and pedestrian facility construction, and transit service. Each of these will potentially answer a somewhat different management question.

They could do the same for the environment measure. The outcomes we're trying to achieve are these ambient air quality standards and overall greenhouse gas reductions. To do that we need to know something about emissions. How much are we putting out into the atmosphere? We might want to know something about fleet mix, vehicle miles traveled, and emissions per mile. All these are other indicators of how we might be performing and how to better allocate management towards solving the ultimate problem or the ultimate challenge of achieving those goals. Within the outcomes we also heard about the water quality standards. We are also thinking about nitrogen deposition and the overall pollutant load reaching the Lake; fine sediments, nitrogen, and phosphorus. We can measure the performance of the system at any one of these different levels. After the options are laid out and both the measures that we heard about today, about one hundred or so will be included in this white paper, survey of the landscape. Staff will put each of these measures in context, Is this a measure of an ultimate outcome? Is this a measure of an intermediate result? And if it's a measure of intermediate result, what's the proximity of that intermediate result to the end outcome that we care? How close are we to measuring something that we really care about? That will be part of the evaluation criteria that staff will bring forward next month in the draft white paper. A draft white paper will be presented at the July 12th meeting. After input on July 12th, staff will bring the revised draft to the August 9th meeting with the target of delivering that to the Governing Board on August 23, 2017.

Presentation can be viewed at:

<http://www.trpa.org/wp-content/uploads/Agenda-Item-No.-V.A-Transportation-Measures.pdf>

Commission Comments & Questions

Mr. Guevin asked if staff will have recommendations of what type of assessment we are going to be looking at by the time the draft white paper is presented next month.

Mr. Segan said he is unsure that they will be going all the way to recommendations. The goal is to highlight the pros and cons of any individual metric. After the transportation measures working group input, staff can determine what are the real goals and where do we want to identify the measures, then there can be an informed discussion.

Mr. Guevin asked if staff will have a list of measures that will be outlined that meet those needs.

Mr. Teshara said there is the step of giving the report to the Governing Board and getting their direction to hopefully have an opportunity to continue work on this.

Mr. Guevin asked if we anticipate that the Governing Board would perhaps task us with finding what measures we would use.

Mr. Teshara said it would be giving us some direction on what we should do next with the information that we give them.

Public Comments & Questions

None

B. Comment on Draft EIS/EIS/EIR for US 50 Community Revitalization Project

TRPA team member Ms. Friedman, Mr. Hasty, Tahoe Transportation District, and Ms. Hansel, Ascent Environment provided the presentation and overview.

Ms. Friedman said the draft environmental document was released in April. The intent of today's meeting is get comments and questions from the Advisory Planning Commission and the public on the environmental document.

Mr. Hasty, Tahoe Transportation District said this is not just about traffic but includes housing, safety, improve access to the Van Sickle Bi-State Park, transit operations, water quality, and addressing the cut through traffic through the residential neighborhood on the California. Alternative B is the proposed project which will go around the mountainside. Following the existing alignment that has been done in Douglas County and coming through the California side. The California side of the project would be more expensive in terms of right-of-way, acquisition and relocation of residents, and rebuilding of what would be acquired residential use.

Also included in the environmental document are mixed use development sites. These are in the document for two reasons. One is looking at the three potential locations to build the replacement housing which the District has made a commitment to. The second reason is that this development potential goes beyond what the District would be required to do or has committed to do but it opens the opportunity by including this in the environmental analysis for a public private partnership. There has been good response from the private sector and would be one way to help accelerate the implementation of this project and local area plan.

Alternative D is very similar to Alternative B but is “tighter” near the existing shopping center area. There is a skywalk alternative which essentially is an overheard pedestrian mall, that would be primarily on the Nevada side. All traffic would continue on the existing Highway 50.

There is an ad in the Tahoe Mountain News that talks about “saying no to welfare housing” and in doing so, 600 additional students would be coming in to the school district. That would force property owners to pay higher property taxes. That is not any information that the District has, he is unsure where this information is coming from.

Ms. Hansel, Ascent Environmental said the article Mr. Hasty referred to said there was an additional 600 students that were projected and their analysis evaluated up to 50 that would be a result of the added housing. The lead agencies include the Tahoe Transportation District for the California Environmental Quality Agency (CEQA), TRPA for their rules and regulations and the Federal Highway Administration, California Division was the National Environmental Policy Act, (NEPA) lead agency. There was also support from Caltrans and NDOT. The environmental document covers the full scope of issues. Each resource section includes a brief regulatory setting that describes pertinent regulations, ordinances, and plans that apply. There is an affected environment section that describes the baseline condition, what's on the ground today. And then there is an environmental effects section that has a description of the methodology used to assess impacts, the significance criteria used to make a determination for significance, and the impact evaluations.

Mitigation measures are included at the end of each resource section consistent with the Caltrans Standard Environmental Reference Manual. Cumulative impacts are in their own resource section, Section 3.19, and growth inducing impacts and economic effects are described in Chapter 4.

California Department of Parks and Recreation felt that there would be a benefit related to improved trail connectivity and pedestrian safety. The realignment alternatives would include either a cycle track, which is a class four separated path, or bicycle lanes, through the tourist core which would connect the linear park on the California side to the Nevada Stateline to Stateline bikeway, on the Nevada side. With the construction of the El Dorado to Ski Run path, this would result in a continuous path from El Dorado Beach to Round Hill Pines Beach. Van Sickle Bi-State Park is on the mountain side of Lake Parkway. The realignment alternatives would encroach on the park up to 80 feet. Van Sickle qualifies as a section 4F resource under the US Department of Transportation Act. They would have to consult with the park managers for the Nevada State Parks and the California Tahoe Conservancy, to get them to agree that there'd be a minimal effect on the project's, or the park's, activities, features, and attributes. There have been several meetings with California Department of Parks and Recreation and the California Tahoe Conservancy to talk about features that could be added to the park to enhance it.

With the project, the Heavenly Gondola pole would be within the median of the highway. The encroachment on the Van Sickle Bi State Park, it would require a retaining wall, for much of the length of the highway between the entrance to Van Sickle and the Harrah's driveway entrance. That retaining wall would be up to 15 feet in some locations. A rock façade is proposed that will meander in some locations, to retain that natural look from

across the road. A new pedestrian bridge would be constructed to enhance access to the park, connecting it to a new path. There would be a shared use path that would be connected to the Urban Trailhead Visitor Center in the tourist core. With these improvements, they have preliminary concurrence from the California Tahoe Conservancy and the California Department of Parks and Recreation.

This is a classic example of a project physically dividing an existing community. The realignment alternatives would put a road through the Rocky Point neighborhood, which was found to be a significant unavoidable impact of the realignment alternatives. It would also displace businesses and residents within that neighborhood. Alternatives A and E would have no effect on homes and businesses, but the realignment alternatives would affect between 68 and 76 homes, and between 4 and 7 businesses.

To mitigate that impact, the Tahoe Transportation District (TTD) would implement a relocation assistance plan which would provide cost compensation to businesses and residents consistent with the Uniform Act. Displaced residents would have the opportunity to relocate into the replacement housing that TTD has committed to construct before constructing and improvements in California. During construction, they found that there would be a short term economic impact on businesses in the tourist core, but overall, because there would be an increase in walk-ability, and bicycle safety through the core, that there would be a long term economic benefit.

From a traffic perspective, Alternative C with the one-way configuration with east bound traffic going through the tourist core, and west bound looping around caused several intersections and roadway segments to operate at a level of service F. Some of the mitigation options would resolve some of the traffic flow issues but not entirely. Either configuration, would create an issue with emergency vehicle access and response time.

The alternatives would improve level of service relative to the no project alternative. Under the realignment alternatives, all the roadway segments and intersections would operate at an acceptable level under near term and future project buildup conditions.

The realignment alternatives would also eliminate cut-through traffic, which is an increasing problem in the Rocky Point neighborhood, and although there would be some localized increases in vehicle miles traveled, because the route along the backside of the casinos would be slightly longer, the realignment alternatives would implement the redevelopment objectives of the Regional Plan and Regional Transportation Plan which would generate reduced VMT over time.

All the alternatives would have lane closures during construction. It would be a significant but short-term impact. Alternative E, which is a sky walk alternative, would require full closure of the highway during construction for the extent of the elevated plaza. That would be a significant, unavoidable impact.

Visual resources would have some benefits and some adverse changes along roadway segments. Through the tourist core with the lane reduction, and the landscape median, would be an improvement for that roadway segment. However, the remaining residents of the Rocky Point neighborhood would be looking at a highway now and that would be an

adverse change.

Because of the angle of the realignment, some residents would be exposed to substantial headlight exposure during nighttime hours, and would be a significant impact. Alternative E, (skywalk) would cause a threshold issue. It would block the view of TRPA Scenic Resource 32.2.

The pedestrian bridge for the realignment alternatives and the elevated plaza for Alternative E, would result in vibration impacts. Because the pedestrian bridge is of sufficient distance from any structure, that standard mitigation measures such as pre-drilling the piles or use of a sonic pile driver, could mitigate that impact. However, for Alternative E, those columns would be close to existing structures based on the modeling and can't guarantee that it wouldn't result in structural damage with the skywalk alternative. That was a significant, unavoidable impact for that alternative.

They looked at whether the increase in noise, from the realignment alternatives, would result in a noise level that exceeded TRPA thresholds. It was determined that there were a couple of residents or locations within the area between Raley's shopping center and the highway where there would be noise levels that exceed the standards. They also looked at whether the increase in noise would be substantial. For the purposes of the California Environmental Quality Act and TRPA, they used a stringent three Community Noise Equivalent Level (CNEL) standard, which is what is noticeable as the level for determining significance. The Federal Highway Administration (FHWA) has a standard that allows up to a twelve CNEL increase in noise. It was found that there were locations where there would be substantial increases in noise. Mitigation options ranged from noise barriers, low noise pavement, reduced speeds, and insulation of existing residences. With those measures, they could resolve the TRPA noise threshold issue, but we couldn't guarantee that there wouldn't be some locations where there would still be a substantial increase in noise. That was a significant unavoidable impact of realignment alternative.

A public hearing was held at the Tahoe Transportation District meeting on June 7, 2017 and in addition to today's presentation, there will be a third one held at the June 28th, TRPA Governing Board meeting.

Presentation can be viewed at:

<http://www.trpa.org/wp-content/uploads/Agenda-No.-V.B-US-50.pdf>

Commission Comments & Questions

None

Public Comments & Questions

Mike Johnson on behalf of Tahoe Meadows Home Owners Association said a minor but could be a very important issue regarding design. Tahoe Meadows is a 98-unit subdivision He understands that the specifications for the project are only at approximately 30 percent and it is possible that his comments are premature, but this is important enough to Tahoe Meadow to get ahead of this and keep it on everybody's radar. Heading towards California,

it's going to be essentially two-center turn lanes. And depending on the level of specificity in the documents, those center turn lanes might be in front of the entrance to Tahoe Meadows. This causes two concerns. With the two center lanes, that will effectively preclude left in or left out access from Tahoe Meadows. There are going to be a lot of U-turns. If there is an extra turn lane, the land is going to come from the linear park adjacent to the Tahoe Meadows subdivision and Highway 50. There will barely be enough room to get off the highway and will potentially cause traffic to back up on the highway.

John Messina, South Lake Tahoe resident said he has suggested previously to close off Montreal Road at Fern Road as a way of avoiding the traffic through the Rocky Point neighborhood. You don't have to tear down any houses and displace people. Who are we enhancing the economic opportunities of this project for? The heavy winter has had an upturn in the economy and has resulted in higher wages for laborers who were stuck with minimum wages for the last several years. The plan to bring in hundreds of welfare recipients who receive subsidized housing will undermine people's salaries and have an unfair advantage over them. They are currently paying market rate for their housing, but will have to go on welfare to compete. We're creating a welfare dependent society. The location of these proposed homes is not in a good location to raise children. There is no way that 300 welfare houses are only going to have 50 kids. There is nothing wrong with the access to Van Sickle Park, why are we trying to fix something that's not a problem?

Shannon Eckmeyer, League to Save Lake Tahoe suggested a pilot project and coordination with TRPA and the Tahoe Transportation District for transit along with a more aggressive parking management strategy.

David Silva, Rocky Point Road resident asked for more information on the letter he received on the proposed alternatives. Secondly, based on some of the alternatives, he feels that property values will decrease in that area. Noise and traffic will cause more problems. This project will create more roads and the bridges will have scenic impacts.

Carolyn Peterson, South Lake Tahoe resident asked what the boundaries are for the Rocky Point neighborhood.

Commission Comments & Questions

Mr. Donohue said the rock wall on the mountain side of the loop road will need to be addressed. It will be a significant challenge in trying to access private property through the State Park.

C. Threshold Update Initiative: Threshold Standard Assessment Findings

TRPA team member Mr. Segan provided a presentation on the Threshold Standard Assessment Findings.

Mr. Segan said that the threshold assessment is the comparison of each of the 178 threshold standards against best practice, these are the SMART criteria; specific, measurable, attributable, relevant, and time-bound plus a couple of more that were developed with the assistance of the Tahoe Science Advisory Counsel. The findings were

preliminary and were open for public comment for 30 days with a deadline of June 7, 2017. There were no written comments received on the assessment. The presentation today is focused on addressing some of the concerns that were raised during the last presentation. Staff will take any recommendations from today's meeting to complete the formal write up of the assessment and then a drafting of the workplan for the next part of this initiative.

The threshold assessment is a part of the threshold update initiative, which is the comprehensive process to review and potentially revise the threshold standards to ensure that they reflect current best science, reflective of all the relevant values, and are supported by a comprehensive and cost-effective monitoring plan. The workplan will be developed along with the drafting of the final findings of the assessment by August. Those will be presented to the Governing Board for additional direction at their August 23, 2017 meeting.

At a previous meeting the bar used to determine the minimum criteria of the standards found to be both specific and measurable was approximately 50 percent because staff used a bar of three. One meaning that it is not at all specific and five meaning that it is entirely specific. These findings were discussed with other stakeholders and was decided to reclassify those. Instead of identifying something as a specific three and another being a specific four, they asked how many are specific or measurable. When this was presented last time, a number of comments were made pointing out that by using three as the criteria to say that something fit the bill, it was specific, it was measurable, it was time bound, or relevant, was setting quite a low-bar for the Agency as part of this larger process. We are maintaining those original scores, we never converted them to yes-no, but more in terms of how it is presented and discussed is important. It was raised in subsequent conversations that there should be a higher bar for this process. Staff has set the bar at four and will be carried forward as part of the write up of this initiative. Now these results are down to just under 40 percent of the standards that are both specific and measurable and 28 percent are specific, measurable and based on the latest science.

Staff is also exploring other ways to communicate this information. They are trying to delve deeper into the data and mine it more for the underlying value of these differences between three and four. It was recommended to look at what percentage of these standards have scores that are at or above a specific level? What percentage of our standards have fives for specific and measurable and specific and measurable on a strong causal basis; the settled science. About one quarter of the standards meet that highest standard for specific, measurable, and settled science.

The assessment phase is nearing the end. Staff is having conversations with stakeholders and partners on what does this mean for the initiative and where should the efforts be focused? Staff is not able to address all the standards at once and efforts need to be focused. The plan is to develop a fully flushed out workplan that identifies roles and responsibilities within this initiative and who's going to be doing the answering of the tough questions relative to these individual focus areas. Information will be provided to the Governing Board in August and the heavy lifting will start sometime after the Summit.

Presentation can be viewed at:

<http://www.trpa.org/wp-content/uploads/Agenda-Item-No.-V.C-Threshold-Update-Initiative-Assessment-Findings.pdf>

Commission Comments & Questions

Mr. Hymanson said by providing this data analysis, it gives Governing Board or decision makers the ability to discuss where the bar should be set going forward. In the future do we want to strive for a program that's at a four or better or is three or better acceptable? And how big a lift is that to make that transition?

Public Comments & Questions

None

D. Development Rights Strategic Initiative Status Report

TRPA team member Ms. Cannon and Mr. Pruetz, Planning and Implementation Strategies provided an overview.

The overall mission for this initiative is to consider changes to the current development rights and transfer development right program, to better manage growth, support environmentally beneficial and economically feasible redevelopment, and to improve the predictability and effectiveness of the current system. There are two Advisory Planning Commission members representing the working group; Jennifer Merchant and Roger Trout. There was a fiscal impact analysis completed, thanks to the support from the California Strategic Growth Council. They also met with several stakeholders to get feedback on different options. The working group is at the end of phase two with excellent progress being made. Phase three would be code amendment changes to the Code of Ordinances and the Regional Plan. The options will be further analyzed this summer and will address the economic, legal, and environmental implications of different policy directions and will include the fiscal impact analysis results. They will also review the different policy directions compared to the goals and criteria that were identified by the working group. The results will be presented to the working group around the end of September.

Mr. Pruetz said the Development Rights Strategic Initiative has been in operation for about one year. The consulting team produced a best practices report in January 2017 that identified 24 features that they thought best addressed some of the issues with the Tahoe Transfer of Development Rights (TDR) program. The Development Rights Working Group split into four subgroups, and all four groups liked the idea of a single currency rather than the commodities, they liked the idea of eliminating the inter-jurisdictional transfer veto with safeguards. Three of the four groups liked the density transfer charge (DTC). That would be a cash in lieu option for developers. Increasing non-TDR funding. Some of the other ideas that also were preferred by the Development Rights Working Group included making sure that developers can afford either the commodities or the DTC. The study team, including the consultants and staff, generated four packages of options of the remaining features that would be further analyzed for the economic, environmental, and legal analysis.

The first one focuses on simplification, Option A. It takes those two most popular features; the single currency and the elimination of the inter-jurisdictional transfer veto. They take the three commodities except for coverage, and create a single currency. It could be square footage, a new entity or currency called the development credit. It would be to reduce the complexity of the program and facilitate developers being able to find the rights that they

need in order to proceed with a redevelopment project. That also expands the supply, and hopefully will reduce the cost of these things in and of itself. It also hopefully will allow for certain changes in how many of the credits can be applied to high priority sending sites; environmentally sites and how many additional units might be allowed per development credit in very high priority redevelopment sites.

Feature number 17, the elimination of the inter-jurisdictional transfer veto. The jurisdictions that have the sending sites can veto these being transferred to another jurisdiction. If that were eliminated, it would increase the supply, would reduce the complexity, and developers would be more able to find what they needed to proceed with their redevelopment project. The Development Rights Working Group wanted to see safeguards on this to make sure that all communities could still implement their town center plans. They will be looking at several things including a sunset clause, the possibility of ongoing monitoring, or perhaps any number of other mechanisms such as a limitation on the actual amount of development credits that might be exempt from the veto power.

Option B does not go with the single uniform currency or the elimination of the veto power. Instead, it uses the banks to create more simplification in the program and make the program more functional. In this option is the density transfer charge. This is similar to the excess coverage mitigation fee that the Tahoe Basin already has. It is much like developers paying into a construction fund for a sewer project or a water main, etc. These fees go to the land banks to buy additional commodities. Ideally, those commodities would be available so they can be extinguished when the developers pay the density transfer charge when they want to build on those redevelopment sites.

An important part of this option is to set those prices so developers can afford them. We don't yet know, if any subsidies are necessary. If necessary, that's one of the things to be studied. If those density transfer charges are not covering the full cost of acquiring the commodities, another item would be to look for non-transferrable development right funding sources to make up for that shortfall. What drives this is for the ability of the banks to go out and buy these commodities and have them available for sale. A new feature, that would insert a baseline floor area within individual residential units. If you wanted to exceed that baseline floor area you would have to pay a density transfer charge.

Option C started out as three separate features and is now down to two which are process improvements. One of the ideas is to defer when the compliance for developers is required. Maybe they don't have to pay the density transfer charge or buy commodities until the close of escrow, or until occupancy of the project, or perhaps it could be subject to a multi-year payment schedule, that's subject to a development agreement.

The second bullet point under Option C is to allow development rights to be more easily severed from the sending sites. Right now, except for the land banks, the commodities must remain attached to the sending site until a receiving site is known. If that could be relaxed there could be an opportunity for jurisdictions to create their own transferrable development rights bank.

Option D is a combination of A, B, and C. It takes the best aspects of A, simplification, B, increased bank involvement, and C, process improvements and bundles them together. Those were presented at the Development Rights Working Group's April 26, 2017 meeting.

Mr. Sass presented a concept for Option E. The Development Rights Working Group authorized this option to go forward for further study.

Since that meeting, staff and Mr. Sass have worked together to refine this. It is called the Targeted Redevelopment Option. It would only apply in areas that are designated in the Regional Plan for centers or within one quarter mile of a primary transit route. Development credits would still be required, if a development needed additional development credits. It does not relieve them of the basic requirements of the Code of Ordinances which are necessary to keep development within the overall development capacity of the Regional Plan.

They are allowed to develop to the maximum development limitations that are shown in those area plans. It does use a single currency, however, there's an exception made for vacation home rentals. Additional development cannot be gained by vacation home rentals through either the single currency or a conversion of other uses. They must come from other VHRs. Also, there are special regulations purposed in this option for VHR sites. They must be zoned tourist commercial as part of an area plan. This option does have a local veto provision, however, the sending jurisdiction may demand that the receiving jurisdiction pay up to three years loss of property tax and transit occupancy tax.

The working group has not endorsed or approved any of these, except that they now go on for further evaluation for economic, legal, and environmental evaluation in the next phase of the project.

These options will be presented to the Governing Board on June 28th. Then the working group will proceed with the evaluation of these five options.

Presentation can be viewed at:

<http://www.trpa.org/wp-content/uploads/Agenda-Item-No.-V.D-Development-Rights.pdf>

Commission Comments & Questions

Ms. Krause said normally there is a development right and you had to have the commercial floor area or tourist accommodation unit. She asked if the single currency means that development rights are being eliminated and there is going to be just commercial floor area as one unit.

Mr. Pruetz said the commodities that are being combined are the development rights, the commercial floor area and the tourist accommodation unit.

Ms. Krause asked if it was correct that residential allocations were not being combined into that.

Mr. Pruetz said yes, that is correct.

Mr. Marshall said that it is the units of use or the currency and not the timing and distribution of residential allocations.

Mr. Hester said for example, if the common currency was square footage and it was decided that 2,500 square feet is what you get for a residential unit, it would equal 25,000 square feet as an allocation.

Mr. Marshall said you need to distinguish between new and existing. The allocation system is for new units. This system for the most part is moving existing development around. We still need to flush out the relationship between those two things. This has to do with existing and the conversion of all these different kinds of uses into one currency.

Mr. Marshall said currently on a vacant lot, you need either. Assuming it has a development right on it, you would need a development right and an allocation to put a residence on it. Or you can go out and buy an existing residential unit and transfer it on, if you had commercial floor area that you want to convert to an existing residential unit. There would be a one commodity system that you wouldn't necessarily need an existing residential unit, but you would need enough commercial floor area to qualify. It would be converted to a common currency. That has to go through a number of different legal, environmental, etc. screens to see if that happened, what would be the associated exchange rate but also the environmental impacts associated with that.

Mr. Hester said the idea would be to get an exchange rate that has no negative environmental impact.

Ms. Krause said if it's a common currency then it can go the other way. Washoe County doesn't need residential, but needs commercial floor area.

Ms. Cannon said it also excludes coverage.

Mr. Hitchcock said he is glad to see it going this direction because this concept of a common currency, unit of use, unit of impact, has been discussed for many years. Because the commodity can be exchanged, it allows lease developers and property owners to react to the economic condition. Some jurisdictions, it is about tourist accommodation units and other jurisdictions, it is about commercial floor area. It provides that flexibility that we are looking for. Trying to determine the level of impact, that common denominator is going to be the difficult part. Regarding the issue about the veto, the City of South Lake Tahoe has policies in place that we do allow units to be transferred out of jurisdictions, but require the applicants to mitigate that impact because loss of property values and transient occupancy taxes.

Mr. Donohue asked Mr. Hitchcock if that program aligns with the three-year proposal that was option E.

Mr. Hitchcock said, no, it doesn't. Right now, to transfer a unit out of their jurisdiction, from the South Shore to the North Shore or to Washoe County, has a hefty mitigation fee and that is based on a study that was developed by Somar Research and that's just to recoup the loss of property taxes to the seller.

Ms. Hill said if we're talking about simplification, what about allowing what's permissible in the plan area statement or community plan, without these commodities? If there are 15

units per acre for multi-family or one unit per single family dwelling lot, why can't it be that simple?

Mr. Hester said that idea was brought up by a working group and an analysis was done. The reason that they decided not to go that way is because it would allow significantly more development than the cap in the Regional Plan. All the area plans would have to be redone.

Mr. Trout said that was a lengthy conversation and TRPA staff did a nice analysis. It was well vetted and a great idea. It seemed to work for commercial floor area, but for everything else, it blew out the thresholds.

Mr. Larsen referred to Option B, and asked if it was correct that where it talks about charging a density transfer charge to individual residential dwellings, it would be adding a commodity that applies to residential development.

Mr. Pruetz said he wouldn't call it a commodity because under this option, you would be using the density transfer charge. It's a new requirement though.

Mr. Larsen said but for a residential development, that would be considered a new hoop to jump through.

Mr. Pruetz said yes, that is correct.

Mr. Hester said the idea was you get a set size, but if you want to go bigger, you need to pay for more commodities.

Mr. Larsen said it would be an interesting discussion as to what that set size would be and what is an acceptable single-family residence.

Ms. Krause said for example, if someone demolished a 10,000-square foot house and moved it someplace else, do you have to pay for the extra square footage that is being moved?

Mr. Pruetz said the working group had not discussed that, but he said if you are transferring that floor area, you get a pass, you don't have to pay a density transfer charge.

Public Comments & Questions

None

VI. REPORTS

A. Executive Director

Mr. Hester said Ms. Maloney is leaving TRPA and will be employed by the League to Save Lake Tahoe and Ms. Eckmeyer is moving on to the position of Assistant City Attorney with the City of Vallejo, California.

1) Strategic Initiatives Monthly Status Report

ADVISORY PLANNING COMMISSION

June 14, 2017

Mr. Teshara asked if there is date set for a meeting with the Bi State Transportation group.

Mr. Hester said Ms. Regan is working with others to finalize a date.

B. General Counsel

No report.

VII. APC Members

Mr. Donohue said Nevada Governor Sandoval signed Senate Bill 512 and will allow the Nevada Division of State Lands to remove the navigable water fees out of statute and develop them in regulation. The time frame will be in the next two years.

Mr. Guevin said the Wildfire Exposition will be held on Saturday, June 17, 12:00 pm at the Y in South Lake Tahoe. On Saturday, June 24, 2017, there will be a ten-year commemoration of the Angora Fire and on Sunday, there will be an event in Meyers to celebrate the rebuilding of the community after the fire.

VIII. PUBLIC COMMENT

None

IX. ADJOURNMENT

Chair Mr. Teshara adjourned the meeting at 1:06 p.m.

Respectfully Submitted,



Marja Ambler
Clerk to the Board

The above meeting was taped in its entirety. Anyone wishing to listen to the tapes of the above mentioned meeting may call for an appointment at (775) 588-4547. In addition, written documents submitted at the meeting are available for review.

MEMORANDUM

Date: July 5, 2017
To: TRPA Advisory Planning Commission, Transportation Measures Working Group
From: TRPA Staff
Subject: Transportation Measures Working Group: Draft white paper

Requested Action: Working Group discussion and possible direction to staff.

Background: In February of 2017, the Environmental Improvement Program (EIP) Committee of the Tahoe Regional Planning Agency (TRPA) Governing Board endorsed the creation of a Transportation Measures Working Group to survey the transportation measures landscape. The committee identified the TRPA Advisory Planning Commission (APC) as the convening body for the working group. The Working Group was charged with surveying the transportation measures landscape to identify the state of the practice for measuring and reporting on a range of transportation-related issues. The Committee tasked the Working Group with surveying the transportation measures landscape and summarizing the findings in a white paper on the state of the practice to inform future discussions. The July meeting will be the fourth meeting of the Transportation Measures Working Group. A brief overview of the first three meeting is provided below.

- April – Review of existing and required measured
The discussion highlighted gaps in the existing performance measures relative to the Region’s transportation goals and priorities, which included congestion, parking, and measures of non-automobile system efficacy.
- May – Identification of focus areas
The working group meeting included discussion on evaluation factors for the performance measures and further clarified focus areas for technical expert presentations in June.
- June – Expert presentations on focus areas;
The working group meeting included discussion on evaluation factors for the performance
 - (1) Measures of roadway efficacy and traveler experience (“auto measures”);
 - (2) Measures of non-auto efficacy and traveler experience (“non-auto measures”);
 - (3) Measures of transportation’s impact on the environment.

The focus of the July meeting will be an overview of the draft white paper. Staff will present an overview of the white paper and facilitate discussion on the evaluation criteria used to assess the measures. Following Transportation Measures Working Group direction to staff on finalizing the white paper, staff will modify the draft and present the revised draft to the Transportation Measures Working Group in August. The final draft will be taken to the Governing Board in August.

Contact Information: If you have any questions, please contact Michelle Glickert, Principal Transportation Planner at mglickert@trpa.org or (775) 589-5204; or Dan Segan, Principal Natural Resource Analyst at dsegan@trpa.org or (775) 589-5233.

Attachment: A. Transportation Performance Measures State of the Practice

Attachment A
Transportation Performance Measures State of the Practice

DRAFT

Transportation Performance Measures State of the Practice

Prepared by:

Tahoe Regional Planning Agency
PO Box 5310, Stateline, NV 89449

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ACKNOWLEDGEMENTS

Development of this White Paper was a collaborative process involving the TRPA Governing Board, Advisory Planning Commission, community stakeholders, and staff participation.

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Bill Yeates, Vice Chair	California Senate Rules Committee Appointee
Shelly Aldean_	Carson City Board of Supervisors Member
Marsha Berkbigger_	Washoe County Commissioner
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Steve Teshara, Chair	South Shore Transportation Management Association
Robert Larson, Vice Chair	Lahontan Regional Water Quality Control Board
Steve Buelna	Placer County Representative
Jennifer Carr	Nevada Division of Environmental Protection
Charlie Dohohue	Nevada Division of State Lands
Jason Drew	El Dorado County Lay Member
Paul Esswein	Carson City Lay Member
Eric Guevin	Tahoe Basin Fire Chief's Representative
Kristina Hill	Washoe County Lay Member
John Hitchcock	City of South Lake Tahoe Representative
Zach Hymanson	Placer County Lay Member
Eva Krause	Washoe County Representative
Teresa McClung	US Forest Service
Neil Mortimer	Washoe Tribe of Nevada and California
Lee Plemel	Carson City Representative
Roger Trout	El Dorado County Representative
Scott Weavil	City of South Lake Tahoe Lay Member

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Steve Buelna	Placer County Representative
Jennifer Carr	Nevada Division of Environmental Protection
Andy Chapman	Business and Tourism Community
Charlie Dohohue	Nevada Division of State Lands
Jason Drew	El Dorado County Lay Member
Shannon Eckmeyer	Environmental Community
Paul Esswein	Carson City Lay Member
Eric Guevin	Tahoe Basin Fire Chief’s Representative
Kristina Hill	Washoe County Lay Member
John Hitchcock	City of South Lake Tahoe Representative
Zach Hymanson	Placer County Lay Member
Eva Krause	Washoe County Representative
Teresa McClung	US Forest Service
Neil Mortimer	Washoe Tribe of Nevada and California
Lee Plemel	Carson City Representative
Roger Trout	El Dorado County Representative
Scott Weavil	City of South Lake Tahoe Lay Member

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John L. Marshall	General Counsel
John B. Hester	Chief Operating Officer
Julie Regan	Chief, External Affairs
Chris Keillor	Finance Director
Marja Ambler	Clerk to the Governing Board

Contributing Consultants

Alta Planning
Fehr and Peers

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Introduction

The Lake Tahoe Region's transportation system is a principal component of residents' quality of life and visitors' experience. It is also intimately tied to the region's economic and environmental health. Increased visitation in recent years has brought transportation related issues (e.g., congestion, safety, traffic volume) to the forefront of stakeholder concerns.

Informed policy discussions are built on a collective understanding of the issues. Rather than adopting new policy in haste, there is a clear need to better understand the suite of concerns being raised by stakeholders, and the link between those concerns and the transportation system. Within the Basin, this need extends to building a common evidence-base on the state of the practice for transportation measures and the complex interplay of factors (e.g. consumer behavior, regional employment, and economy) that influence individual measures of transportation performance, and to provide a forum where stakeholders can discuss those issues.

TRPA received significant feedback on the Vehicle Miles Travelled (VMT) threshold standard during development of the 2015 Threshold Evaluation Report. The VMT standard was established in 1982 to reduce nitrogen oxides emissions in the basin, and established a goal of a 10% reduction of total VMT in the basin from 1981 levels. The standard was assessed as "in attainment" in the 2015, and has been assessed as "in attainment" in every threshold evaluation report since 2007. Stakeholder feedback contained recommendations for additional VMT-based standards, and suggestions for how VMT could be used to evaluate projects or guide policy. The feedback was motivated by a suite of concerns ranging from water quality to congestion, for which stakeholders perceived the VMT standard to be the closest surrogate.

Recent federal legislation including the Fixing America's Surface Transportation (FAST) Act (Pub. L. No. 114-94) and Moving Ahead for Progress in the 21st Century (MAP-21) Act has also prompted renewed thinking on how the performance of transportation systems is measured. Lake Tahoe's designation as a Transportation Management Area (TMA) under the FAST Act requires development of a Congestion Management Process (CMP) and strengthening of the Region's performance-based planning framework. Both federal laws include target-setting requirements in coordination with Caltrans and NDOT. Additional California state requirements, SB 375 (greenhouse gas reduction requirements) and SB 743 (modification of transportation related CEQA requirements), are also changing the transportation measures landscape.

In February of 2017, the Environmental Improvement Program (EIP) committee of the Tahoe Regional Planning Agency (TRPA) Governing Board endorsed the creation of a transportation measures working group to survey the transportation measures landscape. The committee identified the TRPA Advisory Planning Commission (APC) as the convening body for the working group. The working group was charged with surveying the transportation measures landscape to identify the state of the practice for measuring and reporting on a range of transportation-related issues. The committee tasked the working

group with completing the survey and summarizing the findings in a report on the state of the practice to inform future discussions and ultimately, decision making. The Transportation Measures Working Group was comprised of APC members and one representative from the environmental community (Shannon Eckmeyer, Policy Analyst, League to Save Lake Tahoe), and one representative from the business and tourism community (Andy Chapman, President/CEO, Incline Village Crystal Bay Visitors Bureau). The working group convened monthly during the regularly scheduled APC meetings, from March 2017 through August 2017.

Scope of Survey

The first step in the development of the report was completion of a survey of transportation measures in use. The survey focused on the identification of measures used to assess the performance of transportation systems. Within this context, a measure refers to any quantifiable entity used to track progress towards a goal. Performance measures provide a common framework through which agencies and stakeholders can define desired outcomes and assess progress towards their attainment. Performance measures are also the centerpiece of performance-based planning frameworks, where they provide the essential building blocks to objectively evaluate alternative actions and maximize the return on investments.

There are over 400 MPOs in the country, each of which tracks progress and reports on the status of a variety of programs using a diverse array of metrics. TPRA itself produces the threshold evaluation, quarterly and annual reports, a Regional Transportation Plan, and Active Transportation Plan monitoring report. Transportation related performance measures can also be found among the 38 Environmental Improvement Program performance measures, 14 Regional Plan performance measures, 31 sustainability performance measures, and the 178 threshold standards. The sheer magnitude of the landscape meant that the survey could not include every available resource.

The survey of resources began with a focus agencies within the states of California and Nevada, and was expanded selectively to include nationally prominent organizations and agencies in tourist dependent regions. The survey included resources from federal, state, regional, and local agencies, as well as guidance from non-government organizations and academics. Working Group members and stakeholders suggested contacting additional agencies involved in planning in similar environments or groups known for innovative approaches. The suggested organizations were contacted and that information was included in the report. The agencies included in the survey ranged from those that in high density areas with heavily utilized public transit systems to low density areas aiming to implement more efficient alternate modes of transportation. The survey identified a variety of different types of resources from which measures were drawn from. These included; plans, reports, white papers, process documents, scientific papers, and memos. We refer to all these as resources within this report. The resources reviewed included six general types:

- Statewide transportation plans - Statewide transportation plans provide the baseline transportation guidelines which MPOs and regional DOTs are required to follow.

- Regional transportation plans - Regional transportation plans are developed by regional agencies to manage a variety of transportation modes throughout the area. Typically, regional transportation plans fall under the authority of statewide transportation plans.
- Project performance assessments - Project performance assessments review project implementation and outcomes to track progress against goals.
- Congestion management processes - Congestion management process documents analyze ways of mitigating congestion through provision of non-auto transportation.
- Guidance documents – Guidance documents provide advice on best practice, but have not necessarily implemented in all locations.
- Academic literature – Articles sourced from peer reviewed literature to provide context for how researchers were thinking about the utility and responsiveness of metrics.

The total number of the resources included in the report is summarized by resource type in Figure 1.

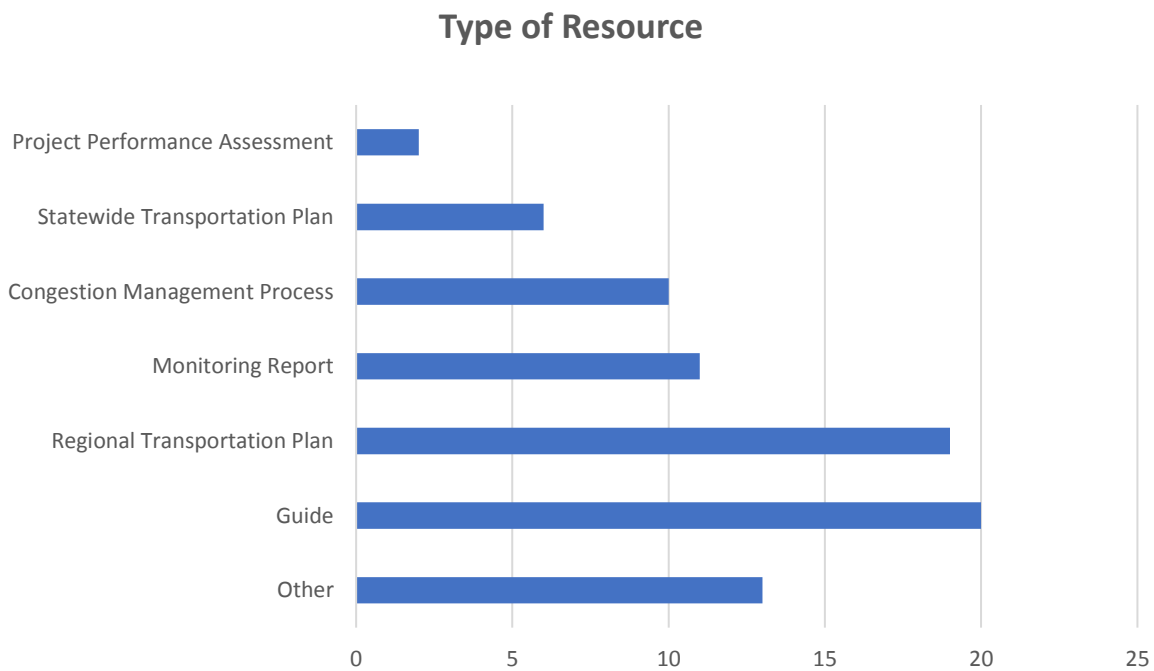


Figure 1: Resource types

There was considerable variation in the number of measures identified from each agency included in the survey (Figure 2). The Mid-Ohio Regional Planning Commission had sixty-five measures used in the agency’s Congestions Management Process, Post Project Assessment, and Regional Transportation Plan. At the other end of the spectrum the Congestion Management Process used by the Council of Fresno County Governments focused on a single measure. It should be noted that these figures are based on the number of measures found in the materials produced by that agency. For example, two monitoring reports from the Florida Department of Transportation each contained fewer measures than the Tennessee Department of Transportation’s Long-Range Policy Plan, but the Florida Department of

Transportation overall had a greater number of measures. A list of all the agencies referenced in this document can be found in Appendix A.

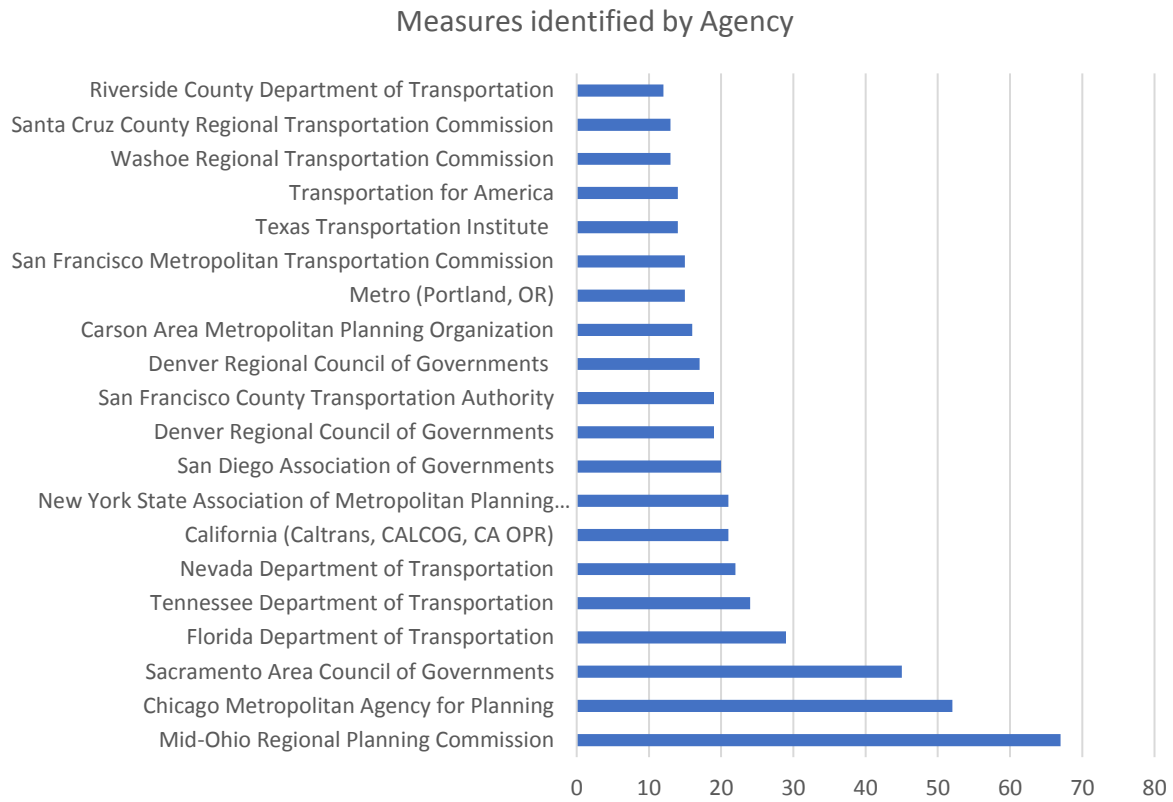


Figure 2: Total number of measures identified

Figure 3 summarizes the number of resource identified by type of organization. The most commonly referenced resources were generally those produced by regional agencies, with fewer measures being identified from federal, state, or local sources.

Sources of Measures by Type of Agency

■ Federal ■ State ■ Regional ■ Local ■ Other

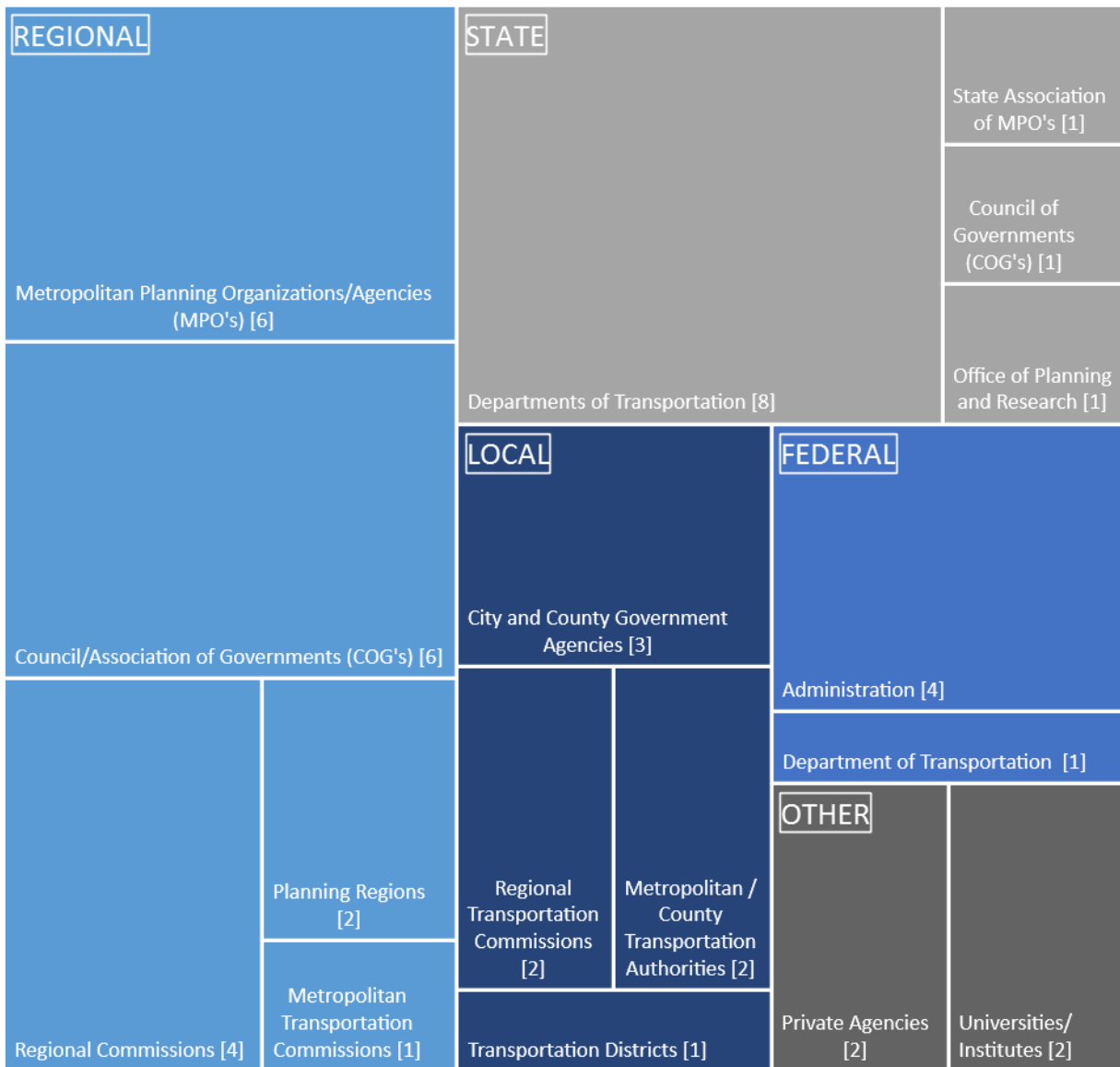


Figure 3: Sources of Measures by Type of Agency

Organization criteria

The findings of the survey are organized in categories and subcategories to ensure the report can be readily understood and utilized by a broad audience. The organizational structure reflects where and when each measure is used.

Categories and Subcategories

Each measure was placed into one of six categories based on the primary use of the measure. The six categories were drawn from the six goals of the 2017 Regional Transportation Plan (RTP)/Sustainable Communities Strategy. The categories are: Environment, Connectivity, Safety, Operations & Congestion Management, Economic Vitality & Quality of Life, and System Preservation. Subcategories were used to identify the specific area with which the measure is most often associated. For example, the Environment category contains subcategories for air quality, noise, and water quality.

Many measures are applied in a variety of contexts and could be related to more than one category or subcategory. To simplify the structure each measure was placed in a single category and subcategory. Where applications of a measure were found outside its primary category, those applications were noted in the measures “relationship with goal” section of the summary sheet.

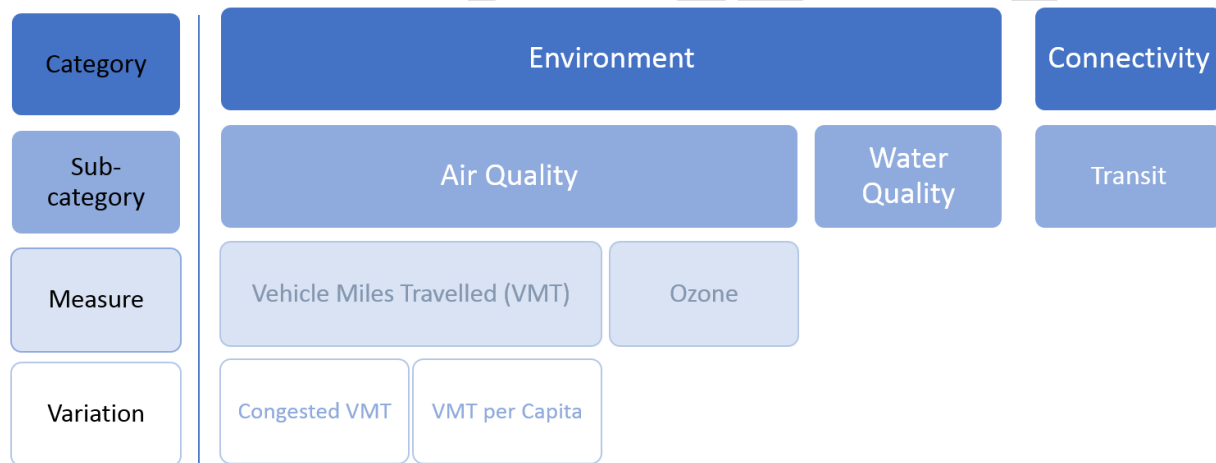


Figure 1: Organization of performance measures.

Performance measure type

Measures can be used for a variety of different purposes, including process evaluation, program evaluation, impact assessment, and status and trend monitoring. Within this report each measure is identified as of one of three types based on the use of that measure. A brief description of each type is included below and figure 5 provides an illustration of the relationship between them.

- Input/Activity - Are measures used to report on the investments and accomplishments intended to meet the Region’s transportation goals. These are actions taken, work performed, and are reported as accomplishments such as policies, programs, and projects.

- Intermediate results – Are measures are the short- or medium-term accomplishments that result from inputs and activities.
- Outcome measures – Are measures used to report progress toward achievement of the long-term goals (categories) of Environment, Connectivity, Safety, Operations & Congestion Management, Economic Vitality & Quality of Life, and System Preservation that define regional transportation performance.
- Effort based measures of activity – These can broadly be grouped into two sets: a) financially based (e.g. dollar spent) and b) time-based (eg. staff resource) measures to track investment in projects or goals attainment. These resource allocation measures are frequently reported in implementation documents and used internally for project management and are not included in this report.

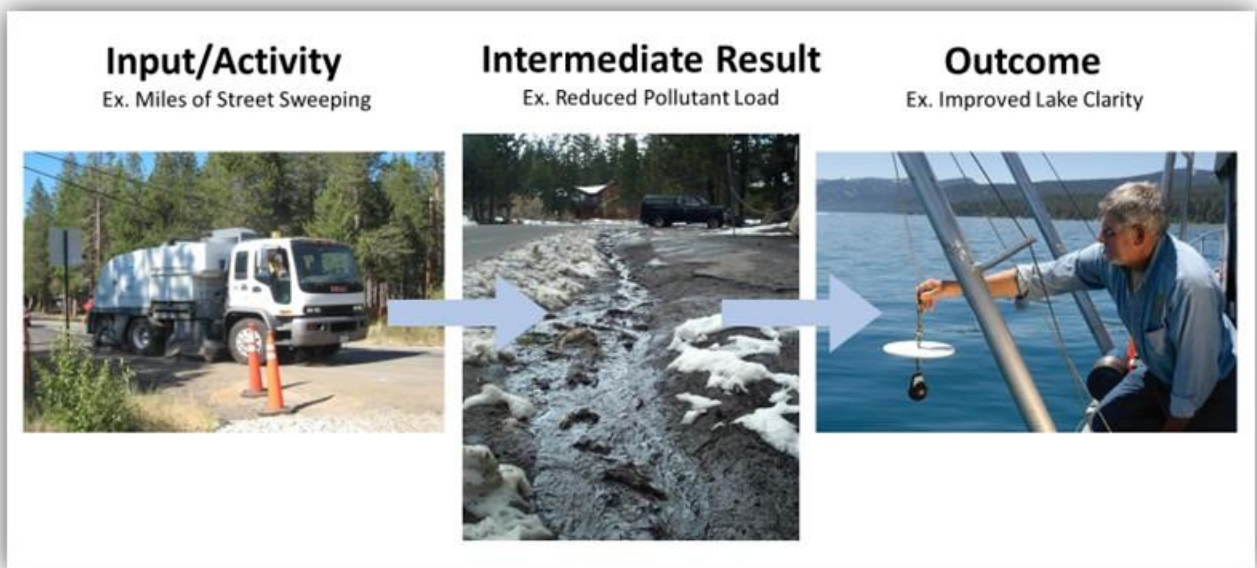


Figure 5: Performance measure types.

Used by

The used by field provides a general indication of who is using the measure. Within the summary spreadsheet “R” indicates a regional entity, “L” indicates a local entity, “S” indicates a State entity, and “O” indicates Other.

Relationship with Goal

Relationship with goal provides information on how closely linked the measure is with the goal or category about which it provides information. Relationships are classified as either direct or indirect. A direct relationship indicates that the measure provides information about the status of conditions relative to an established goal. An indirect relationship is indicated where the measured entity is related to the goal, but a change in the measure may not directly reflect progress towards a goal.

Evaluation Criteria

The evaluation criteria provide additional information about each measure to assist decision makers in identifying which measures are most suitable. In contrast to the organizational criteria that simply provide context, the evaluation criteria are normative, and are intended to provide information about the strengths and weakness of individual measures. The evaluation criteria included here are not intended to be an exhaustive list of potential evaluation criteria. The criteria are intended to provide a starting point for selection discussions, recognizing that each selection process has unique relative weights for the individual criterion. The graphic symbols used to represent the degree of consistency with each criterion are also described.

The Dashboard uses numbers on a scale from 0 to 4. 0 rates poorly; 4 rates highly. Numbers lying on this scale are converted into empty, half, and full circles. Empty circles rate poorly; full circles rate highly.	Dashboard	
	0	○
	2	◐
	4	●

SMART Amenable

SMART is an acronym for Specific, Measurable, Attributable, Relevant, Time-bound. The SMART rubric is commonly used to ensure that established goals are amenable to evaluation and will provide useful information when evaluated. A goal is said to be SMART if it contains all the SMART attributes. The SMART amenable criterion was evaluated in a binary fashion, with full circles graphically representing that the measure is amenable to the establishment of goals for either TRPA or TMPO. An empty circle indicates that measure is not suitable for the establishment of SMART goals.

Data Collection

The data collection criterion captures the ease of data collection for the measure.

Data Continuity

The data continuity criterion assesses the length of the data record available or easily calculated for the measure.

Data Reliability

Quality reliability captures how reliable the measure is, and if there are quality assurance processes in place to review and check the data reported.

Cost

The cost criterion provides insight into the relative cost of acquiring and analyzing data to inform evaluation of the measure. Lower cost measures are given a higher score, and higher cost measures are given a lower score.

Required

The required field identifies measures that are required by local, state, or federal legislation.

Existing Measure

The existing measure criterion identifies measures that are currently used in Tahoe.

A number of additional evaluation criteria were discussed by the project team or at a meeting of the transportation measures working group, but are not included in this report. The criteria were not included for one of two reasons; either a consistent working definition of the criterion could not be determined, or reliable evaluation of the criteria was not possible given the resources available.

Excluded evaluation criteria, included; 1) Composite- The composite criterion is a combination of two or more individual measures in a single measure that results in a single score. A composite measure may be more efficient to use, 2) Multi-goal - The multiple goal criterion assesses the number of goals about which a measure provides information. Measures that provide information about multiple goals are generally preferable to those that provide insight only into the status of a single goal, 3)

Understandable- The understandable criterion identifies measures that can be readily understood by a wide array of stakeholders. Lower scores for understandable may mean the measure is suitable only for use by experts or that use of the measure with a general audience will likely require additional education effort, 4) Management utility – the management utility criterion assess the extent to which information from the measure is or could be used to inform management decisions, 5) Sensitive-The sensitive criterion assesses the responsiveness of the measure to changes in the conditions being measured. More sensitive measures are generally more desirable because they provide more feedback about changes in underlying conditions that can be used to inform management.



Figure 6: Sierra Sun: Tahoe City Rendering

Performance Measures Summary Sheets

Survey findings were organized in a common format to ensure users can easily find the most pertinent information about each measure. The measure summary sheets assist users with understanding what is included in each section and to facilitate consistent and accurate reporting. The major sections of the measure summary sheet are outlined below.

Performance Measure Title	
Measure at a Glance	Evaluation Factors
<p>Category: Describes the focus area for the performance measure: Environment, Safety, System Preservation, Economic Vitality and Quality of Life, Connectivity, and Operations and Congestion Management</p> <p>Subcategory: <i>Describes the sub-element for the performance measure.</i></p>	<p>Performance Measure Type: Describes whether the performance measure is an Action, Intermediate Result, or an Outcome Measure</p> <p>Required by: Describes whether the measure is required by State or Federal Legislation, Agency/Organization, and legislation listed.</p> <p>Used by: state, local, regional and or other</p> <p>SMART Amenable: Yes/No value that describes whether the performance measure is amenable to the establishment of SMART (Specific, Measurable, Attributable, Relevant, Time-bound) goals for either TRPA or TMPO.</p> <p>Reporting Readiness: Describes level of readiness.</p> <p>Composite/Index Measure: composite measure is a combination of two or more individual measures in a single measure that results in a single score</p> <p>Relationship with Goal: Describes relationship between performance measure and overall goal.</p> <p>Existing Tahoe Measure: Describes the measures already in use by the Tahoe Region.</p>
Indicator Overview	
Description	
Brief narrative that relates performance measure to a category and subcategory, including a summary of what is/is not measured.	
Human and Environmental Drivers	
Lists factors – controllable and uncontrollable – that positively or negatively influence the performance measure. Description includes direction of known influence and reference(s).	
Application	
In the Basin	
Summarizes the existing measure and how it is performing within Tahoe.	
External uses	
Summarizes Existing uses outside of the Tahoe Region-other organizations’ use of the performance measures.	
Literature or Guidance Documents	
Summarizes literature or guidance on the use of the performance measure.	
Relationship with Goal	
Describes the relationship between the performance measure and the overall goals of the agency, analyzing how well the measure fits the focus of the goals.	
Variations of the Measure / Alternatives to the measures	
Summarizes the relationship between this performance measure and other similar or related measures. May also describe data relationships. For example, GHG is a modelled value that is computed using the modelled VMT value as input.	
References	
Lists different references utilized in the performance measure as a framework for analyzing how Tahoe wants to use the document.	

Figure 7: Overview of the performance measure summary sheet

Where multiple measures were closely related, every attempt was made to combine those measures into a single sheet. For example, many measures include both a total amount (number of injuries) and a measure of rate (injuries per 100,000 VMT). Both are safety measures that are primarily based on the same factor (injuries), and thus largely respond to the same factors. Where measures represent repackaging of the same information based on slightly different criteria the measures were combined into a single summary sheet. Where multiple measure were closely related, every attempt was made to combine those measures into a single sheet. For example, many measures include both a total amount (number of injuries) and a measure of rate (injuries per 100,000 VMT). Both are safety measures that are primarily based on the same factor (injuries), and thus largely respond to the same factors. Where measures represent repackaging of the same information based on slightly different criteria, the measures were combined into a single summary measure. For example, eight measures were combined into the Travel time to work summary sheet (Figure 8). Each measure is a derivation of a manipulation of travel time to work. Some identify a specific mode type to which the reporting is limited, while others assess the population that experiences a travel time above a certain level.

ECONOMIC VITALITY	
Travel Time to Work	Total jobs within 30-minute drive
	Average number of jobs within 25-minute transit ride of City Residents
	Percent of population within 30 minutes of jobs and higher education
	Percent PM peak period work trips within 45 minutes of home
	Commute Time by SOV
	Commute Time by Transit
	Commute Time by Carpool
	Commute Time by all Modes

Figure 8: Example of how derivations of measures were aggregated into a single measure summary sheet.

The results of the survey were summarized in a dashboard to allow users interested only in high-level information to quickly review and identify measures most suitable for their need. The dashboard of Performance Measures can be found at the end of the report.

Overview of Survey Results

The survey reviewed 81 resources from 47 agencies and identified a total of 217 variations of individual measures. The 217 variations were summarized in 86 measure summary sheets in Appendix B. There was some variation in the number of measures identified in each of the categories (Figure 9). Just five measures were identified to track system preservation, while on the other end of the spectrum, nearly

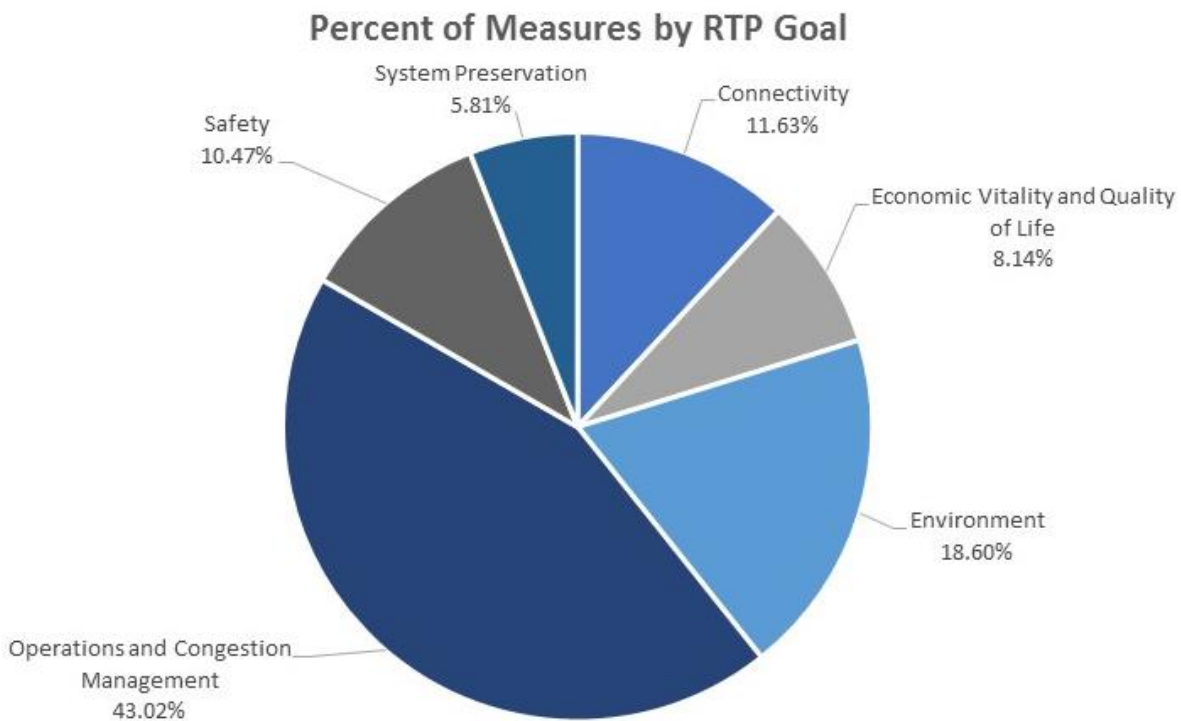


Figure 9: Percent of Measures by RTP Goal

forty measures were identified related to operations and congestion management. The variation in number of measures identified may in part reflect flexibility given to local and regional entities to establish their own measures. The relative abundance of measures within the operations and congestion management may also reflect years of focus on the automobile as the primary focus of transportation systems. The variations may also be a reflection of the different regulatory environments within six categories. For example, there are detailed requirements for which safety and system preservation measures must be reported, but none of the five identified measures of congestion are required, leaving agencies greater discretion to tailor measures to suit their needs.

Measures Identified by Category and Subcategory



Figure 10: Measure summary sheets identified by category

Conclusions

This report is intended to be used like a dictionary or a thesaurus, rather than read from cover-to-cover. It should serve as a reference that can be drawn upon when specific questions arise. The report is organized into categories that enable users to quickly locate measures that are potentially suitable for tracking progress against a specific goal.

The results of the survey provide a broad information base upon which informed decisions can be made about what is measured and why. The survey identified over 217 variations on measures and catalogs them based on the way other agencies and entities are using those measures to report progress against goals. TRPA currently measures and tracks 75 of the 217 measures variations identified.

Creating a report that provides a resource for updating and selecting performance measures best for implementing Tahoe’s regional transportation goals requires this critical assessment of existing and current resources within the transportation planning field nationally. Identifying the right measure is critical to identifying the right policies, projects, and funding priorities to continue to improve the transportation experience in the Lake Tahoe Region.

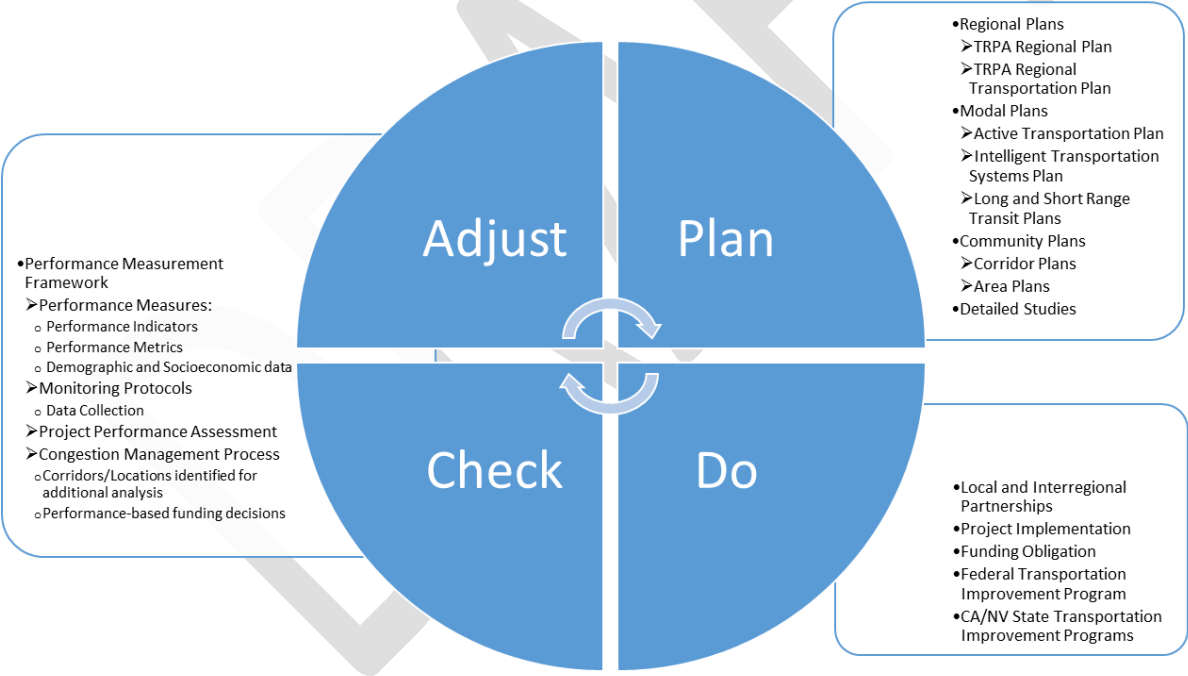


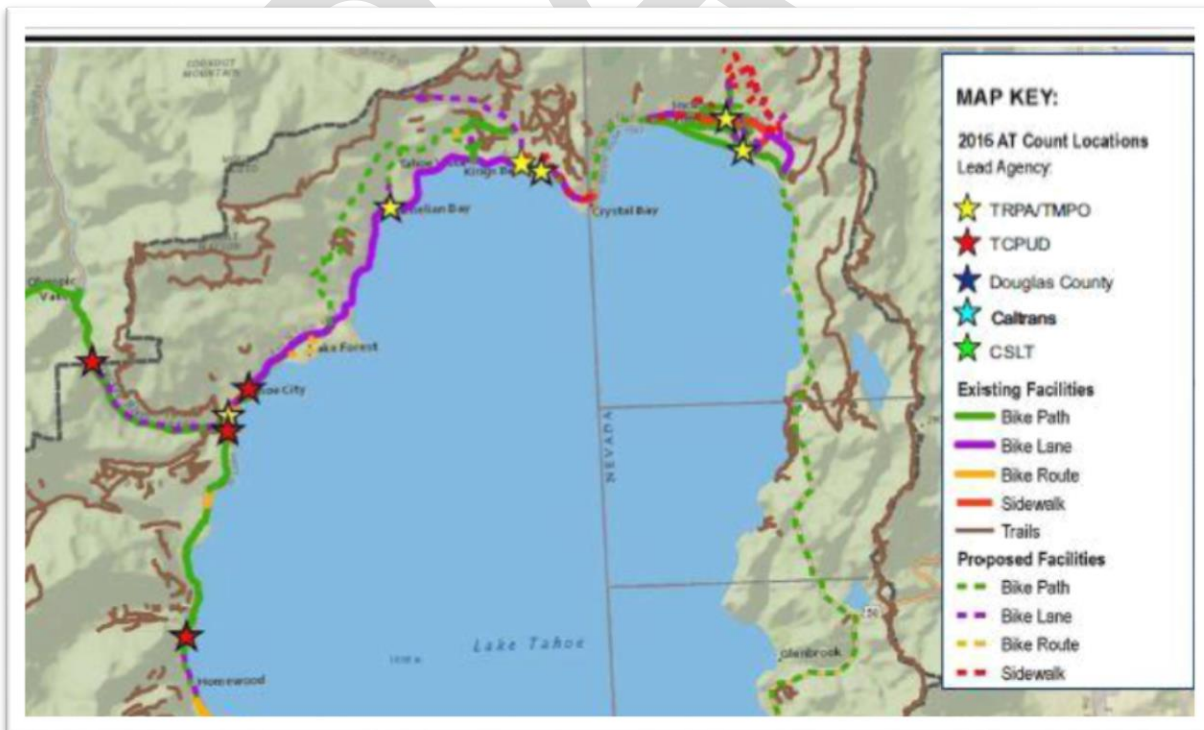
Figure 11: Adaptive Planning Process

This process has identified additional measures for TRPA to consider for a more direct relationship to the goal. However, the survey itself does not answer which measures best align with our goals, it provides a resource from which the partners in Tahoe can draw on to find answers. The key to effectively using this report is clearly defining the question at hand. Which for this is the goal, what are

you trying to achieve and what is it that you are trying to measure? During the process of developing this report experts in the field provided their perspectives to the Working Group. Fehr and Peers Vice President of evolving the status quo, Ron Milam, suggested the conversation start with three deceptively simple questions; 1) what is it you want to protect? 2) what is it you want to maintain, 3) what do you want to avoid? The answers to those questions will lead to the measures that are most applicable.

Moving forward, this survey of the landscape will also inform the development of a Congestion Management Process (CMP) and additional strengthening of the Region’s performance-based planning framework. Both federal laws include target-setting in coordination with Caltrans and NDOT. Additional California state requirements, SB 375 (greenhouse gas reduction requirements) and SB 743 (modification of transportation related CEQA requirements), are also changing the measures landscape to advance transportation.

This report will also provide background information for the more challenging conversations to come: Which measures most directly provide information about the things we care about? Which measures provide the information necessary for managers to adaptively manage systems and improve outcomes? And which measures reflect what matters most to the region? The next in-depth step will be to tackle each goal, within each review the measures, better understand the direct relationship to the goal, and decide they are what we want to analyze each year as part of our ongoing planning process. Are these the measures best suited for achieving our goals? Taking it a step further, the measures will need to be applicable when reviewing public and private projects and transportation improvements that are part of the Environmental Improvement Program.



2016 Lake Tahoe Regional Bicycle and Pedestrian Data Collection Monitoring Report: North Shore Count Locations

Transportation Measures Dashboard: Evaluation Criteria

The Dashboard contains a high-level overview of all measures in the report. Measures are organized by category and then subcategory. Additional detail can be found on the measure summary sheets in Appendix B.

The Dashboard uses numbers on a scale from 0 to 4. 0 rates poorly; 4 rates highly. Numbers lying on this scale are converted into empty, half, and full circles. Empty circles rate poorly; full circles rate highly.

Dashboard	
0	○
2	◐
4	●

Measure Name	Performance Measure Type	Used By R=Regional L=Local S=State O=Other	Relationship with Goal	SMART	Data Collection	Data Continuity	Data Reliability	Cost	Required	Existing Tahoe Measure
				Amendable						
Connectivity										
Bicycle/Pedestrian										
Bicycle and Pedestrian Network Connectivity	Action/Activity	R, L	Indirect	●	◐	●	●	◐	○	●
Percent of Roadways with Adjacent Bicycle/Pedestrian Facilities	Intermediate Output	S	Indirect	●	◐	◐	◐	◐	○	○
Weighted Pedestrian Environmental Factor	Intermediate Output	R, O	Indirect	●	○	○	○	◐	○	○
Emerging Technology										
Number of Parking Spots with Access to Plug-in Electric Vehicle (PEV) Charging	Action/Activity	F, S, O	Indirect	●	◐	◐	◐	●	○	●
Number of Alternative Fueling Stations	Action/Activity	F, R, O	Indirect	●	●	●	◐	●	○	○
Plug-in Electric Vehicle (PEV) Charging Equipment with ADA Accessibility	Action/Activity	F, O	Indirect	●	◐	◐	◐	●	○	●
Transit										
Transit Connectivity	Intermediate Output	R, L	Indirect	●	○	○	◐	◐	○	○
Transit Network Completion	Action/Activity	R, O	Indirect	●	◐	◐	◐	◐	○	●
Transit Ridership	Intermediate Output	S, R, L, O	Indirect	●	●	●	●	●	●	●
Transit Service Hours	Action/Activity	S, R, L, O	Indirect	●	◐	◐	◐	●	○	●
Economic Vitality and Quality of Life										
Economic Vitality										
Economic Impacts of Transportation Investments (jobs created)	Outcome	S	Indirect	●	○	○	○	◐	○	○
Economic Impacts of Freight Transportation	Intermediate Output	F, S	Indirect	●	○	○	○	○	○	○
Housing and Transportation (H+T) Index	Intermediate Output	R	Direct	●	●	●	●	◐	○	●
Travel Distance to Work	Intermediate Output	F, R, L	Indirect	●	◐	●	●	●	○	○
Travel Time to Work	Intermediate Output	R, L	Direct	●	◐	●	●	●	○	○
Quality of Life										
Accessibility Score	Intermediate Output	S, R, L	Indirect	●	○	◐	◐	◐	○	○
Population Access to Amenities/Services	Intermediate Output	R, L	Indirect	●	●	◐	◐	◐	○	●
Transportation-Related Physical Activity	Intermediate Output	R	Indirect	●	○	○	○	◐	○	○

Measure Name	Performance Measure Type	Used By	Relationship with Goal	SMART Ammendable	Data Collection	Data Continuity	Data Reliability	Cost	Required	Existing Tahoe Measure
Environment										
Air Quality										
Carbon Monoxide	Outcome	F	Direct	●	●	●	●	◐	●	●
Greenhouse Gas Emissions	Intermediate Output	F, R, L	Direct	●	●	●	●	◐	●	●
Nitrogen	Outcome	F, R	Direct	●	●	●	●	◐	●	●
Ozone	Outcome	F, R	Direct	●	●	●	●	◐	●	●
Particulate Matter (PM)	Outcome	F, R	Direct	●	●	●	●	◐	●	●
Per Capita Fuel Consumption	Intermediate Output	L	Indirect	●	○	◐	◐	○	○	○
Transit System Alternative Fuel Usage	Intermediate Output	R	Indirect	●	◐	◐	◐	◐	○	○
Tree Canopy Percentage of Roadways	Intermediate Output	R	Indirect	●	◐	○	◐	◐	○	○
Vehicle Miles Travelled (VMT)	Intermediate Output	S, R, L, O	Indirect	●	◐	●	●	◐	●	●
Visibility	Outcome	F, R	Direct	●	●	●	●	◐	○	●
Noise										
Ambient Noise	Outcome	R	Direct	●	●	●	●	◐	○	●
Single-Event Noise	Outcome	R	Direct	●	●	●	●	◐	○	●
Water Quality										
Miles of Roadway Decommissioned or Retrofitted	Action/Activity	R	Indirect	●	●	●	●	●	○	●
Miles of Street Sweeping	Action/Activity	R	Indirect	●	●	●	●	●	○	●
Road Rapid Assessment Methodology (RAM)	Intermediate Output	S, R, L	Direct	●	●	◐	●	◐	○	●
Best Management Practices Rapid Assessment Methodology (BMP-RAM)	Intermediate Output	L	Direct	●	●	◐	●	◐	○	●

Measure Name	Performance Measure Type	Used By	Relationship with Goal	SMART Ammendable	Data Collection	Data Continuity	Data Reliability	Cost	Required	Existing Tahoe Measure
Safety										
Discretionary Safety Measures										
Americans with Disabilities (ADA) Planning Measures	Intermediate Output	S, R		●	◐	●	◐	◐	○	○
Cost of Accidents	Intermediate Output	R	Direct	●	◐	◐	◐	○	○	○
Crashes by Mode and by Cause	Intermediate Output	S, R, O	Direct	●	●	●	◐	◐	○	○
Incident Clearance Time	Intermediate Output	R	Indirect	●	◐	●	◐	◐	○	○
Public Satisfaction with Transportation Safety	Intermediate Output	S	Direct	●	◐	◐	◐	○	○	○
Seismic Safety	Intermediate Output	R	Direct	●	◐	◐	◐	◐	○	○
Required Safety Measures										
Fatalities (Number)	Outcome	S, R	Direct	●	●	●	◐	●	●	●
Rate of Fatalities per 100 Million VMT	Outcome	S, R	Direct	●	●	●	◐	●	●	●
Non-Motorized Fatalities and Serious Injuries	Outcome	S, R, L	Direct	●	●	●	◐	◐	●	●
Rate of Serious Injuries per 100 Million VMT	Outcome	S, R	Direct	●	●	●	◐	◐	●	●
Serious Injuries (Number)	Outcome	S, R, L, O	Direct	●	●	●	◐	◐	●	●
System Preservation										
Roadway										
Bridge Condition	Intermediate Output	S, R, O	Direct	●	◐	●	◐	◐	○	●
Pavement Condition	Intermediate Output	S, R, O	Direct	●	●	●	◐	◐	○	●
Roadway Closures	Intermediate Output	O	Direct	●	◐	◐	◐	●	○	○
Transit										
Percentage of Assets in a State of Good Repair	Intermediate Output	F	Indirect	●	◐	●	●	◐	○	○
Percentage of Assets with a Condition Rating Below 3.0 on the FTA TERM scale	Intermediate Output	F	Indirect	●	●	◐	◐	◐	○	○
Percentage of Vehicles Met or Exceeded Useful Life Benchmark	Intermediate Output	F	Indirect	●	◐	●	●	◐	○	○

Measure Name	Performance Measure Type	Used By	Relationship with Goal	SMART Ammendable	Data Collection	Data Continuity	Data Reliability	Cost	Required	Existing Tahoe Measure
Operations and Congestion Management										
Bicycle/Pedestrian										
Active Transportation Utilization	Intermediate Output	R, L	Indirect	●	●	●	●	●	○	○
Bicycle Facility Capacity	Intermediate Output	R	Indirect	●	●	●	●	●	○	○
Bicycle Level of Service (BLOS)	Intermediate Output	S, R, L, O	Indirect	●	●	●	●	●	○	○
Pedestrian Level of Service (PLOS)	Intermediate Output	S, R, L, O	Indirect	●	●	●	●	●	○	○
Emerging Technology										
Number of Charging Locations with Educational Signage or Information	Action/Activity	L	Indirect	●	●	●	●	●	○	●
Number of Events Providing Electric Vehicle Materials	Action/Activity	L	Indirect	●	●	●	●	●	○	●
Number of Jurisdictions and Utility Companies with Policies Directly Addressing Electric Vehicles in a Supportive Way	Action/Activity	L	Indirect	●	●	●	●	●	○	●
Number of training events on Electric vehicles	Action/Activity	L	Indirect	●	●	●	●	●	○	●
Parking										
Parking Utilization	Intermediate Output	R	Indirect	●	●	●	●	●	○	●
Roadway Congestion Management										
Congestion Index	Intermediate Output	S, R, L, O	Direct	●	○	○	○	●	○	○
Delay	Intermediate Output	S, R, L, O	Direct	●	●	●	●	●	○	○
Roadway Level of Service (LOS)	Intermediate Output	S, R, L	Direct	●	●	●	●	●	○	●
Vehicle Speed	Intermediate Output	R, L	Direct	●	●	●	●	●	○	○
Volume to Capacity Ratio	Intermediate Output	S, R	Direct	●	●	●	●	●	○	○
Roadway Operations										
Number of Complete Streets Projects	Action/Activity	S, R	Indirect	●	●	●	●	●	○	●
Traffic Volume	Intermediate Output	R	Indirect	●	●	●	●	●	○	●
Vehicle Hours Travelled	Intermediate Output	S, R	Indirect	●	●	●	●	●	○	○
Vehicle Trips	Intermediate Output	S, R, L, O	Indirect	●	●	●	●	●	○	○

Measure Name	Performance Measure Type	Used By	Relationship with Goal	SMART Ammendable	Data Collection	Data Continuity	Data Reliability	Cost	Required	Existing Tahoe Measure
System Operations										
Mode Share	Intermediate Output	S, R, L, O	Direct	●	◐	●	●	●	○	●
Multi-Modal Level of Service (MMLOS)	Intermediate Output	S	Direct	●	◐	●	●	○	○	○
Person Hours Travelled	Intermediate Output	R	Indirect	●	◐	◐	◐	◐	○	○
Person Miles Travelled	Intermediate Output	S, R	Indirect	●	◐	◐	◐	◐	○	○
Person Trips	Intermediate Output	R	Indirect	●	◐	◐	◐	◐	○	○
Planning Time Index	Intermediate Output	S, R, O	Indirect	●	◐	◐	◐	◐	○	○
Travel Time	Intermediate Output	S, R, O	Indirect	●	◐	●	●	◐	○	○
Travel Time Index	Intermediate Output	S, R, O	Indirect	●	◐	●	●	◐	○	○
Transit										
Miles of Dedicated Transit Lanes	Intermediate Output	L	Indirect	●	◐	●	●	●	○	○
Park and Ride Utilization	Intermediate Output	R	Direct	●	◐	◐	◐	◐	○	○
Transit Cost Recovery	Intermediate Output	S, R, O	Direct	●	◐	◐	◐	●	○	●
Transit Level of Service (TLOS)	Intermediate Output	S, R, L, O	Direct	●	●	●	●	◐	○	○
Transit On Time Performance	Intermediate Output	S, R, O	Direct	●	●	●	●	●	○	●
Transit Running Time/Headway Consistency	Intermediate Output	L		●	●	●	◐	◐	○	○
Transit Speed	Intermediate Output	L		●	◐	◐	◐	◐	○	○
Transit Vehicle Availability	Intermediate Output	S, O		●	◐	◐	◐	◐	○	●

Glossary: Acronyms and Definitions

ADA	Americans with Disabilities Act
APC	Advisory Planning Commission
BLOS	Bicycle Level of Service
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CMP	Congestion Management Process
DOT	Department of Transportation
EVMT	Electric Vehicle Mile Traveled
FAST	Fixing America's Surface Transportation Act
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GVMT	Gasoline Vehicle Mile Traveled
H + T Index	Housing and Transportation Affordability Index
HPMS	Highway Performance Monitoring System
HOV	High Occupancy Vehicle
HVAC	Heating, Ventilation, and Air Conditioning
IRI	International Roughness Index
LIHM	Low Income/High Minority
LOS	Level of Service
MAP-21	Moving Ahead for Progress in the 21st Century Act
MMLOS	Multi-Modal Level of Service
MPO	Metropolitan Planning Organization
NDOT	Nevada Department of Transportation
NHS	National Highway System

PEF	Pedestrian Environment Factor
PEV	Plug-In Electric Vehicle
PHT	Person Hours Traveled
PLOS	Pedestrian Level of Service
PMT	Person Miles Traveled
PPA	Post Project Assessment
RLOS	Roadway Level of Service
RTP	Regional Transportation Plan
SB	Senate Bill
SOV	Single Occupancy Vehicle
SMART	Specific, Measurable, Attributable, Relevant, Time-bound
TDM	Travel/Traffic Demand Management
TERM scale	Transit Economic Requirements Model
TLOS	Transit Level of Service
TMA	Transportation Management Agency
TMPO	Tahoe Metropolitan Planning Organization
TOD	Transit-Oriented Development
TRPA	Tahoe Regional Planning Agency
TTI	Travel Time Index
VHT	Vehicle Hours Traveled
VMT	Vehicle Miles Traveled

APPENDIX A – Agencies

The following list of Agencies reviewed as part of the survey.

Atlanta Regional Commission	Atlanta, Georgia
Broward Metropolitan Planning Organization	Fort Lauderdale, Florida
California Association of Council of Governments	Sacramento, California
California Department of Transportation	Sacramento, California
California Office of Planning and Research	Sacramento, California
California Rural Counties Task Force	Sacramento, California
Carson Area Metropolitan Planning Organization	Carson City, Nevada
Chicago Metropolitan Agency for Planning	Chicago, Illinois
City of Aspen	Aspen, Colorado
City of Pasadena	Pasadena, California
City/County Association of Governments - San Mateo County	Redwood City, California
Colorado Department of Transportation	Denver, Colorado
Colorado Intermountain Planning Region	Denver, Colorado
Denver Regional Council of Governments	Denver, Colorado
Federal Highways Administration	Washington, District of Columbia
Federal Transit Administration	Washington, District of Columbia
Florida Department of Transportation	Tallahassee, Florida
Fresno Council of Governments	Fresno, California

Gunnison Valley Transportation Planning Region	Montrose, Colorado
Institute for Transportation and Development Policy	New York City, New York
Los Angeles County Metropolitan Transportation Authority	Los Angeles, California
Madison Metropolitan Planning Area	Madison, Wisconsin
Maricopa Association of Governments	Phoenix, Arizona
Metro	Portland, Oregon
Mid-Ohio Regional Planning Commission	Columbus, Ohio
National Parks Service	Washington, District of Columbia
Natural Resource Defense Council	New York City, New York
Nevada Department of Transportation	Carson City, Nevada
New York State Association of Metropolitan Planning Organizations	Utica, New York
Ohio Department of Transportation	Columbus, Ohio
Oregon Department of Transportation	Salem, Oregon
Puget Sound Regional Council	Seattle, Washington
Riverside County	Riverside, California
Sacramento Area Council of Governments	Sacramento, California
San Diego Association of Governments	San Diego, California
San Francisco County Transportation Authority	San Francisco, California
San Francisco Metropolitan Transportation Commission	San Francisco, California
Santa Barbara County Association of Governments	Santa Barbara, California

Santa Cruz County Regional Transportation Commission	Santa Cruz, California
Southern Nevada Regional Transportation Commission	Las Vegas, Nevada
Tahoe Regional Planning Agency	Stateline, Nevada
Tahoe Transportation District	Stateline, Nevada
Tennessee Department of Transportation	Nashville, Tennessee
Texas Transportation Institute	College Station, Texas
Transportation for America	Washington, District of Columbia
Truckee-Donner Public Utility District	Truckee, California
United States Access Board	Washington, District of Columbia
United States Department of Transportation	Washington, District of Columbia
Washington State Department of Transportation	Olympia, Washington
Washoe Regional Transportation Commission	Reno, Nevada

APPENDIX B – Performance Measures

To be released on 7/12/17.

DRAFT

APPENDIX C – Bibliography by Goal

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MEMORANDUM

Date: July 5, 2017
To: Advisory Planning Commission
From: TRPA Staff
Subject: Tahoe-Truckee Plug-in Electric Vehicle Readiness Plan Status Report

Requested Action: No action is required. This is an informational item.

Summary on the Status of the Tahoe-Truckee Plug-in Electric Vehicle Readiness Plan Work:

TRPA staff and the consultant team have finished the deliverables associated with a California Energy Commission grant supporting a partnership between TRPA and the Truckee-Donner Public Utility District to promote the electrification of transportation in the Tahoe-Truckee region. A cross-regional council with participation from public agencies, utility districts, ski resorts, businesses, and recreation stakeholders guided this plug-in electric vehicle readiness planning work. The overarching vision is to establish the Tahoe-Truckee Region as a leader in PEV deployment supported by robust PEV education and engagement; a convenient network of charging infrastructure; streamlined charger installation; standardization of codes; and widespread use of renewable energy resources.

PEVs could transform the region by reducing GHG emissions and vehicle noise and improving air and water quality. When compared to standard cars, PEVs emit up to 70 percent less GHG emissions since they are powered by electricity, which in our region is largely renewable. Renewable energy supplies are expected to increase to meet Nevada’s target for utilities to be 25 percent renewable by 2025 and California’s target to be 50 percent renewable by 2030. Encouraging travel by bus, bike, or foot, and promoting the use of PEVs are all part of this transportation vision.

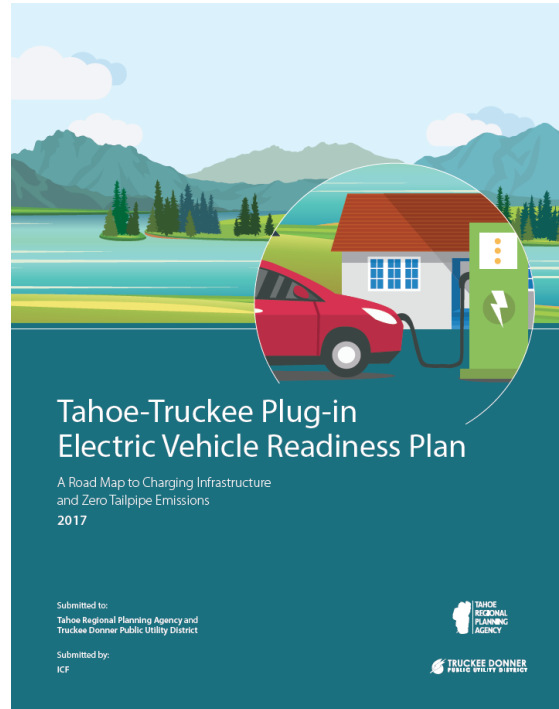


Progress has been made with the release of an action-oriented readiness plan, providing a road map to strategically deploy PEV infrastructure and user-friendly toolkits for utilities, local government, destinations for opportunity charging, and the public. The plan shows that the infrastructure to support PEVs can be improved. According to the plan, half of the charging stations lack public access and few workplaces provide them. There are just 35 charging stations in the region and most require several hours to recharge a vehicle. Most charging is done at home, but publicly accessible and workplace charging options are still needed. In the

process of developing this plan, planners heard common misperceptions about electric vehicles. Consequently, factsheets, a new brochure providing factual information in response to common myths, and a website to better inform consumers has been released as a part of this readiness planning. This work has expanded, with the commission awarding TRPA a second \$104,000 grant to implement the plan.

Key Project Deliverables:

- A new website has been released that provides a central location for all the relevant information, resources, outreach materials, and news about alternative fuel vehicles in the Tahoe-Truckee Region. Learn more about the vehicles, incentives, benefits of driving an electric vehicle, and find a charging station near you at: <http://tahoealternativefuels.com/>
- The final Tahoe-Truckee Plug-in Electric Vehicle Readiness Plan has been released by the Tahoe Regional Planning Agency and Truckee Donner Public Utility District. The final plan is a result of a collaborative planning process to accelerate adoption of electric vehicles in the region. The plan focuses on four main components: Current Deployment and Forecasted Growth; Policies, Programs, Incentives, and Funding; Barriers to PEV adoption; Siting Analysis; and Goals and Plan Implementation. This plan can be retrieved on the project website at: <http://tahoealternativefuels.com/wp-content/uploads/2017/05/Tahoe-Truckee Plug-in Electric Vehicle Readiness Plan 2017.pdf>.



Contact Information:

If you have questions regarding this item, please contact Jennifer Cannon, AICP, Senior Planner, at (775) 589-5297 or jcannon@trpa.org or Devin Middlebrook, Sustainability Program Coordinator, at (775) 589-5230 or dmiddlebrook@trpa.org.

Attached:

- A. Announcement on the Release of the Tahoe-Truckee PEV Readiness Plan.

Attachment A
Tahoe-Truckee Plug-in Electric Vehicle Readiness Plan

Attachment A: Announcement on the Release of the Tahoe-Truckee PEV Readiness Plan

Tahoe-Truckee Plug-in Electric Vehicle Readiness Plan



The final Tahoe-Truckee Plug-in Electric Vehicle Readiness Plan has been released by the Tahoe Regional Planning Agency and Truckee Donner Public Utility District. The final plan is a result of a collaborative planning process to accelerate adoption of electric vehicles in the region.

The plan focuses on four main components:

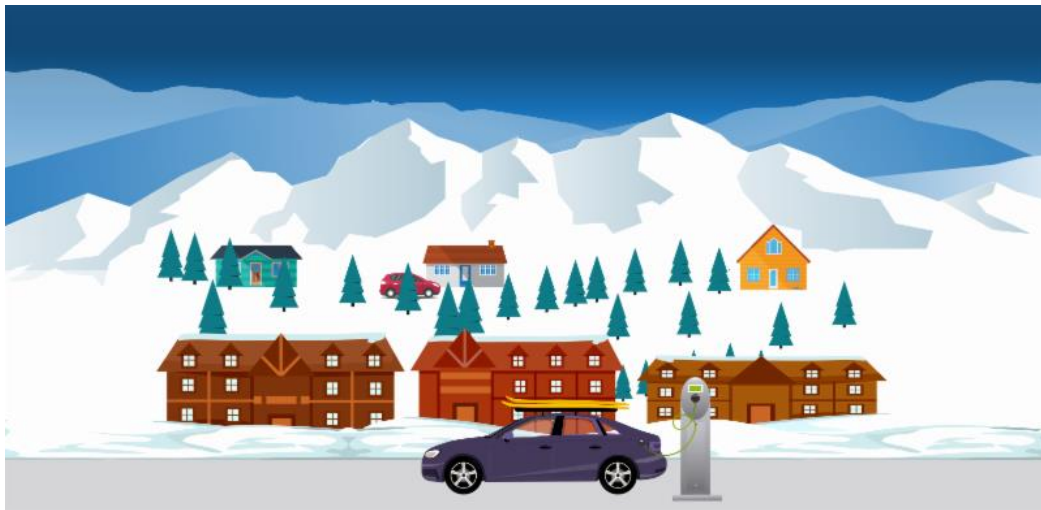
- Current Deployment and Forecasted Growth
- Policies, Programs, Incentives, and Funding
- Barriers to PEV adoption
- Siting Analysis

- Goals and Plan Implementation

[Click here to view to plan implementation timeline and actions](#)

[Click here to download and read the full plan](#)

TahoeAlternativeFuels.com Launched



Check out the new website for electric vehicle resources in the Tahoe-Truckee Region at www.tahoealternativefuels.com.

This website is the central location for all information and news about alternative fuel vehicles in the Tahoe-Truckee Region. Learn more about the vehicles, incentives, benefits of driving an EV, and find a charging station near you.

Find the Right Toolkit for you



Do your part to accelerate electric vehicles in the region. Sector specific toolkits were created to assist the following with installing, using, and promoting electric vehicles and chargers.

- Residents & Visitors
- Local Government
- Destinations
- Utilities
- Fleet Managers

Visit www.tahoealternativefuels.com/toolkits today and download your sector specific toolkit.

Your Support is Needed to Implement the Plan



- Become a charging destination
- Upgrade your fleet
- Streamline permitting
- Help promote electric vehicles
- Receive funding to support charging stations

If interested, please contact Devin Middlebrook at dmiddlebrook@trpa.org or (775) 589-5230 or Jennifer Cannon at jcannon@trpa.org or (775) 589-5297.

STAY CONNECTED:



