



BAY TO TAHOE BASIN RECREATION AND TOURISM TRAVEL IMPACT STUDY

El Dorado County Transportation Commission

The purpose of this Study was to: evaluate the impacts of regional tourism travel on the highway system within the Study Area, evaluate the existing and future tourism market, associated impacts and needs based upon existing conditions, and to provide an evaluation of existing transportation funding sources and programs and likely future funding opportunities.

TABLE OF CONTENTS

1	Introduction	1-1
1.1	Study Overview and Purpose	1-2
1.2	Tourism Overview.....	1-4
1.3	Project Partners.....	1-4
1.4	Study Development and Content	1-5
2	Existing Conditions	2-1
2.1	State Route 49	2-3
2.2	United States Highway 50	2-4
2.3	Interstate 80	2-6
2.4	State Route 89	2-8
2.5	Other Highways Within Study Area.....	2-9
3	Public Opinion and Research Study	3-1
3.1	User Surveys	3-1
3.2	Opinion Polling	3-4
3.3	Implementation of the Public Opinion and Research Study	3-9
4	Economic Analysis	4-1
4.1	Tourism Activities	4-2
4.2	Geographical Areas Evaluated In the Market Study:	4-4
4.3	Tourism Trends.....	4-6
4.4	Assessment of Tourism Performance.....	4-8
4.5	Implementation of the Market Study findings.....	4-10
5	Traffic Data Collection	5-1
5.1	Bluetooth Data Collection Technology Overview.....	5-1
5.2	Bluetooth Sensor Deployment	5-2
5.3	Bluetooth Tourist and Commuter Data Analysis.....	5-5
5.4	Speed Analysis.....	5-11
5.5	Implementation of the Traffic Data Collection.....	5-11
6	Tourism Impacts and Recommended Improvements	6-1
6.1	Tourism Impacts.....	6-1
6.2	Measures to Address Tourism Impacts And Improve the Traveler Experience	6-4
6.3	Consistency with Existing Planning Efforts.....	6-9
6.4	Implementation of the Tourism Impacts and Recommendations	6-11
7	Funding Analysis & Performance Measures	7-1
7.1	Overview of Existing Funding	7-1
7.2	Transportation Funding Sources	7-2
7.3	Transportation Funding Programs.....	7-5
7.4	Future Transportation Funding Opportunities.....	7-8

7.5	Implementation of Funding Related Efforts.....	7-11
8	Implementation of Study	8-1
8.1	Performance Measures	8-1
8.2	Guiding Principles.....	8-3
8.3	Implementation Summary.....	8-5

LIST OF TABLES

Table 2-1:	SR 49 Existing and Future LOS.....	2-4
Table 2-2:	US 50 Existing and Future LOS.....	2-5
Table 2-3:	Interstate Existing and Future LOS.....	2-7
Table 2-4:	SR 89 Existing and Future LOS.....	2-8
Table 3-1:	Items That Respondents Indicated Are Important To Improve Upon.....	3-7
Table 5-1:	Bluetooth Sensor Locations.....	5-3
Table 5-2:	Zone Assignments For Bluetooth Stations	5-5
Table 6-1:	Overarching Themes Of Affected Agency Transportation Planning Documents	6-11
Table 8-1:	Quantitative Measures.....	8-2
Table 8-2:	Summary Of Recommendations.....	8-6

List of Figures

Figure 1-1:	Project Area Study Map	1-3
Figure 2-1:	Major Highways Within Study Area	2-2
Figure 3-1:	User Survey Percentage of Respondents That Have Visited Tahoe.....	3-1
Figure 3-2:	Percentage of Respondents Indicating Route Used to Travel to the Tahoe Area.....	3-2
Figure 3-3:	Percentage Of Respondents Indicating Travel Time Of Year	3-3
Figure 3-4:	Percentage Of Respondents Indicated Number Of Times Per Year Travelled	3-3
Figure 3-5:	Route Use By Season.....	3-5
Figure 3-6:	Percentage Of Respondents That Stop In The Communities Surrounding The Tahoe Basin..	3-6
Figure 3-7:	Likelihood Of Using Public Transit.....	3-8
Figure 4-1:	Total Annual Travel Expenditures*	4-7
Figure 4-2:	Summary Of Tot Collections By County	4-8
Figure 5-1:	Sensor Location Map.....	5-4
Figure 5-2:	Map of Zone Assignments.....	5-6
Figure 5-3:	Percentage Commuters & Tourists Location 1 (Enterprise Blvd/I-80, West Sacramento)	5-8
Figure 5-4:	Percentage Commuters & Tourists Location 8 (Interstate 80/State Route 49).....	5-8
Figure 5-5:	Percentage Commuter & Tourist Location 10 (Schnell School Road/Us 50)	5-9
Figure 5-6:	Percentage Commuter & Tourist Location 16 (State Route 89 Tahoe City)	5-10
Figure 5-7:	Percentage Commuters & Tourists Location 19 (Us 50 Near Stateline)	5-11

1 INTRODUCTION

A transportation network functions properly when it forms vital social and economic connections. This is especially true when a region's economy is tourism dependent. The success of a specific tourism market is largely tied to the supporting transportation infrastructure. Simply put, if tourists cannot easily reach a tourist destination it is unlikely that they would chose to go there in the first place. As such, transportation policies significantly impact the accessibility, amount and type of tourist destinations available to tourists, and the overall health of a region's tourism market and associated economy. In some sense, the relationship that transportation has with tourism, is circular. Improved transportation facilities can create growth in tourism and the expansion of tourism opportunities can result in increased use of the transportation system.

Overtime, increased use of a transportation system, as a result of tourism, can result in increased congestion, impacts to the physical integrity of the roadway network, increased environmental degradation, and impacts to the surrounding communities.

Transportation policies significantly impact the accessibility, amount and type of tourist destinations available to tourists, and the overall health of a region's tourism market and associated economy.

Rural transportation systems are even more likely, than their urban counterparts, to experience negative impacts associated with tourism. Those responsible for rural transportation systems, typically find that they maintain and operate a disproportionate number or lane mile in comparison to the resident population. As most transportation funding programs allocate funds based on formulas that factor in the resident population, rural transportation jurisdictions that serve high tourism areas, often find that traditional transportation funding programs do not adequately address the needs of the transportation system and the system users.

Rural transportation systems are typically a system of disconnected and uncoordinated parts. Most roads are funded and maintained through a combination of local, state, and, federal funding sources and programs. The economies of rural communities that are located in or near popular tourist destinations or regions, are often times dependent on the health of the tourism market. As such, rural transportation systems are essential for not only connecting people to jobs, health care, and family in a way that enhances their quality of life, but also for contributing to regional economic growth and development by connecting business to customers, goods to markets, and tourists to destinations. Ultimately, transportation is a rural community's essential connection to the region. If the public sector does not cope with the tourism demand in terms of transportation infrastructure, the tourist industry and the economies that rely on the tourism industry may be severely impaired.

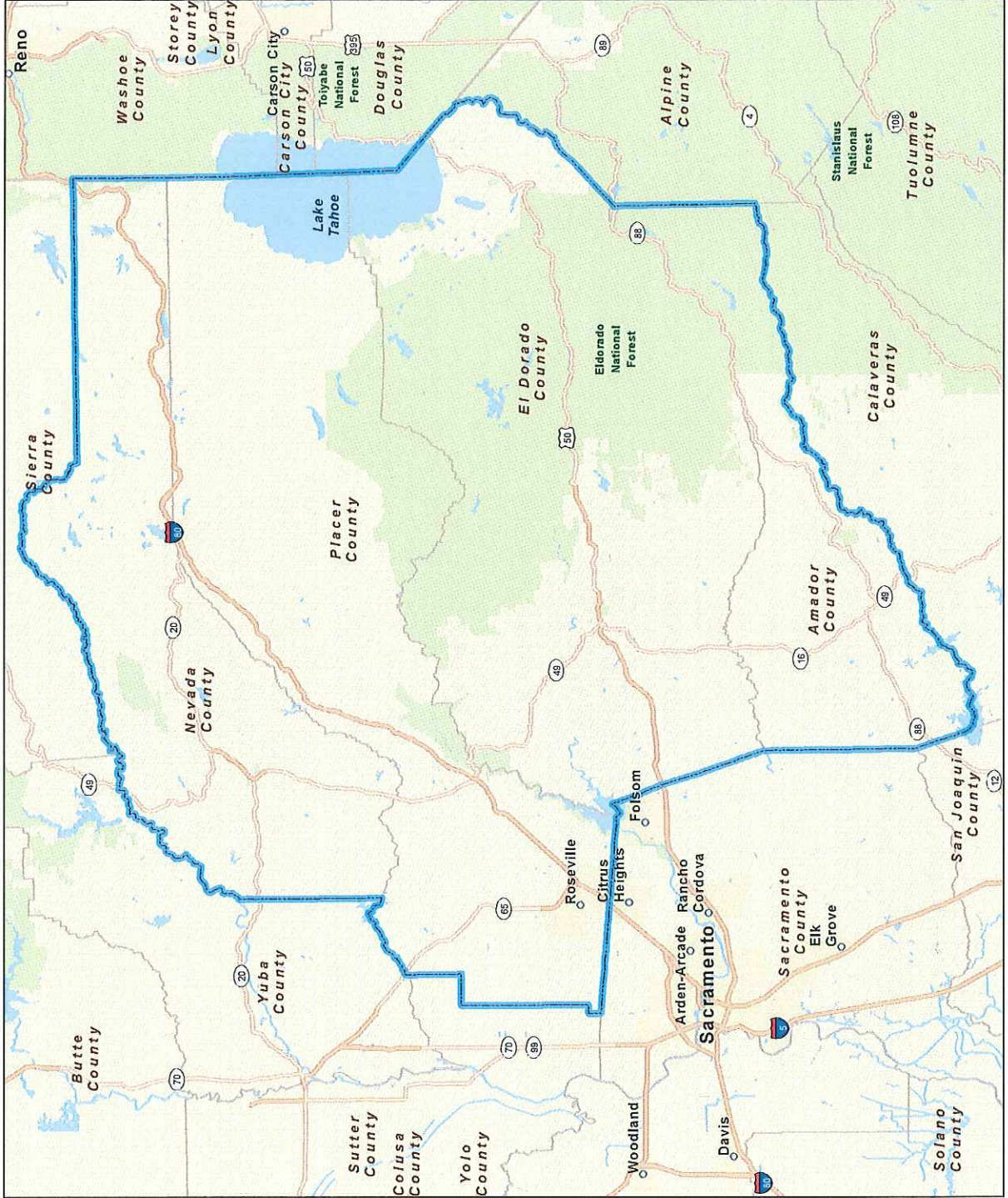
1.1 STUDY OVERVIEW AND PURPOSE

The El Dorado County Transportation Commission (EDCTC) was awarded a California Department of Transportation (Caltrans) Partnership Planning grant funding to execute the Bay to Tahoe Basin Recreation and Tourism Travel Impact Study (Study). The Study began in April 2014, with the majority of the data collection completed during the summer and fall months of 2013. The purpose of this Study was to evaluate the impacts of regional and interregional tourism travel on the rural state highway system within the Study Area, evaluate the existing and future tourism market, associated impacts and needs based upon existing conditions, and to provide an evaluation of existing transportation funding sources and programs and likely future funding opportunities. The Study Area consists of Interstate 80, US 50, and State Routes 20, 49, 88, 89, 193, and 267, within El Dorado, Placer, Amador, and Nevada Counties (Please refer to **Figure 1-1**, Project Study Area Map).

For the purposes of receiving state and federal funding for transportation, El Dorado County, along with Nevada and Amador Counties, and a portion of Placer County are considered rural counties. Transportation is funded, at the local level, through a myriad of different local, state, and federal funding sources. For many of these programs, funding is awarded based upon population and number of lane miles in a given jurisdiction. As such, rural counties within the Study Area that have low populations receive a lower level of funding than their populous counterparts.

This Study establishes a technical framework that supports the development of a more reasonable short and long term transportation funding strategy that does not focus only on the resident based users of the transportation system but the transient tourist and recreation users as well. Accurately defining the proportion of daily traffic that is associated with tourism, the impacts caused by tourism traffic, and the transportation needs of the tourist, will assist decision makers through informed planning, maintenance, and funding decisions and more accurately define funding requirements required to address congestion, operation, and condition of the highways within the Study Area.

**Bay to Basin Recreation and Tourism
Rural Roadway Impact Study
Project Study Area Map**
(May 2014)
Map Feature Key



1 inch = 50,000 feet
0 4 8 12 16 Miles



Figure 1-1

1.2 TOURISM OVERVIEW

Transportation is an essential part of any tourism industry. Without adequate transportation infrastructure, tourism would not be possible. For decades the tourism industry has been a major contributor to economic vitality throughout the region and specifically within the Study Area. It has created jobs in both large and small communities in the region and is a major industry in many places, such as: South Lake Tahoe, Tahoe City, Placerville, and the Apple Hill area. Although tourism is an integral part of the regional economy, prior to this Study, the impacts of tourism on the regions infrastructure is not widely understood.

The transportation infrastructure within the Study Area is the backbone of the tourism industry, a key component for the continued growth of tourism and the associated economy, and supports interregional connectivity between nationally significant recreation resources and the urban population centers of the Bay Area and Sacramento. The highway system provides access to recreational and commercial tourism sites and as such, the continued success of regional tourism and the associated economy depends on safe, comfortable, accessible and well-maintained roads, bridges, non motorized options, and public transit.

Historically, the corridors within the Study Area have been analyzed, planned for, and funded based upon the “resident” population and existing lane miles of travel. Largely rural jurisdictions (such as those located within the Study Area) that are characterized by low residential populations and high external tourist traffic (transient populations) experience difficulties funding the necessary maintenance/upkeep, operational improvements and/or capacity enhancement required to address the impacts caused by increased tourist traffic. Traditional funding mechanisms are based on the conventional resident population based prorated share of State/inter-regional funds and do not account for impacts caused by the transient population bases (in this case tourists).

1.3 PROJECT PARTNERS

EDCTC is the designated Regional Transportation Planning Agency (RTPA) for El Dorado County and is responsible for coordinating regional transportation planning for the western slope, excluding the Tahoe Basin, of El Dorado County. Being the State-mandated RTPA, EDCTC prepares the Regional Transportation Plan (RTP). EDCTC serves as the planning and programming authority for transportation projects on the western slope of El Dorado County, excluding those areas within the Tahoe Regional Planning Agency (TRPA) boundaries. Although, EDCTC was the sponsor of this effort it was determined early on that other stakeholders, within the Study Area, would benefit greatly from the Study and as such, were identified as partners in the project.

In an effort to develop a well-rounded comprehensive Study that adequately served all of the identified partners, EDCTC formed a Project Advisory Committee (PAC). The primary purpose of the PAC was to guide the implementation of the Study effort and to:

- Identify expectations for the project to ensure final execution met the needs of all partners.

- Develop informed performance measures for the project that could serve as a platform for future funding opportunities.
- Provide advice on transportation related issues such as use, access, mobility, and operations and maintenance.
- Assist with the development of the scope of work for traffic data collection and phone surveying efforts.
- Review technical information and provide input.
- Review and provide input on the final Study report.
- Suggest approaches for addressing funding deficiencies.
- Suggest approaches for disseminating the completed Study to decision makers.

Members of the PAC represented public agencies and active partners as well as interested stakeholders and included representatives from the following:

- Amador County
- Amador Council of Tourism
- Amador County Transportation Commission
- California Department of Transportation (Caltrans), District 3
- El Dorado County
- El Dorado County Visitors Authority
- El Dorado County Transportation Commission
- Federal Lands
- Lake Tahoe Visitors Authority
- Nevada County Economic Resource Council
- Nevada County Transportation Commission
- Truckee North Tahoe Transportation Management Association (TNTTMA)
- Placer County
- Placer County Transportation Planning Agency (PCTPA)
- Placer Valley Tourism
- Sacramento Area Council of Governments (SACOG)
- South Shore Transportation Management Association (SSTMA)
- Tahoe Transportation District (TTD)
- Tahoe Regional Planning Agency (TRPA)
- US Forest Service

1.4 STUDY DEVELOPMENT AND CONTENT

The development of this study was a multi-pronged effort; which included significant upfront analysis. It was determined early on that in order to fully understand the impact that tourism has on the transportation system within the Study Area, it would be necessary to develop a better understanding of where visitors to the area originate from, how they typically access tourist destinations within the Study Area, and what are the transportation related needs of the visitor. Additionally, it was important to

evaluate the existing tourism market, the impact that tourism has on the region's overall economy and the localized economies, and to analyze the likely future of the tourism market. To develop these evaluations the following independent research activities were completed: A Public Opinion and Research Study (Section 3); the development of a Tourism Market Study (Section 4), and a Traffic Data Collection effort (Section 5). These activities and the results are discussed in subsequent sections of this document.

Upon completion of the research portion of the study, tourism related impacts to the transportation network within the Study Area were analyzed. The analysis consisted of interviewing owners and operators of the roadways within the Study Area, review of maintenance, operational, and roadway condition documentation, and review of the information obtained from the research portion of the study. The Tourist Impact Analysis is contained in Section 6. In addition to an analysis of the impacts to the transportation network associated with tourism, recommendations to address the identified impacts were also developed. Upon completion of the impact analysis and independent transportation funding analysis was completed. The funding analysis included an evaluation of: existing sources of transportation funding and future availability, transportation funding programs, and likely transportation funding opportunities. The results of this evaluation is contained in Section 7.

Lastly, an implementation strategy for the recommendations contained in this study is provided in Section 8. In order for the implementation of this effort to result in an effective and positive impact, it will be necessary to coalesce resources, input, and assets across the multiple jurisdictional agencies within the Study Area and the many private stakeholders that are directly impacted by tourism within the region. With careful thought and planning, it will not only be possible to address existing tourism related impacts but it will also be possible to ensure the transportation network within the Study Area can adequately handle increases in future tourism related travel while maintaining efficient capacity and operations for the local residents. Thereby providing protection to the regional economies that very much rely upon tourism.

2 EXISTING CONDITIONS

The Study Area is composed of four main areas: Amador, El Dorado, and Nevada counties and the rural portions of Placer County. The U.S. Census Bureau defines Rural as “all territory, population, and housing units located outside of urbanized areas and urban clusters. Urbanized areas include populations of at least 50,000, and urban clusters include populations between 2,500 and 50,000. The core areas of both urbanized areas and urban clusters are defined based on a population density of 1,000 per square mile and then certain blocks adjacent to them are added that have at least 500 persons per square mile.”¹ Counties that have both rural and urban areas, still receive the rural designation even though they have urban centers.

Each of the areas within the Study Area are characterized by low population density and size, greater distances between population centers, steep grades and mountain passes, dramatic weather events and road conditions, and diversity in land geography. It is challenging to maintain roads and provide transit service to a small population over this large area. Furthermore, non-motorized transportation options are limited and hindered by the elevation gain and winding limited sight distance roadways. While, urban jurisdictions typically identify improving congestion, level of service, and modal choice as top priorities; rural jurisdictions place greater priority on maintenance, preservation of the existing system, connectivity, public transit access, and safety. Rural jurisdictions typically have more lane miles to operate and maintain on more constrained resources.

Amador, El Dorado, Placer and Nevada Counties (Four Counties) are located within the middle of the eastern border of the State of California. The state highway system, within the Study Area, is located within the California Department of Transportation’s (Caltrans), District 3’s jurisdiction. The following describes the major roadways within the Study Area that currently provide primary transportation circulation, which accommodates, vehicles, and in some areas bicycles, pedestrian, and public transportation systems. **Figure 2-1** provides a map illustrating the major highways within the Study Area.

¹ <http://ruralhealth.stanford.edu/health-pros/factsheets/>, Rural Health Fact Sheet

**Bay to Basin Recreation and Tourism
Rural Roadway Impact Study**
Major Highways
(May 2014)

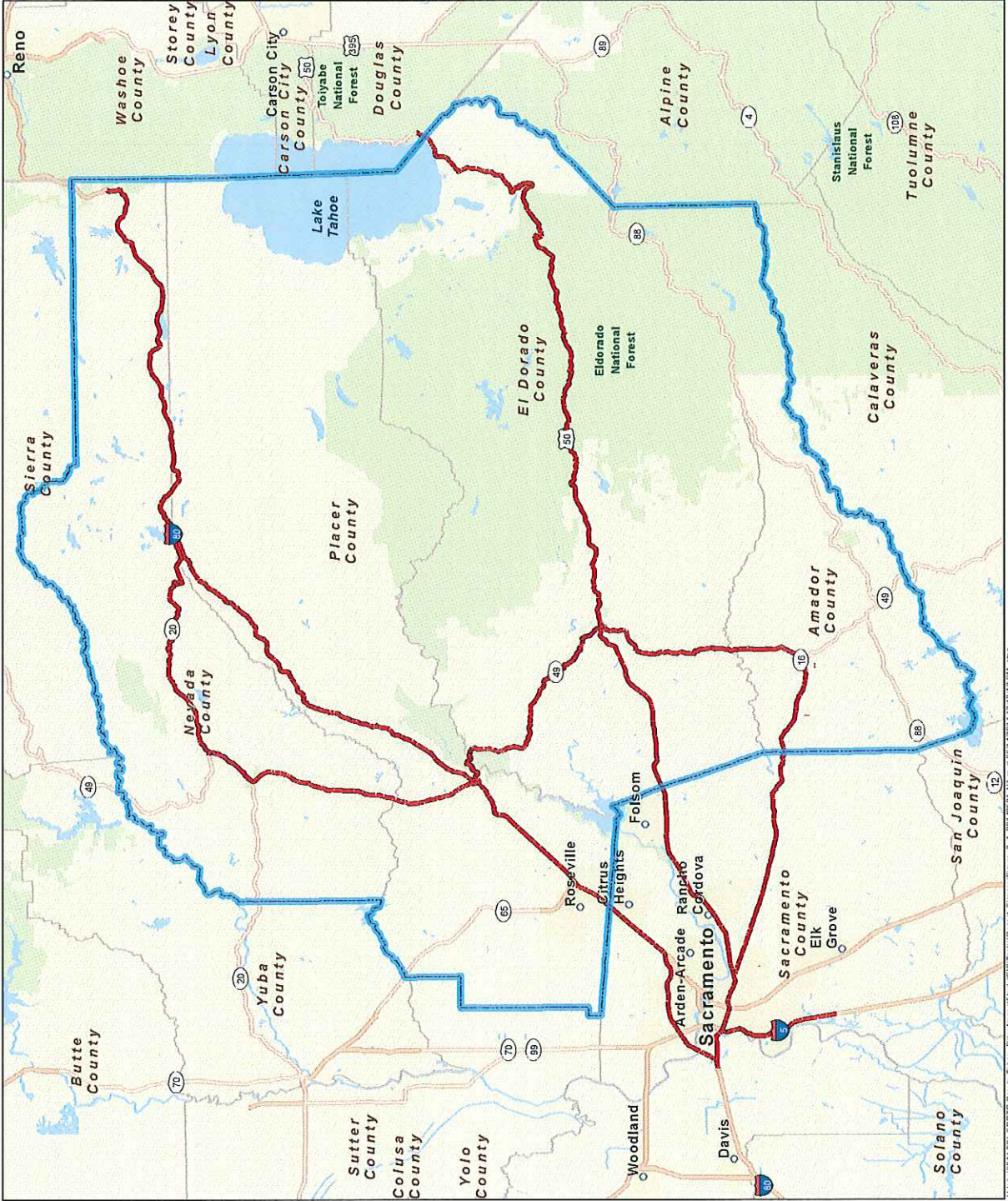
Map Feature Key

- Study Highways
- Project Study Area

1 inch = 50,000 feet



Figure 2-1



J:\Jobs\5541001-EDCTC\Bay-to-Basin_RoadwayImpactStudy\GIS\StateReport_Figures\Figure_2-1_30142601.dwg and 6/14/2014 12:13:10 PM

2.1 STATE ROUTE 49

General Description: State Route (SR) 49 is a north–south state highway that passes through many historic mining communities of the 1849 California gold rush. SR 49 enters into the Study Area in Amador County where it continues north through El Dorado, Placer, and Nevada counties. In Amador County, SR 49 then intersects the eastern end of SR 16 before passing through the city of Plymouth. The highway continues through Enterprise before crossing into El Dorado County and passing through the towns of Nashville, El Dorado, and Diamond Springs before entering Placerville. Entering Placerville, SR 49 traverses downtown on Pacific Street and Main Street before continuing onto Spring Street, where it intersects the US 50 expressway at-grade before continuing north.

As SR 49 leaves the Placerville City Limits, it intersects the southern terminus of SR 193 before continuing northwest into the town of Coloma and the Marshall Gold Discovery State Park. The highway continues through Lotus before turning north at Pilot Hill and intersecting the northern terminus of SR 193 at Cool. SR 49 continues through the Auburn State Recreation Area before crossing into Placer County and entering the city of Auburn as High Street. SR 49 continues onto Lincoln Way before making a turn north and interchanging with I-80. SR 49 continues almost due north out of the Auburn city limits. SR 49 continues north, crossing into Nevada County. SR 49 becomes a freeway and enters the city of Grass Valley, where it runs concurrently with SR 20 until it finally crosses into Yuba County.

SR 49 provides access to many historical tourism and popular recreational sites. In addition, SR 49 connects the numerous small towns, employment centers, schools, healthcare facilities and the County Seats that are located throughout the foothills of the Sierra Nevada's. Most of SR 49 within the Study Area is a two-lane conventional highway and is characterized by topographical constraints; which preclude significantly widening the roadway in most areas to add capacity.

Traffic: The Caltrans District 3, State Route 49 Transportation Concept Report (prepared in September 2000) provides planning information and an analysis of existing and future traffic conditions for the route. Traffic condition is provided using a measurement called Level of Service (LOS). LOS is a measure of traffic density conditions, with "A" representing the least amount of density and "F" the most congested conditions. As shown below in **Table 2-1**, most of the segments were operating at LOS E in the year 2000; the two exceptions were the segment located in Placerville, which was operating at LOS F and the segment of SR 49 that begins at Interstate 80 in Auburn and ends at the Placer Nevada County line, which was operating at LOS D in the year 2000. For the above peak hour LOS, A and B are not needed to provide good conditions.²

² California Department of Transportation, District 3, Transportation Concept Report, September 2000

Table 2-1: SR 49 Existing and Future LOS		
<i>Segment Description</i>	<i>Existing LOS (2000)</i>	<i>Future LOS (2020)</i>
Amador/El Dorado County Line to Union Mine Road	E	F
Union Mine Road to Sacramento Road	E	F
Sacramento Street to SR 193	F	F
SR 193 to the El Dorado/Placer County Line	E	E
El Dorado/Placer County Line to Interstate 80 in Auburn	F	F
Interstate 80 to the Placer/Nevada County Line	D	F
Placer/Nevada County Line to State Route 20	E	F
SR 20 to the Nevada/Yuba County Line	E	F

As shown above in **Table 2-1**, all of the segments, except for one, are predicted to reach full breakdown at LOS F in the year 2020. The segments of SR 49 that pass through population centers area often characterized by narrow roadways, multiple public and private property access points, numerous signalized intersections, and poor site distance which result in significant traffic congestion. Additionally, the portions of SR 49 that are not located in population centers area characterized by rugged topography that make it challenging to construct projects that add capacity to the highway. Many portions of SR 49 in the Study Area have narrow or no shoulders and few areas for slower vehicles to pull over to allow faster travelling vehicles to pass.

Transit: There are multiple providers of transit services along SR 49 within the Study Area. The El Dorado Transit Authority provides general public transit service and offers scheduled fixed-route service, daily commute service to Sacramento, and Dial-A-Ride service. The City of Auburn Public Works operates Auburn Transit; which is a deviated fixed route service that operates within the City of Auburn and portions of unincorporated Placer County. Auburn Transit connects with Placer County Transit, Capital Corridor Train, Gold Country Stage at the Auburn - Conheim Multimodal Station. Placer County Transit also provides transit services from Auburn and within the unincorporated areas of the County. In Nevada County, transit services are provided by the Gold Country Stage and Nevada County Public Works Transit Division, which provides transit services along the SR 49 corridor within Nevada County and connects with other transit services providers in Placer County and the Amtrak depot.

2.2 UNITED STATES HIGHWAY 50

General Description: US Highway 50 (US 50) is a transcontinental route that begins at Interstate 80 in West Sacramento and traverses portions of Yolo, Sacramento, and El Dorado Counties before passing into the State of Nevada. Within the Study Area, US 50 is designated as Scenic Highway from its descent into Downtown Placerville to the western city limit of South Lake Tahoe. US 50 provides access to many recreational and tourism locations in the Sierra Nevada Mountains and Lake Tahoe Basin. Peak commute and recreational travel periods are heavily congested, with demand for travel often exceeding the capacity of existing facilities and services.

The western half of the highway, from I-80 through Sacramento and Placerville to the canyon of the South Fork American River at Riverton, is at least a four-lane divided highway, mostly built to freeway standards. The remainder portion of US 50, passing through the canyon, over the Sierra Nevada at Echo Summit, and into the Lake Tahoe Basin, is a mainly two-lane road. Once US 50 enters South Lake Tahoe, it becomes a four-lane highway that follows along the south shore of Lake Tahoe with numerous access points for public roads and private property. US 50 is subject to adverse weather conditions that often result in chain restrictions, rock, snow, and debris slides, snow removal operations, significant travel time delays, and full closure of the highway.

Long-term planning for US 50 is addressed in two documents prepared by Caltrans in coordination, the US 50 Corridor System Management Plan (CSMP) which addresses segments of US 50 from West Sacramento to the Cedar Grove Exit east of Placerville and the June 2010 Transportation Corridor Concept Report (TCCR) for US 50, which addresses the remainder of the route from the Cedar Grove Exit to the Nevada. US 50 is part of the Interregional Transportation Strategic Plan and is classified as a “High Emphasis Route”, one of Caltrans’ highest priority route designations for interregional routes.³ High Emphasis Routes typically have high priority for funding and programming of improvements required to for the route to maintain its interregional connectivity between urban centers. Although trucks do utilize US 50 within the Study Area, the route cannot accommodate the larger STAA trucks due to the steep terrain, areas of narrow right of way, and many curves.

Traffic: According to the CSMP and the TCCR prepared for the segments of US 50 located within the Study Area, the concept LOS standard for the twenty-year planning horizon is LOS D for rural segments and LOS E for urban segments. **Table 2-2** identifies the existing and future planning year LOS with no improvements for the portions of US 50 that are allocated within the Study Area.

Table 2-2: US 50 Existing and Future LOS		
<i>Segment Description</i>	<i>Existing LOS (2010)</i>	<i>20 –Year LOS (2030)</i>
Cameron Park Drive to Missouri Flat Road	E	F
Missouri Flat Road to End of Freeway in Placerville	D	F
End of Freeway in Placerville to Bedford avenue	D	E
Bedford avenue to Cedar grove Exit	D	F
Cedar Grove Exit to Sly Park Exit	C	C
Sly Park Road to Ice House Road	C	C
Ice House Road to Echo Summit	E	F
Echo Summit to State Route 89	D	F
SR 89 (Luther Pass) to SR 89 North (South “wye”)	E	F
State Route 89 to California/Nevada State Line	C	F

As shown above in **Table 2-2**, all segments are currently operating at an acceptable LOS; however, if no operational or capacity improving projects are constructed, many of the segments will experience a

³ California Department of Transportation, Transportation Corridor Concept Report United States Highway 50, June 2010

decrease in LOS, with some segments experiencing full break-down at LOS F. Due to the high cost of constructing capacity increasing improvements associated with the steep terrain and environmental constraints it is unlikely that such improvements will be constructed. Additionally, the many horizontal curves and narrow sections of right of way paired with drivers that are unfamiliar with the area often result in low speeds and increased travel times. As such, Caltrans is focusing on smaller scale improvements, such as: shoulder paving, routine maintenance, and ITS elements to address traffic congestion and improve traffic operations.

Transit: Public transit services along the US 50 corridor, within the Study Area, are limited to bus services. Bus service is provided by several private operations: the Amtrak throughway bus route, which starts at the Amtrak station in Sacramento and travels along the US 50 Corridor to South Lake Tahoe, Greyhound provides bus service between the Sacramento area and Truckee and there are several smaller private companies that operate ski and gaming shuttles between the Bay Area and Sacramento Regions and the Lake Study Area. Once in South Lake Tahoe, public transit that is operated by the Tahoe Transportation District is available at multiple stops along the US 50 corridor. The El Dorado County Transit Authority operates daily am and pm commuter service on US 50 from El Dorado County into downtown Sacramento. Within the Tahoe Basin the Tahoe Transportation District operates transit services along US 50 and the surrounding community via the BlueGO buses, Nifty50 Trolley, Heavenly Ski shuttles as well as limited service to Carson City and Carson Valley Nevada.

General Description: Interstate 80 is a primary freeway route in California; serving as a major corridor for passenger and goods movement between the Bay Area region, Northern California, the Midwest, and the Eastern United States. Within the Study Area, it is the principal east-west route through Northern California and the sole freeway crossing of the Sierra Nevada range. Within the Study Area, Interstate 80 crosses Placer and Nevada counties and climbs over 7,000 feet in elevation, reaching its peak at the 7,239-foot Donner Summit. As such, Interstate 80 (within the Study Area) is subject to winter operations to address snow removal, chain requirements, and driving restrictions. These conditions can impact the flow of traffic and increase the time of travel for users of the freeway.

Interstate 80 also experiences high volumes of large truck traffic due to its connectivity to seaports, regional distribution centers, and other trucking and shipping businesses along Interstate 80 in the Bay Area, West Sacramento, Sacramento, and Nevada. Interstate 80 is also designated as a National Truck

Network route for Surface Transportation Assistance Act (STAA) trucks and a State Highway Extra Legal Load (SHELL) route. STAA trucks are the largest commercial shipping trucks allowed on the Interstate and they require special consideration for ingress and egress to the highway, and for stopping areas to allow truck drivers to comply with drive time limitations. Interstate 80 is also classified as a Strategic Highway Network (STRAHNET) route by the Department of Defense.⁴ While there are some sections of Interstate 80 within the study that have truck climbing lanes, the high levels of truck traffic do significantly impact traffic flow on the many steep grades present along the route.

⁴ California Department of Transportation, Interstate 80 Transportation Corridor Concept Report, September 2010

Traffic: According to the Caltrans District 3 Transportation Corridor Concept Report (TCCR) , traffic conditions for the segment of Interstate 80 within the Study Area (from State Route 49 to the Nevada/Sierra county line) are primarily influenced by recreational and truck traffic and winter conditions. This determination was further supported by the traffic data collected during the Bluetooth Data Collection and analysis further describe in Section 6 of this document. The TCCR also identifies the existing Level of Service (LOS) for Interstate 80 within the District by segments. ⁵

The segments identified in the TCCR that are located within the Study Area, are Segments 10 through 16; which starts with Segment 10 (beginning at State Route 49 in Auburn) and ends with Segment 15 (at the Nevada/Sierra county line). **Table 2-3** identifies the existing and the twenty-year future LOS with no improvements for each segment located within the Study Area as shown in the Interstate 80 TCCR.

Table 2-3: Interstate 80 Existing and Future LOS		
<i>Description</i>	<i>Existing LOS (2010)</i>	<i>20 –Year LOS (2030)</i>
Segment 10, SR 49 to Applegate Exit	C	F
Segment 11, Applegate Exit to Blue Canyon	E	F
Segment 12, Blue Canyon to Placer/Nevada County Line	D	F
Segment 13, Placer/Nevada County Line to Donner Pass Rd.	C	E
Segment 14, Donner Pass Rd. to Truckee Airport Rd.	D	F
Segment, 15 Truckee Airport Rd. to Nevada/Sierra County	C	D

As shown, all of the segments were operating at an acceptable LOS in the year 2010; however, all of the segments are assumed to operate at full capacity or experience full break-down in traffic flow by year 2030 if no operational or capacity improving projects are constructed. District 3 has established the minimum concept LOS standards for the twenty-year planning horizon at LOS D for rural segments and LOS E for urban segments. The segments within the Study Area are considered rural and therefore the concept LOS would be LOS D. However, for the segments within the Study Area, Caltrans has determined that it is not feasible to achieve LOS D within the twenty year planning horizon, due to lack of funding and the amount of resources associated with constructing large scale capacity improvements in steep terrain. As such, Caltrans and the local agencies that have jurisdiction over the segments of Interstate 80 within the Study Area are focusing on targeted operational improvements, Intelligent Transportation Systems (ITS), transportation demand management (TDM), and active multimodal corridor management strategies to maximize operational capacity.

Transit: Public transit services along the Interstate 80 corridor, within the study, area are limited to bus and train services. Bus service is provided by several private operations: the Amtrak Throughway bus route, which starts at the Amtrak station in Sacramento and travels along the Interstate 80 corridor to Reno, Nevada; Greyhound provides bus service between the Sacramento area and Truckee and there are several smaller private companies that operate ski and gaming shuttles between the Bay Area and Sacramento Regions and the Study Area. Amtrak also operates one train that provides daily service from

⁵ California Department of Transportation, Interstate 80 Transportation Corridor Concept Report, September 2010

the Sacramento area to Auburn and the Amtrak California Zephyr Route stops at multiple locations between the Sacramento area and Truckee.

2.3 STATE ROUTE 89

General Description: State Route (SR) 89 begins at an intersection with US 395 in Mono County, traverses north through Alpine County, before entering into El Dorado County (the Study Area). Once in the Study Area, SR 89 travels north and meets up with US 50 near the town of Meyers. At that point there is a break in the route, until it picks up again in South Lake Tahoe at the intersection of US 50 and SR 89. The route then continues northward, following the west shore of Lake Tahoe. SR 89 provides an important link between the north and south shores of Lake Tahoe. Once in North Lake Tahoe, SR 89 crosses the Truckee River in Tahoe City and intersects with SR 28 before continuing on to the Town of Truckee and intersecting with Interstate 80. Within the Study Area, most of SR 89 is two-lane conventional highway.

SR 89 traverses through an environmental sensitive area as a large section of it runs adjacent to Lake Tahoe’s shoreline. Lake Tahoe is a world renowned environmental and recreational asset and is known throughout the world for being one of the world’s largest and clearest Alpine Lakes. As such, SR 89 experiences significant tourist related traffic.

Traffic: Table 2-4 identifies the LOS as provided by the April 2012 Transportation Corridor Concept Report prepared by Caltrans. As with the US 50 and Interstate 80, the concept LOS for SR 89 is LOS D in rural areas and LOS E in areas where the route transects are population centers.

Table 2-4: SR 89 Existing and Future LOS ⁶		
<i>Segment Description</i>	<i>Existing LOS (2012)</i>	<i>20-Year LOS (2033)</i>
Alpine/El Dorado County Line to US 50	C	C
US 50 SR 89/Junction to Near South Lake Tahoe City Limits	C	D
Near South Lake Tahoe City Limits to El Dorado/Placer County Line	D	D
El Dorado/Placer County Line to SR 28	E	E
State Route 28 to the Placer/Nevada County Line	D	E
Placer/Nevada County Line to Interstate 80	F	F
Interstate 80 to the Nevada/Sierra County Line	C	C

As shown, in Table 2-4, most of the SR 89 segments, within the Study Area, are currently operating at an acceptable LOS; with the exception of the segment of SR 89 that begins at the Placer/Nevada County line to Interstate 80. As previously stated, the concept LOS is LOS D for rural areas and LOS E for the portions of SR 89 that are located within population centers. Additionally, the segments where future growth is not anticipated or is in some way limited, the 20-year LOS remains the same; while the

⁶ California Department of Transportation, State Route 89 Transportation Corridor Concept Report, April 2012

segments that are located in areas that will be subject to growth (either tourism or resident based growth) the 20-year LOS further degrades and for some segments to full breakdown at LOS F.

Transit: Local public transit is provided on SR 89 once it enters the Tahoe Basin. Placer County provides year around transit service through the Study Area Regional Transit (TART), between the Town of Truckee and Tahoe City. During the summer months, a trolley is added to the TART circulation, which provides service between Tahoe City and Tahoma. From Tahoma a rider can connect with transit services operated by the Tahoe Transportation District to travel to South Lake Tahoe. The North Lake Tahoe Express also provides transit services from Tahoe City to several nearby ski resorts. In addition, there are several private shuttles that provide service to ski resorts.

2.4 OTHER HIGHWAYS WITHIN STUDY AREA

In addition to the major highways previously discussed in this section, there are other highways that are integral to the overall connectivity of the region, provide access to population centers and allow for access to the many tourism and recreational opportunities that are located throughout the Study Area. A general description of each of these highways is provided below.

State Route 16: Within the Study Area, the eastern segment of SR 16 begins at US 50 east of Sacramento. SR 16 then heads east through Perkins, as Jackson Road, and after it passes Rancho Murieta, where it crosses the Cosumnes River, SR 16 enters Amador County. SR 16 then ascends into the Sierra Nevada foothills, leaving the Central Valley. State Route 16 is of regional significance as it provides connectivity between population centers in the foothills and is heavily used by visitors to access the many agritourism operations and recreational areas located throughout Amador and El Dorado Counties.

State Route 20: SR 20 is an east–west highway that crosses the state across the state north of Sacramento. It begins in Fort Bragg, from where it heads east past Clear Lake, Colusa, Yuba City, Marysville, and Nevada City until it meets up with Interstate 80 near Emigrant Gap, where eastbound traffic can continue on other routes to Lake Tahoe or Nevada. SR 20 is mainly a two-lane highway that serves regional, interregional, commute, commercial, agricultural, and recreational traffic. In Nevada County, SR 20 passes through the urban centers of Grass Valley and Nevada City where it is a 4-lane freeway with auxiliary lanes between some interchanges. Beyond Nevada City the route is a two-lane conventional facility that passes through rural, mountainous Nevada County. Operational improvements will be needed, but capacity expansion is not expected to be necessary.

State Route 28: SR 28 is located in Placer County and is a two lane highway that travels along the northern shore of Lake Tahoe, starting at State Route 89 in Tahoe City and ending at the Nevada state border, whereupon it becomes Nevada State Route 28. State Route 28 experiences significant congestion during peak tourism seasons which causes significant travel time delays. SR 28 is constrained by topography, limited right of way, and environmental sensitivity associate with its close proximity to Lake Tahoe. As such, it not possible mitigate existing congestion with roadway widening; therefore, improvements are focused on pedestrian and bicycle related improvements, transit, safety, and ITS solutions.

State Route 193: SR 193 is a split-section highway, consisting of two sections: an east–west arterial road in Placer County running from Lincoln to Newcastle, just west of Auburn. The other section is a loop to the east off SR 49, which heads eastward from Cool to Georgetown, and then turns south to rejoin SR 49, just north of Placerville. Both segments are characterized by substandard roadway geometrics. The portion of SR 193 between Lincoln and Newcastle is often utilized by large trucks to bypass traffic congestion on SR 65.

State Route 267: SR 267 is a west to east undivided two lane mountain highway 11.7 miles in length that connects Interstate 80 in Truckee in Nevada County to SR 28 at the north shore of Lake Tahoe at Kings Beach in Placer County. The route is part of the Federal Aid Primary System and is classified as a Minor Rural Arterial. The route is of local and regional significance providing access to residential, industrial, commercial and recreational land uses and serves inter-regional, local commuter, and recreational traffic traveling between the Tahoe Basin, Martis Valley, Truckee and I-80. Furthermore, SR 267 provides access to the Truckee-Tahoe Airport, serves as a connecting link between I-80 and the Tahoe Basin, and also serves the community of Incline Village and the east shore of Lake Tahoe. Traffic volumes are projected to increase on SR 267 due to new commercial and residential developments near the Truckee-Tahoe airport, Northstar-At-Tahoe ski area, and various unincorporated locations within Placer County along the corridor. As development and travel demand increase traffic congestion, highway geometrics, maintenance, and bicycle access will need to be addressed.

3 PUBLIC OPINION AND RESEARCH STUDY

In order to determine the travel habits of tourists who utilize the roadway network within the Study Area, a Public Opinion and Research study was conducted by ESI, Inc. and The Cromer Group. The study included two phases; Phase I consisted of user surveys and Phase II consisted of more in-depth polling (interviews). Initial research determined that there is strong correlation between place of primary residence of individuals that own second homes and the location of primary residence of general tourists. The three geographical areas with the greatest number of second-homeowners in the Tahoe Basin are Sacramento, San Francisco, and San Jose. Therefore, it was assumed that those three communities would also represent the largest groups of visitors to the general Tahoe region as well. Based on these assumptions, the User Surveys and Polling were conducted in these communities.

3.1 USER SURVEYS

The user surveys and polling were conducted in two phases: Phase I, the User Surveys, consisted of automatic phone calls that were placed in the three major metropolitan areas previously identified: Sacramento, San Jose, San Francisco and Sacramento. The primary goal of the User Surveys was to determine the travel habits of these visitors to the Study Area and to identify specific households in these three population centers who have visited the Study Area.

During June 2013, 30,000 automated calls were made; 10,000 in each of the three identified major metropolitan areas. In total, 2,538 people responded to the automated survey calls. As shown below in **Figure 3-1** and consistent with previous polling efforts, it was found that in Sacramento, 69 percent of respondents have been to the Study Area; 70 percent of respondents from San Francisco have been to the Study Area and in San Jose the number of respondents that have been to the Study Area, was a little less at 62 percent.

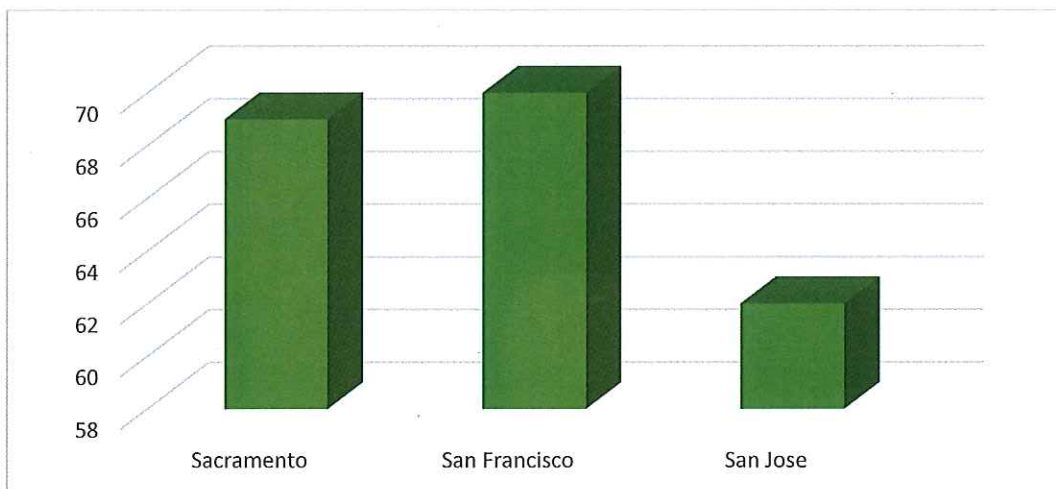


Figure 3-1: User Survey Percentage of Respondents That Have Visited Tahoe

Additionally, most of the respondents that confirmed they have visited the Study Area, indicated that they have visited the Study Area within the last five years. Many respondents also indicated that they

visit the Study Area two or more times per year. In the Sacramento area, 45 percent of the respondents indicated that they visit the Study Area two or more times per year and in the other two cities, approximately 30 percent indicated that they visit two or more times per year.

The User Survey also determined the route or transportation mode that respondents traditionally used to travel to the Study Area. As shown below in **Figure 3-2**, respondents from Sacramento primarily use US 50; while respondents from San Jose primarily use Interstate 80. However, respondents from San Francisco indicated that they have a higher likelihood, than respondents from both Sacramento and San Jose, to use US 50 and Interstate 80 fairly evenly. Public transportation use was low for all three geographical areas, as was the use of State Route 88, to travel to the Study Area. However, it was expected that the use of State Route 88 would be low, as it would not be an efficient way to travel from any of the three Cities surveyed.

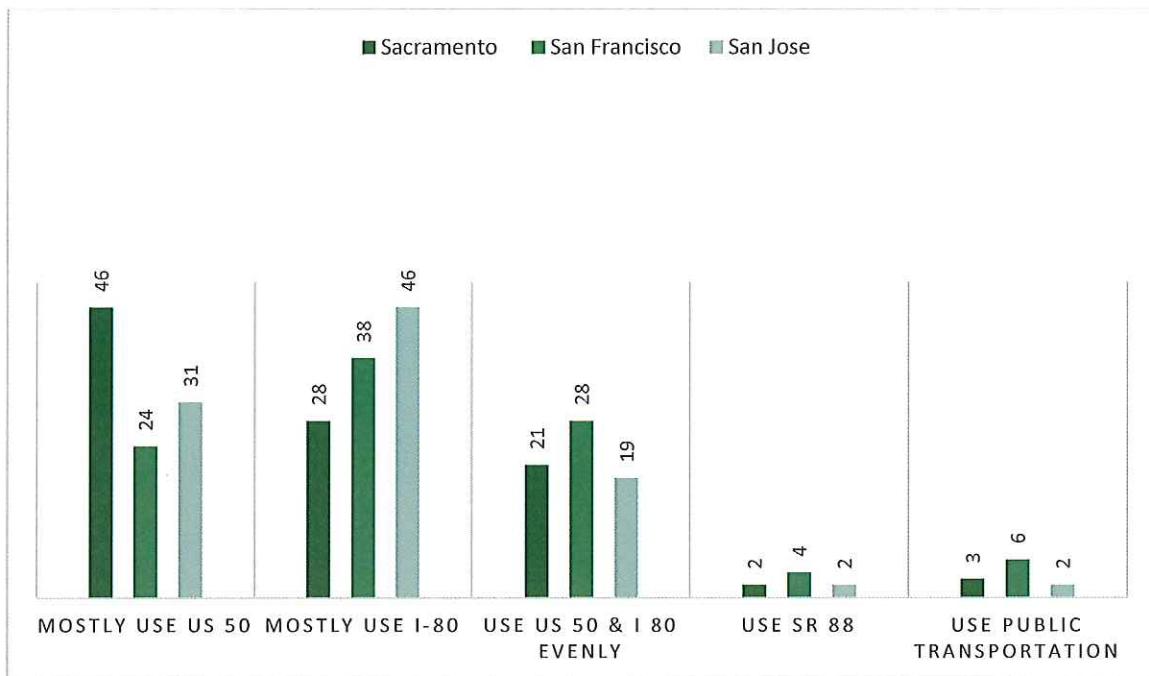


Figure 3-2: Percentage of Respondents Indicating Route Used to Travel to the Tahoe Area

To better define travel needs, it was determined that it would be beneficial to understand what time of the year people were more likely to visit the Study Area. The travel routes within the Study Area are subject to seasonal traffic concerns; whether it be full road closure, chain restrictions, or reduced speed associated with snowfall. As shown in **Figure 3-3**, respondents indicated that overall they travel to the Study Area more during the non-winter months. Although, the number of respondents that indicated they travel fairly evenly throughout the year was also fairly high for all three Cities; with San Jose respondents being the highest, with 28 percent of them indicating they travel evenly throughout the year.



Figure 3-3: Percentage Of Respondents Indicating Travel Time Of Year

Finally, the User Survey determined how many times per year that the respondents who indicated they travel to the Study Area, do so. The answers varied for all three cities. Respondents from Sacramento indicated they typically travel one time per year, while respondents from San Francisco indicated that they travel less than one time per year, and respondents from San Jose indicated that they travel the most, with 45 percent of the respondents indicated that they travel more than once per year. **Figure 3-4**, below, identifies the number of times per year the respondents indicated they travel to the Study Area.

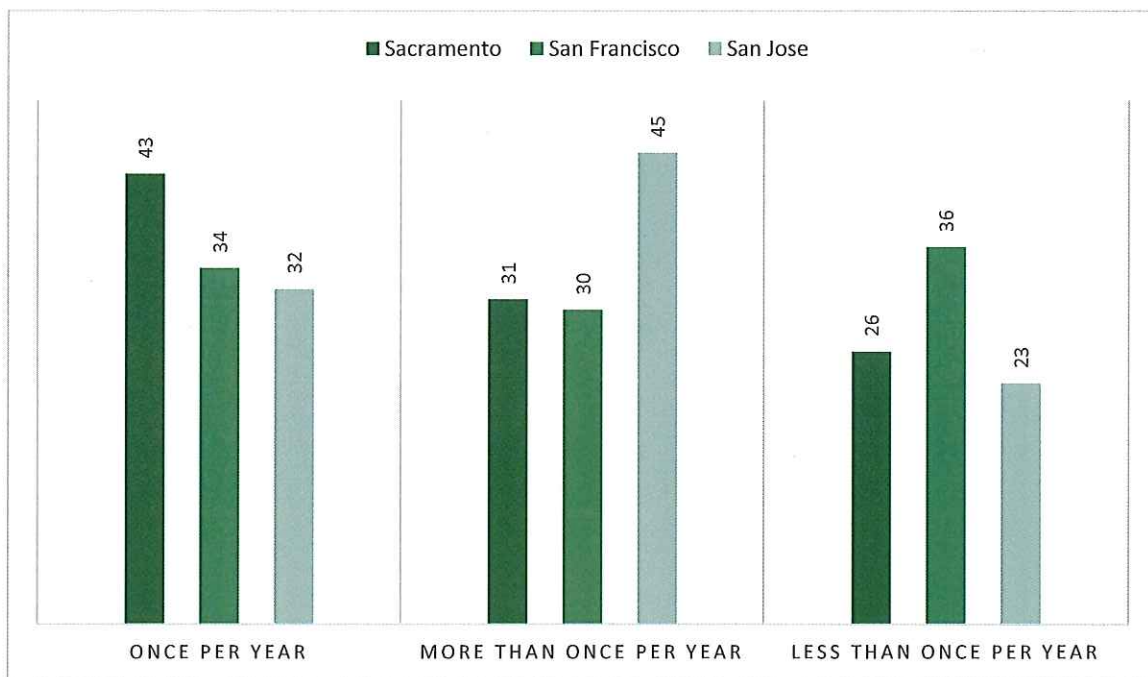


Figure 3-4: Percentage Of Respondents Indicated Number Of Times Per Year Travelled

Phase I of the Public Opinion and Research study revealed the extent of the adult population base in the three metropolitan areas that visit and/or

Over 4 million visitors, make close to 8 million trips annually to the Study Area.

vacation in the Study Area; it also

provided valuable information indicating the frequency of visits that occur over the course of a year. The data obtained by the User Surveys was extrapolated over the entire populations (using the 2010 Census data) that live in each of the three metropolitan areas to determine the number of visitors that travel to the Study Area from the Sacramento region and the overall Bay Area region. It was determined that 4,155,889 visitors make 7,902,043 visits annually from the combined Bay Area and Sacramento regions.

7

3.2 OPINION POLLING

The User Survey, completed under Phase I of the Public Opinion and Research Study, identified the extent of the population base in each of the geographical areas that have visited the Study Area. Based on this information, the second phase of the Public Opinion and Research Study included the completion of 900 in-depth interviews of respondents who confirmed they had visited the Study Area. To develop the questions that were asked during the Opinion Polling, the PAC was asked to provide input. Members of the PAC identified various categories of questions for the Opinion Polling. The main focus of the questions was to further characterize the visitor to be able to identify their travel needs. The full script that was followed in each of the interviews can be found in **Appendix A**

During the Opinion Polling effort, a little over 300 in-depth interviews were completed in each of the three major metropolitan areas

(Sacramento, San Francisco, and San Jose). The interviews were conducted with respondents that were

905 opinion polling interviews were completed from October 29, 2013 to October 31, 2013.

previously identified to have visited

the Study Area during the User Surveys. The interviews were conducted during the evenings, from October 29, 2013 to October 31, 2013. On average, the interviews lasted 16.25 minutes. A total of 905 interviews were completed: 301 in San Jose, 303 in San Francisco, and 301 in Sacramento. A total of 63 questions were asked during the interviews. The questions that were asked, focused on the following categories: route choice, travel to the communities of the Study Area, activities within surrounding communities, the use of public transportation, and traveler information. The data collected during the public opinion polling is available for use and can be queried in many different manners. The data tables are available in **Appendix B**.

Route Choice: During the interviews, respondents were asked which route was taken if travel was completed during the non-winter, winter months, or if they travelled evenly throughout the year. As shown in **Figure 3-5**, during the non-winter months, US 50 was utilized more frequently; while during

⁷ Kathy Jordan, *California Data Analysis, Need date*

the winter months Interstate 80 was utilized. Respondents, who utilized Interstate 80 during the winter months, indicated that Interstate 80 had better road conditions, was an easier drive, had greater availability of services and had less traffic congestion than US 50. That being said, US 50 had a substantial edge over Interstate 80 for having “a more scenic drive” – by a 3:1 margin. Public transportation use was low amongst all respondents, regardless of what time of year they travelled.⁸

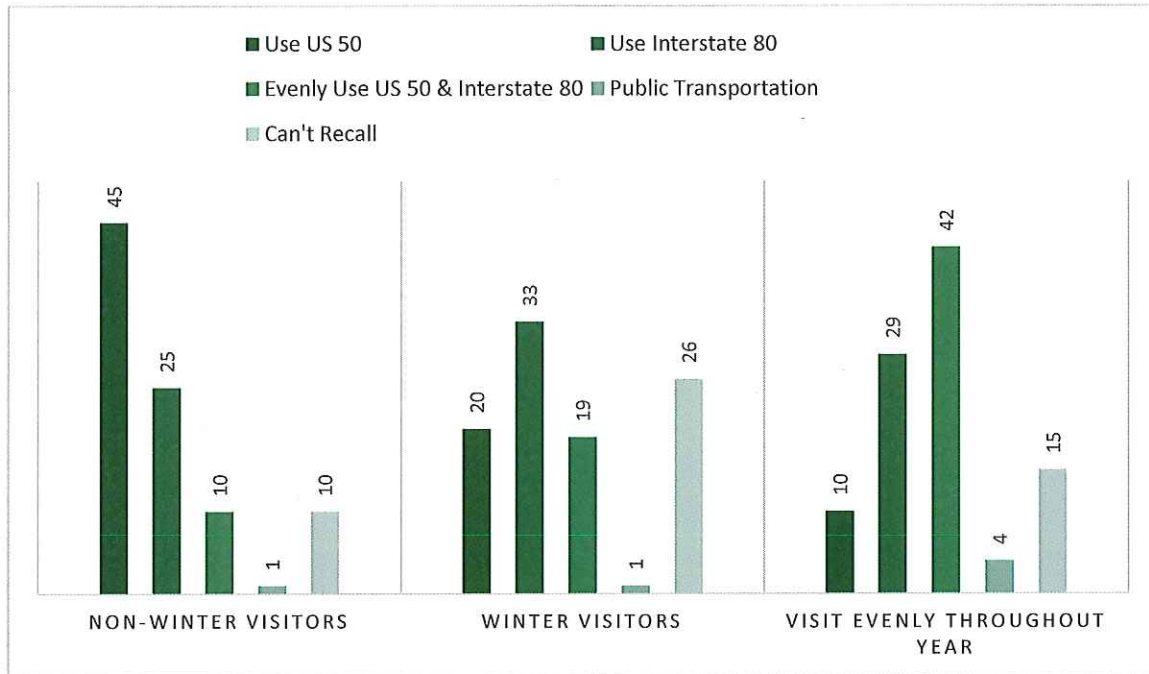


Figure 3-5: Route Use By Season

Travel to Rural Communities: As shown in Figure 3-6, two thirds of the respondents indicated that they do not stop, on their way to the Tahoe Basin within the Study Area, in any of the surrounding communities and that they drive straight through. Only 30 percent of respondents indicated that they stop at recreation and tourism locales on the way.

⁸ William M. Cromer, *Analysis of the Public Opinion Studies of the Bay-to-Basin Project Memorandum*, November 14, 2013

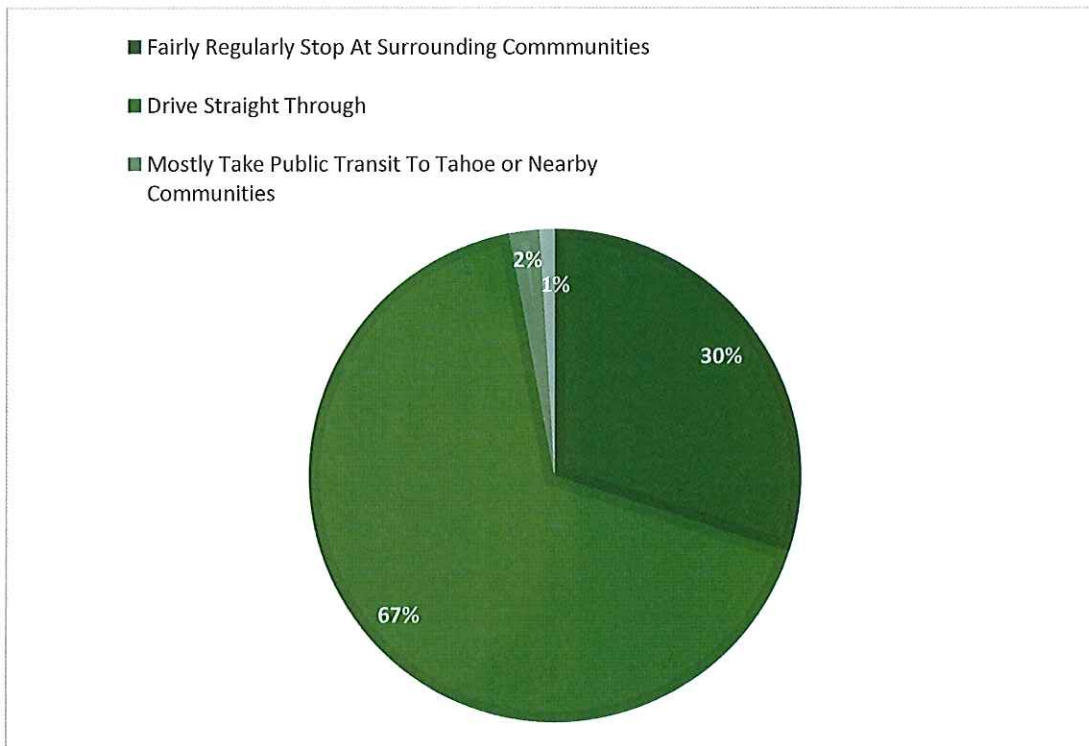


Figure 3-6: Percentage Of Respondents That Stop In The Communities Surrounding The Tahoe Basin

The respondents were then asked to identify items that could be improved upon to help increase the likelihood of stopping in one of the nearby communities. Please refer to **Table 3-1** below. Improved hotel accommodations and improved restaurants ranked the highest, with 44 percent and 43 percent of respondents, respectively, indicating that

they were very important. Among the items related to transportation improvements that had the highest percentage of respondents that indicated they were very important, were:

improved signage, better public transit, and more parking. Better lighting ranked

the highest in the somewhat important category. This data suggests that transportation implementing agencies should focus improvements on the transportation related items that had a high percentage of respondents that ranked them as very important to address tourist needs and to improve the likelihood of visitors stopping in the communities throughout the Study Area.

Invest in improved signage, better public transit, better lighting and more parking to increase tourism in the communities surrounding the Tahoe Region.

Table 3-1: Items That Respondents Indicated Are Important To Improve Upon

	<i>Very Important</i>	<i>Somewhat Important</i>	<i>Not too Important</i>	<i>Not Important</i>	<i>Can't Say</i>
<i>Improve Hotel Accommodations</i>	44%	12%	11%	26%	6%
<i>More Parking</i>	36%	21%	13%	15%	15%
<i>Improve Access</i>	40%	18%	23%	12%	7%
<i>Better Signage</i>	39%	23%	21%	10%	6%
<i>Better Lighting</i>	16%	31%	25%	17%	11%
<i>Easier Parking</i>	29%	23%	25%	17%	6%
<i>Better Roadways</i>	32%	23%	22%	18%	6%
<i>Better Public Transit</i>	38%	18%	19%	18%	7%
<i>More Restaurants</i>	43%	24%	19%	8%	6%

Activities in Rural Communities: The economies of the Study Area are largely dependent on the tourism market. As such, the respondents were asked about their familiarity with thirteen activities offered throughout the region:

- Wine tasting or tour a winery
- Fishing and/or hunting
- Participate in Agritourism
- White water rafting
- Rock climbing
- Mountain biking or hiking
- Gold panning
- Camping
- Shopping
- Casino Gaming
- Sight seeing
- Tour of a historical site
- Unique restaurant or culinary experience

The respondents showed a high awareness (over 70 percent) of many activities; such as: fishing, mountain biking/hiking, camping, shopping, gaming, site seeing, and tours of historical sites. There was a lower awareness (40 percent or more of respondents were unaware that an activity was available) for activities, such as: wine tasting and wine tours, agritourism, gold panning, and local restaurants and unique culinary experiences.

The respondents, were then asked the likelihood that they would consider stopping for any of the activities, either going to or coming from Tahoe. Respondents were asked whether or not they were highly likely to stop, somewhat likely to stop, not too likely; or not likely at all to stop. On average, half of the respondents indicated that they would be highly or somewhat likely to try out one or more of the thirteen activities that are offered in the communities that surround the Study Area. The two activities that had the highest percentage of respondents that indicated that they were highly likely to stop for, were: restaurants or a unique culinary experience (53 percent) and shopping (52 percent). The two activities that had the lowest percentage of respondents that indicated they would stop, were: agritourism (52 percent) and white water rafting and wine tasting were tied (50 percent each). When

comparing awareness of agritourism to the likelihood of stopping for the activity; awareness of agritourism also had the lowest percentage of any of the thirteen activities.

Public Transit: The respondents were asked whether or not they would utilize public transportation to and from the Lake Study Area, if it were more accessible and easier to use. As shown in **Figure 3-7**, over half of the respondents stated that they would use Public Transit if it were accessible and easier to use. 36 percent of the respondents also indicated that they would increase the number of visits to the Study Area, if public transit were easier to access and easier to use.

More accessible and easier to utilize public transit, would likely result in increased tourism to the Study Area and the surrounding communities.

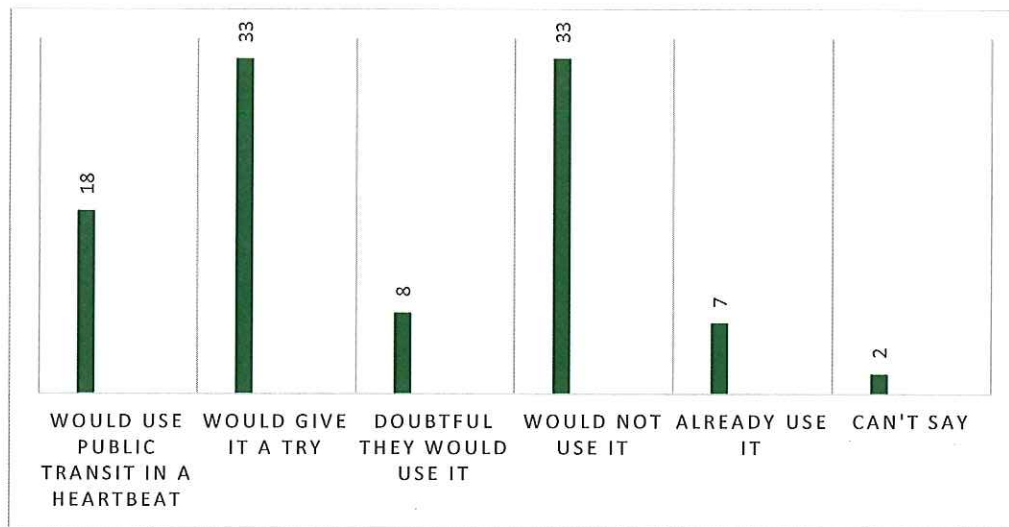


Figure 3-7: Likelihood Of Using Public Transit

Travel Related Information: Respondents were asked how they obtain information related to the activities available in the Study Area. The highest response received (32 percent) was by word of mouth. 19

percent of respondents indicated that they obtain information through the internet (website, trip advisor, or app). This was the second highest response, with the exception of those who indicating they could not say where they obtained information related to activities within and surrounding the Study Area. Those that indicated they utilize their smart phone or tablet to obtain information were more likely to utilize an actual website, rather than a mobile app. As the use of apps becomes more of the norm, it would be expected that the number of visitors utilizing apps to access travel related information would increase. In the meantime, it appears that website based marketing efforts to disseminate travel and activity related information to the visitor would be a more effective strategy.

Dissemination of activity and travel information through websites is currently a more effective marketing strategy.

3.3 IMPLEMENTATION OF THE PUBLIC OPINION AND RESEARCH STUDY

There are four primary areas of implementation of the information contained in the Public Opinion and Research Study: informing transportation improvements, identification of transportation system users, identifying effective methods for disseminating travel information; and informing marketing efforts to increase tourism in the communities surrounding the Study Area.

Public Opinion and Research Study Recommendation- 1 (PORS-1) Informing Transportation

Improvements: Two key transportation related items that can be ascertained from the Public Opinion and Research Study are:

- The travel experience for visitors who utilize Interstate 80 could be improved if there was: better access to the communities throughout the Study Area, easier to use and more accessible public transit connecting to the surrounding communities, and better parking.
- The travel experience for visitors who utilize US 50 could be improved if there was: improved conditions of the roadway, better signage, better recreation opportunity awareness, improved ingress and egress access to the communities surrounding the Study Area, and improved lighting.

These types of transportation improvements could offer the local communities surrounding the Study Area the highest cost/benefit and contribute to an increase in tourism related spending; which in turn could result in a positive impact to the regional economies of the surrounding communities. Improving lighting, signage, and opportunity awareness are inexpensive ways to improve the user experience.

Public Opinion and Research Study Recommendation - 2 (PORS-2) Identification of Transportation

System Users: According to the data collected, close to 8,000,000 individual visits are made by users that live in Sacramento, San Francisco and San Jose. These visitors utilize the transportation network to access the Study Area recreation and tourism opportunities and the surrounding communities. Currently transportation funding mechanisms do not take into account impacts to the transportation system associated with tourism related travel and the majority of transportation funding is disseminated using population based formulas. Therefore, the impacts on the transportation system associated with tourism are not addressed by most of the existing funding mechanisms. It is recommended that responsible agencies pursue the modification of existing and future funding allocation formulas to consider the actual transportation user population (resident and transient), instead of only the resident population.

Public Opinion and Research Study Recommendation - 3 (PORS-3) Methods for Informing the Traveler:

In order to promote existing activities and opportunities within and surrounding the Study Area, it is recommended that traveler information activities and projects be coordinated on a regionalized or like-activity basis. The Public Opinion and Research data indicates that website based marketing is the most effective manner to inform visitors of activities prior to their trip. However, once on a trip, travelers are more likely to utilize their mobile phone or a tablet to access travel and activity related information. Therefore, it is important that associated websites are developed to be easily viewed on a desktop or laptop computer and on mobile devices. As such, it is recommended that a regionalized traveler information website be established to allow for the dissemination of coordinated traveler information. For example, the website could be used to encourage people to stagger departure times from tourist destinations on peak tourism travel days and times. Likewise, the website could provide real travel time

information that would allow the traveler to make informed decisions on when to travel and the ability to decide if they would be better off missing a peak traffic period by visiting one of the local nearby communities.

Public Opinion and Research Study Recommendation - 4 (PORS-4) Regionalized Internet Access:

Providing regionalized internet access along the routes that are highly used by tourists would allow for the dissemination of traveler related information while travelers are in route. Many people carry portable devices that allow remote access to the internet from a mobile device. If internet access were more widely available, through a Wi-Fi network installed along the major travel corridors, travel related information could be pushed out to travelers in route. This would help municipal agencies manage traffic congestion through the dissemination of real time traffic data, would allow for critical safety information to be transmitted to most travelers, and would allow the traveler to obtain information about the communities they pass in route to a destination.

Public Opinion and Research Study Recommendation - 5 (PORS-5) Marketing Opportunities: The data collected from the Public Opinion and Research effort, can be used to identify potential population subsets to target for future marketing efforts. On average, half of the respondents indicated that they would be highly likely or somewhat likely to try out one or more of the activities that are available in the communities surrounding the Study Area. By looking at the frequency of the highly likely and somewhat likely responses, the highest number of activities that any respondent would try is nine of the thirteen activities. Two out of every eleven (or 18 percent of the respondents) would be likely to try nine out of the thirteen activities options that were provided. The individuals that make up this 18 percent of respondents, would be considered be the high target market audience. In that, they would be the most likely to try the activities and therefore marketing to the demographic that composes the 18 percent, would be the most effective. According to the demographics collected during the interviews, this high target market audience group is represented by the following:

- Younger people from San Jose
- 10 years since visiting Tahoe
- Younger men
- Non-college women
- Low income women
- Use I-80 in the winter
- Use I-80 all year
- Use US-50
- Female Latina
- Male Anglo
- Other minority women
- Households with kids
- Would take public transit to Tahoe
- Having public transit might increase visits

In all three areas, Sacramento, San Francisco and San Jose, 25 percent of the population fits the high target market audience profile. Tourism marketing strategies that focus on the activities that interested the high target market audience respondents the most, would like result in

25% of the population in Sacramento, San Francisco and San Jose fit the high target market profile.

increased participation in those activities and an increase in associated money spent.⁹

⁹ William M. Cromer, Analysis of the Public Opinion Studies of the Bay-to-Basin Project Memorandum, November 14, 2013

4 ECONOMIC ANALYSIS

A Market Study for the Bay to Tahoe Basin Recreation and Tourism Travel Impact Study (Market Study) (October 2013) was completed by Economic Planning Systems, Inc. (EPS). The Market Study provided an evaluation of the existing and potential future markets for tourism and visitation in select tourist oriented geographical areas within Amador, El Dorado, Nevada, and Placer. The analysis identifies key trends that demonstrate the existing and likely future changing character of tourism within the Study Area to assess the prospects for tourism in future year. The Market Study is included in **Appendix C** and is summarized in this section of the report.

The importance of tourism on a local economy is typically underappreciated. Tourism directly benefits local and regional economies through direct spending by tourists on items such as lodging, fuel, and restaurant dining and through indirect spending by employees who earn wages at tourism associated establishments. The health of the tourist industry is heavily influenced by the health of the overall economy. When the economy is doing well (low unemployment, high consumer confidence, increased disposable income, etc.) tourism increases; likewise when the economy is depressed (as it was during the Great Recession, beginning in 2007) tourism spending is decreased. The Market Study found that as the United States has continued to recover from the Great Recession, tourism spending (overall) has shown an annual inclining trend of 6 percent, since 2009.¹⁰ It is projected that in the United States, overall, tourism spending will continue to increase at more than 4 percent per year for the next three years.¹¹

In addition to the health of the overall economy, tourism spending is also influenced by the attractiveness of and accessibility and awareness of a specific destination. As such, improvements to the offerings available and awareness of a

These ease in which visitors can access a destination, directly impacts the likelihood that visitors will select a specific destination to go to.

destination can result in increased tourism. Adding new attractions, improving facilities, and investing in related transportation infrastructure can all increase visitor appeal. These ease in which visitors can access a destination, directly impacts the likelihood that visitors will select a specific destination to go to. The condition of roadways, flow of traffic, ease of access, availability of public transit, and adequacy of parking all influence visitor appeal.

The Market Study evaluated regional tourism trends, existing and likely future tourism activities, and included an evaluation of the tourism market for each county within the Study Area (Amador, El Dorado, Nevada and Placer Counties).

¹⁰ Economic Planning Systems, Inc., *Market Study for the Bay to Basin Recreation and Tourism Rural Roadway Impact Study*, October 2013

¹¹ US Travel Association, <http://www.ustravel.org/>

4.1 TOURISM ACTIVITIES

There are many tourist related opportunities within the Study Area. Tourism generally falls under four major categories: ski-resort winter and non-winter activities, adventure tourism, agritourism, and historical tourism. A description of each of the tourism related categories is below:

Ski Resort Winter and Non-Winter Activities: In addition to winter recreation, summertime amenities and activities are an emerging trend at ski resorts. Several Tahoe-area ski resorts have constructed or are planning to construct new summer-time attractions such as rock climbing courses, zip-lines, mountain biking terrain, gravity-powered roller coasters, and more, which is likely to help drive additional visitation to these areas. Although prospects are good for the ski resort industry overall, it is an industry that is very sensitive to weather conditions. The recent reduced snowfall and shorter winters have resulted in significant losses in ski-resort revenue. Despite this fact, the prospects are strong for steady growth in ski resort-related activity in the Study Area, at least in the short and medium term. It is projected that the ski resort industry within the Study Area will continue to grow at a rate of 4 percent per decade.¹²

Adventure Tourism: Adventure tourism includes activities, such as: rock climbing, mountain biking, white water rafting, cultural experiences that include physical activity, and many other physically active

Adventure tourism is one of the fastest growing segments in the tourism industry.

activities. Within the Study Area, there are many adventure tourism activities offered, from guided fishing and biking tours to remote gold panning locations. Adventure tourism is one of the fastest growing segments in the tourism industry; with recent estimates indicating that there has been a 65% growth in the adventure tourism market from 2009 to 2012.¹³ It is anticipated that adventure tourism opportunities within the Study Area will continue to do well and have potential for future growth.

Agritourism: Agricultural tourism is a commercial enterprise at a working farm, ranch or agricultural facility conducted for the enjoyment or education of visitors, and that generates supplemental income for the owner. Agritourism can include farm stands or shops, U-pick, farm stays, tours, on-farm classes, fairs, festivals, pumpkin patches, Christmas tree farms, wineries, orchard dinners, youth camps, barn dances, hunting or fishing, guest ranches, and more.¹⁴

There are many existing agritourism and viticulture opportunities within Study Area. Amador, El Dorado, Placer, and Nevada County wineries have gained notoriety in recent years, and today, the region is home to more than 140 wineries. The region's serene and relaxing setting, close proximity to major

¹² Economic Planning Systems, Inc., *Market Study for the Bay to Basin Recreation and Tourism Rural Roadway Impact Study*, October 2013

¹³ Adventure Travel Trade Association and George Washington University, *Adventure Tourism Market Study*, 2013

¹⁴ University California Cooperative Extension, Small Farm Program, <http://sfp.ucdavis.edu/agritourism/>

population centers, and variety of high-quality winemaking operations make it a popular attraction. Visitors can experience wine country with a guided tour from one of several operators, following established wine trails, or utilizing the roadway network to explore the region by car.

Beyond wine, there are other agricultural and food-related activities to explore in the county, including farmers markets, working farms and ranches, and flower production facilities such as “Daffodil Hill” (located in Volcano), which features hundreds of thousands of blooming flowers and is a popular springtime attractions. Apple Hill, located in El Dorado County, is an especially successful agritourism operation. Apple Hill is composed of over 50 different orchard farms that offer a variety of agritourism activities. It is expected that market prospects for agritourism opportunities will continue to be positive, with expected growth achieved each year.

Historical (Heritage) Tourism: Historical tourism is another key tourism market segment that is an important driver for visitation to the Study Area and has great promise for future growth. Historical tourism is defined as travel to experience the places, artifacts and activities that authentically represent the stories and people of the past. Historical tourism can include cultural, historic and natural resources. Historical or heritage tourism worldwide is estimated to account for approximately 20 percent of total trips, and travelers classified as cultural and historical tourists travel more frequently, on average 5.01 leisure trips per year, versus 3.98 trips per year for non-cultural/historical travelers.¹⁵

The prospects for continued growth in the historical tourism market are strong.

Many of the small historic towns scattered throughout the Study Area derive a large proportion of their visitation from those who wish to visit historic sites (including State Parks) related to the California Gold Rush, and western settlement. By combining visits to historical sites with other activities such as dining, shopping, or outdoor recreation, a very compelling tourism experience can be provided to visitors. The prospects for continued growth in the historical tourism market are strong.¹⁶

Other Tourist Activities: There are many other activities offered to tourist throughout the Study Area. There are numerous camping opportunities with the large number of state and federal public lands located throughout the Study Area. These public lands offer many recreational activities, such as hiking, boating, fishing, cycling and much more. Additionally, there are many golfing opportunities, casino gaming, unique events that support tourism year around.

¹⁵ According to the U.S. Cultural and Heritage Tourism Study, prepared by Mandala Research, LLC, 2009.

¹⁶ Economic Planning Systems, Inc., *Market Study for the Bay to Basin Recreation and Tourism Rural Roadway Impact Study*, October 2013

4.2 GEOGRAPHICAL AREAS EVALUATED IN THE MARKET STUDY:

The Market study evaluated existing tourist related opportunities analyzed existing tourist overnight accommodation, tourism performance and future tourism prospects for four geographical areas within the Study Area: Amador County, Apple Hill and El Dorado County wine country, Nevada County, the Lake Tahoe Basin, and Placer County.

Amador County: Amador County is known as the “Heart of the Gold Country” and is positioned approximately 55 miles southeast of Sacramento. The vast majority of Amador County’s population resides in the unincorporated areas, with the two largest cities being Lone and Jackson. Population growth in Amador County has been relatively flat over the past 10 years, with some moderate growth in Jackson and small declines in Amador and Plymouth.¹⁷

Amador County offers several tourism opportunities, such as: historical destinations, hiking, biking, fishing, swimming and other water sports, golfing, rock climbing, snow related sports, and many unique seasonal events. Amador County also contains wine-related areas such as the Shenandoah Valley that include several wineries near each other and provide an opportunity for visitors to tour the area and visit several wineries in a single day or weekend. The wine-related and historical aspects of Amador County make it a popular destination for residents of the nearby population centers of the Sacramento Region, Central Valley, and San Francisco Bay Area. The major highways that traverse Amador County include State Routes 16, 49, 88, and 104.

Apple Hill and El Dorado County Wine Country: The Market Study focused on Placerville, Camino, Apple Hill, El Dorado, Coloma, Cameron Park, Shingle Springs, and Pollock Pines areas of El Dorado County separately than communities within the Tahoe Basin. El Dorado County is a largely rural county of more than 180,000 residents, consisting of just two incorporated cities (Placerville and South Lake Tahoe), and several unincorporated population centers such as El Dorado Hills, Cameron Park, Shingle Springs, and Pollock Pines. From 2002 to 2012, population growth of 15 percent occurred in the unincorporated portion of El Dorado County, while South Lake Tahoe lost approximately 10 percent of its population and Placerville’s remained flat.¹⁸

The major tourism centers of El Dorado County are Placerville, the Apple Hill area, and several historic destinations such as Marshal Gold Discovery State Historical Park and the mining towns (Coloma, El Dorado, and Georgetown). There are also many wine-related destinations and numerous outdoor recreation areas are spread throughout the county, including areas to go: whitewater rafting, hiking, swimming, picnicking, gold panning, fishing and camping.

Apple Hill is a well-established and popular regional agritourism attraction that is focused on produce harvests and value-added products from local farms. Apple Hill is becoming increasingly more popular by tapping into the Sacramento Region’s agricultural and food-related movements. The County is also home to several wineries and is close to other agritourism opportunities in nearby areas of Pleasant

¹⁷ Economic Planning Systems, Inc., *Market Study for the Bay to Basin Recreation and Tourism Rural Roadway Impact Study*, October 2013

¹⁸ *ibid*

Valley, Fair Play, and Greater El Dorado County, making the entire area a popular and emerging destination for wine enthusiasts. The main travel routes within El Dorado County are US 50, and State Routes 88 and 49.

Nevada County: Nevada County includes three incorporated cities or towns (Grass Valley, Nevada City, and Truckee) and two significant unincorporated communities that are popular tourism centers (Penn Valley and Rough and Ready). Population growth in Nevada County has been fairly slow over the past 10 years, with the notable exception of the Town of Truckee, which added approximately 1,200 residents during the past 10 years. Other areas of the county, including Grass Valley, Nevada City, and other population centers in the unincorporated area, experienced slower growth; within an average of 2.2-percent population growth overall during this period.¹⁹

The county has many historical sites that attract tourists; including many related to the gold rush era. The largest concentration of tourism activity in the county is in Truckee, followed by Grass Valley. Aside from the county's three incorporated cities, there are many outdoor recreational opportunities, world class fishing, snow sports, back packing and hiking, wineries, historical tourism opportunities at Donner Lake and on the Emigrant Trail, and many seasonal events. The main travel routes within the Nevada County are Interstate 80, and State Routes 20, 49, 89, and 174

Placer County: Placer County encompasses an area that stretches from the suburbs of the Sacramento region to Lake Tahoe and the Nevada border. It includes the incorporate cities of Auburn, Lincoln, Colfax, Rocklin, and Roseville. In addition, Placer County has a large number of unincorporated communities, as well as many popular tourism destinations.

Placer County has experienced rapid population growth over the past 10 years, seeing a 34 percent total increase during this period throughout the county. Much of this growth was attributed to popular cities within the Sacramento region over the past decade, such as Roseville at 43 percent growth since 2002 and Lincoln at 146 percent since 2002. The unincorporated areas experienced much slower growth, at approximately 9 percent overall.²⁰

Placer County Tourism opportunities are divided on a geographical basis: The Valley (which includes Lincoln, Rocklin and Roseville), the Gold Country (which includes the foothills and specifically, Loomis, Auburn, Colfax and Foresthill), and the High Country (which includes the high Sierras and Tahoe City).²¹ Each area offers a unique tourism experience; from dining and shopping, to historical tourism activities, and a number of locations that offer year around outdoor adventure tourism opportunities. The main travel routes that serve Placer County are Interstate 80, and State Routes, 28, 49, 65, 89, 174, and 267.

¹⁹ Economic Planning Systems, Inc., *Market Study for the Bay to Basin Recreation and Tourism Rural Roadway Impact Study*, October 2013

²⁰ *ibid*

²¹ Placer County Visitors Bureau, <http://www.visitplacer.com/>

Lake Tahoe Basin: The Lake Tahoe Basin is a primary tourism area in Northern California, drawing vacationers from throughout the entire U.S., and the world. The Lake itself crosses the boundaries of four counties and the borders of the states of California and Nevada. The tourist market associated with the Lake Tahoe Basin is essentially centered on the north shore and south shores of lake; and as such, the Market Study evaluates North Lake Tahoe and South Lake Tahoe separately.

The North Lake Tahoe region comprises several unincorporated communities in Placer and Washoe Counties, including Tahoe City, Kings Beach, Homewood, Olympic Valley, and others. The North Lake Study Area has approximately 12,500 permanent residents. This permanent population base has actually been shrinking for many years and declined by 17 percent between 2000 and 2010. There is also a large number of second home-owners in the North Lake Study Area. More than 65 percent of North Lake Tahoe residences are designated as vacation homes or second homes.²²

Tourism is considered the primary economic drive for the North Lake Study Area. The area offers significant adventure tourism and outdoor recreation activities with the presence of world renowned ski resorts and the many state and federal public lands that offer a wide variety of fishing, swimming, boating, hiking, and camping opportunities. There are many unique seasonal events that draw visitors from all over California. North Lake Tahoe is served by State Routes 28, 89, and 267.

The South Lake Study Area is on the southern edge of the lake and consists of the City of South Lake Tahoe and several unincorporated communities on both the California and Nevada sides of the state line. The South Lake Tahoe population is declining at a fairly rapid rate, and the City of South Lake Tahoe in particular lost 2,250 permanent residents (10 percent of its population) from 2000 to 2012.²³

Skiing, water recreation, the many beaches, golf and casino gaming are the primary tourist attractions in the South Lake Study Area. There are also many special festivals and events that draw large crowds. Other popular activities that South Lake Tahoe visitors engage in include hiking, bicycling, shopping, dining, photography, and a variety of other pursuits. The South Lake Study Area is mainly served by US 50 and State Route 89.

4.3 TOURISM TRENDS

To develop the Market Study, EPS completed an analysis of key performance indicator data, such as: visitor spending, visitation, transient-occupancy tax, sales tax, and other key metrics. The Market Study found that tourism activity in the US and within the Study Area is projected to continue trending upwards, at a rate of three percent per year. The counties within the Study Area, experienced a decrease in tourism from 2007 to 2009 that was a result of the “Great Recession”.

Overall tourism spending is projected to increase 3% per year.

²² Economic Planning Systems, Inc., *Market Study for the Bay to Basin Recreation and Tourism Rural Roadway Impact Study*, October 2013

²³ *ibid*

As seen in **Figure 4-1**, all of the counties within the Study Area experienced a relatively steady increase in tourism spending from 2000 to 2006. From 2006, spending began to flatten out; until 2009 when spending decreased as the effects of the Great Recession took hold. Since 2009, visitor spending has been on an upward trend; visitor spending has increased each year, since 2009, and now approximates the amounts seen during the “peak” that occurred during the middle part of the decade. ²⁴

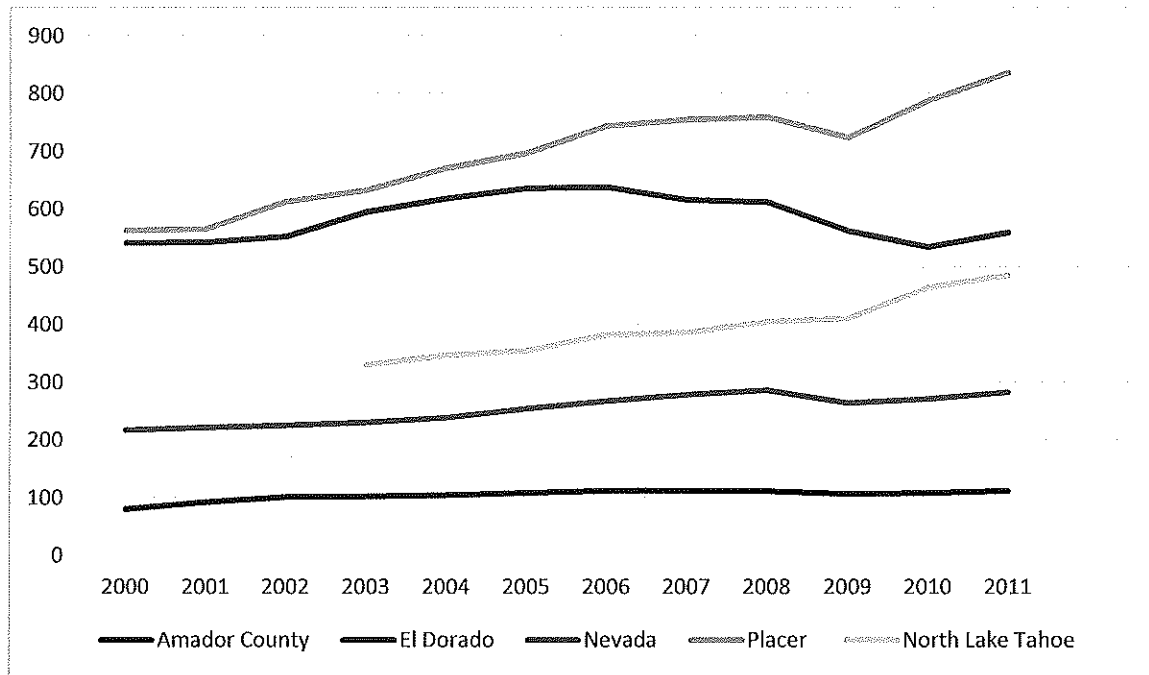


Figure 4-1: Total Annual Travel Expenditures*

*Annual travel expenditure data is only available for North Lake Tahoe from 2003 to 2011 and travel expenditure data is not available for South Lake Tahoe. ²⁵

The Market Study included an analysis Transient Occupancy Tax (TOT) for each county. TOT is collected in California and is authorized under State Revenue and Taxation Code Section 7280 and is an additional source of non-property tax revenue for local governments. TOT is charged to “transient” guests who occupies a room for a period of less than thirty (30) consecutive calendar days, counting portions of calendar days as full days. Evaluating TOT is a good method to monitor tourism levels, as it is reflective of most overnight visits within a specific jurisdiction.

As shown in **Figure 4-2**, Summary of TOT Collections by County, all four counties within the Study Area have shown a double digit increase in TOT collections from 2002 to 2012. According to the Market Study, all of the counties, experienced a reduction in TOT collection in 2008 (associated with the Great Recession). However, since the decline, an overall increase in TOT collection has occurred throughout the Study Area. The average annual change also shows a positive trend for TOT collection that is predicted to continue in the near future. El Dorado County had the lowest annual average percent

²⁴ Economic Planning Systems, Inc., *Market Study for the Bay to Basin Recreation and Tourism Rural Roadway Impact Study*, October 2013

²⁵ *ibid*

change at 0.90% per year; which is primarily attributed to significant declines in overnight stays in South Lake Tahoe. Placer County had the highest annual average percent change in TOT collect at 3.10%.

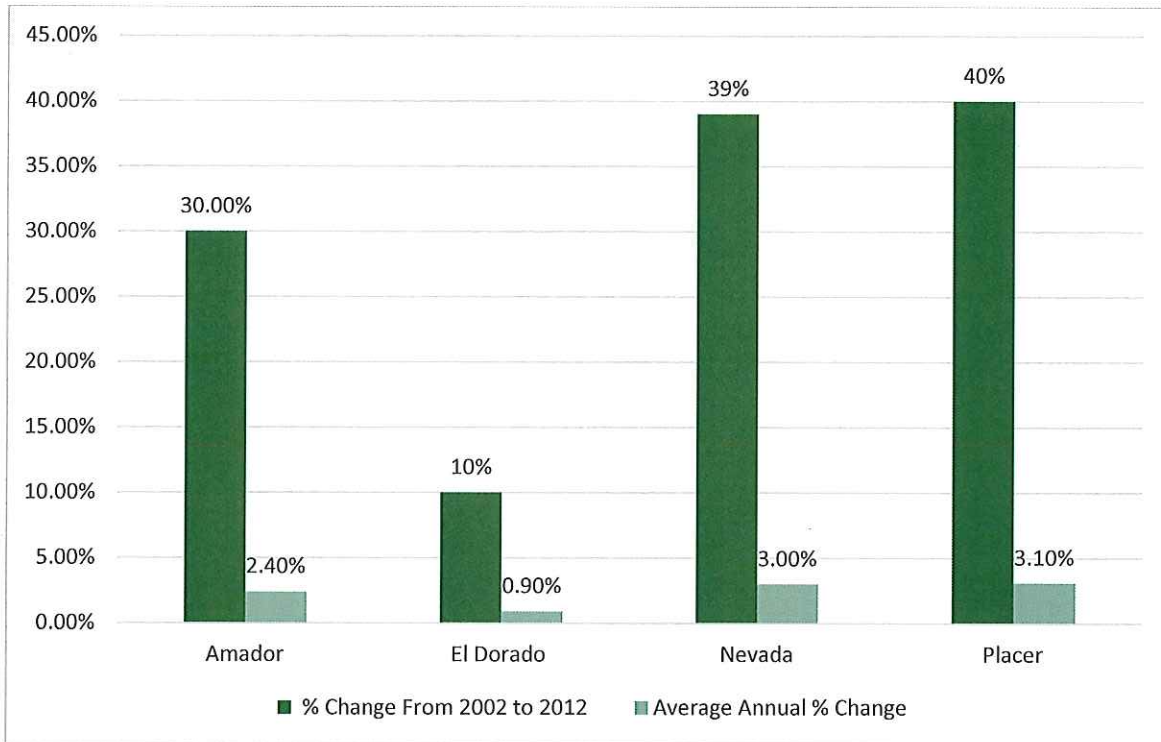


Figure 4-2: Summary Of Tot Collections By County

4.4 ASSESSMENT OF TOURISM PERFORMANCE

Tourism spending and TOT collection within the Study Area have, overall, shown a steady increase over the past ten years. However, both tourism spending and TOT collection (which is a good indicator of overnight stays) have shown to be susceptible to reduction, if the overall economy is depressed; as it was during the Great Recession that began in 2007 and was fully realized in 2008. Since 2009, tourism spending and TOT collections have rebounded to the levels seen prior to 2007.²⁶

The individual communities (cities or towns) within the four counties that have focused on reinventing their tourist product, such as North Lake Tahoe or Nevada County, are likely to see higher than previous increases in tourism related

Communities that have reinvented or enhanced their tourist product will likely see higher than previous increase in tourism related revenue stream.

revenues streams. However, those communities that do not have any planned improvements to the offered tourism product, will likely not see an increase in tourism spending over the average growth that

²⁶ Economic Planning Systems, Inc., *Market Study for the Bay to Basin Recreation and Tourism Rural Roadway Impact Study*, October 2013

has been experienced over the past ten years. The Market Study provided a general overall assessment for each of the geographical areas evaluated:

Amador County: Amador County's competitive position in the tourism market is not expected to markedly change in the future, unless there is some type of major investment in a new or existing tourist related attraction or amenity. Future Growth in visitor spending, will likely range between 2 and 3 percent, in the near future. However, it is anticipated that some of the more popular tourist attractions (Shenandoah Valley and Sutter Creek) may experience higher levels of visitation due to ongoing marketing efforts. ²⁷

El Dorado County Apple Hill and El Dorado Wine County: It is likely that tourism and visitor related spending in the El Dorado County's Apple Hill and wine country areas will continue to increase at a healthy rate of between 3 and 5 percent, per year. The continued marketing efforts associated with the area's many agritourism offerings (such as those completed by the Apple Hill Grower's Association and the El Dorado Winery Association) will likely have a continued positive impact on the area's market share of the tourism industry. Enhancing these efforts and the targeting of specific demographics within the Sacramento and Bay area regions (as supported by the information obtained during the Public Opinion and Research Study) would likely increase the projected rate of growth. ²⁸

Nevada County: The Overall visitor spending has shown growth every year over the past ten years, with the exception of a decline in 2009. Nevada County, overall, has experienced growth in TOT collections; however, the growth rates have varied significantly amongst the jurisdictions within Nevada County. Nevada City and the Town of Truckee have experienced healthy growth rates; while Grass Valley has experienced an extremely strong TOT collection growth rate of 15.1 percent, per year. The planned tourist related improvements in the Town of Truckee and implementation of the County's overall marketing strategies should ensure that Nevada County continues to realize increased visitor spending of up to 2 to 3 percent, per year. ²⁹

Placer County: Outside of the Tahoe Basin, Placer County's tourism performance is likely to experience modest growth. The Valley area (which includes Lincoln, Rocklin and Roseville) is expected to continue to experience growth in visitor spending; but at somewhat of a reduced rate than was experienced over the last ten years. Over the last ten years, the percentage change in TOT collection was largely attributed to the construction of new lodging facilities within Lincoln and Roseville. However, the significant growth rate in TOT collection, experienced by the City of Lincoln, is expected to level out due to the lack of any more planned tourist amenities or attractions. Although, the Gold Country (which includes the foothills and specifically, Loomis, Auburn, Colfax and Foresthill) has fewer hotel rooms than other areas in the County, it has potential growth associated with the many recreational, agritourism, and historic tourism opportunities available. Tourism in the High Country (outside of the Tahoe Basin) is

²⁷ Economic Planning Systems, Inc., *Market Study for the Bay to Basin Recreation and Tourism Rural Roadway Impact Study*, October 2013

²⁸ *ibid*

²⁹ *ibid*

likely to remain at the levels currently seen; as there are no planned enhancements of existing tourist offering. Overall visitor spending in Placer County has grown at an annual average rate of 3 percent per year from 2000 to 2011. Placer County (not including areas within the Tahoe Basin) is expected to grow at a healthy rate of 3 to 4 percent per year. ³⁰

Lake Tahoe Basin (North Shore and South Shore): Tourism in the North Shore area is a primary economic driver for the area. As such, there are currently significant efforts to expand the tourism product underway. Visitor spending grew steadily, at a rate of 4 percent per year from 2003 to 2012, even during the economic downturn of the Great Recession. It is expected that the area will continue realize visitor spending growth in the range of 3 to 5 percent per year. With there being a high potential for periods when visitor spending growth exceeds 5 percent due to planned developments that will enhance and increase tourist opportunities.

While the South Shore experiences more tourism than any other region in the Study Area, visitation and associated visitor spending has been trending downward for many years; however the last two years have shown some improvements. Unlike other the other areas evaluated, tourism in the South Shore area began to decline prior to the Great Recession. It is projected that visitor spending in the South Shore area will remain relatively flat and will mimic the trends seen over the past two years. If proposed improvements to the tourism offerings are implemented, the area could realize a modest rate of increased visitor spending, between 1 and 3 percent per year. If more substantive initiatives are undertaken to improve the overall tourist product, the annual growth in visitor spending could realize much greater increases.

4.5 IMPLEMENTATION OF THE MARKET STUDY FINDINGS

There is a significant amount of information contained in the Market Study. The use of the information by individual jurisdictions within the Study Area depends on the needs of any specific jurisdiction. Overall the Market Study supports the following:

Market Study Recommendation 1 – (MS- 1) Evolution and Enhancement of the Existing Tourism

Product: In order for a jurisdiction to fully realize the economic benefit associated with any specific tourism product, continuous effort must be made to enhance the product and evolve the product as the tourist continue to have higher levels of expectations from all products and services offered. Visitors expect appealing accommodations, a wide range of activities, effective transportation, and a variety of shopping and restaurant options. The jurisdictions within the Study Area have unique agritourism opportunities, historic points of interest and an abundant amount of outdoor recreational activities that are unique to the region. The jurisdictions that have focused on nurturing the existing tourist assets; such as Nevada City or Amador wine country, have seen healthy growth in tourist spending. However, the areas that have not expended effort or resources to continuously improve the tourist offering have seen a decrease in their market share of the tourism industry.

³⁰ Economic Planning Systems, Inc., *Market Study for the Bay to Basin Recreation and Tourism Rural Roadway Impact Study*, October 2013

Market Study Recommendation 2 (MS-2) - Packaging Tourist Offering: The destinations that offer a variety of tourist offerings that can be packaged together, realize greater tourist spending increases. The multi-day visitor spends more money than the overnight visitor. Packaging tourism experiences such as white water rafting with camping at local state parks or operators of agritourism destinations might package with local bed and breakfasts.

Market Study Recommendation 3 (MS-3) - Enhance Tourist Transportation and Connectivity: The Market Study and other economic evaluations completed for tourist oriented jurisdictions, have indicated that effective and easy to use transportation, that is accessible to tourist offerings, is a key element to the success of any tourism market. This sentiment was also supported by the data obtained from the Public Opinion and Research Study summarized in Section 3 of this report.

Access, Transit, Signage, Lighting and Pedestrian Friendly roadways are imperative to appeal of the visitor experience.

- **Transit:** According to the Public Opinion and Research Study, respondents indicated that they would likely try transit if it was easy to access and utilize. Better transit connections between the urban centers (Bay Area and Sacramento Regions) and the Lake Study Area need to be made. Additionally, there is a server lack of interconnectivity between the communities within the Lake Tahoe region. Packaging existing tourism activities, with mass transit, may be an opportunity to increase the market share from the Sacramento and Bay Area regions.
- **Pedestrian Friendly, Walking and Biking:** Towns such as Sutter Creek and the Town of Truckee, that have focused on reinventing the themselves as pedestrian friendly areas that are walkable and inviting, have seen related increases in tourism related spending. Congestion decreases the appeal of the tourist product which in turn results in reduced tourist spending. All communities should focus on developing pedestrian friendly areas that are conducive to walking and biking and are connected to transit opportunities.
- **Signage and Wayfinding:** Signage and wayfinding elements are important components of an overall tourism package. Visitors are more likely to stop and visit an area if it is easy to find and access. This is consistent with the data obtained from the Public Opinion and Research Study. Many of the respondents indicated that they would be more likely to stop at some of the communities on the way to the Study Area if there was better access, signage, and lighting. It is recommended that all communities complete a signage and wayfinding evaluation to ensure visitors can find common tourist destinations, parking and transit opportunities.

Market Study Recommendation 4 (MS-4) - Traveler/Tourism Information: The areas within the Study Area, that have well-coordinated strategies for the dissemination visitor information realize a large share of the tourism market. Apple Hill is a great example; the numerous growers in the area consolidate marketing efforts; which has resulted in the Apple Hill area being one of most successful agritourism areas in the region. Today's visitor expect to be able to easily find travel related information prior to travel and during travel. As indicated by the Public Opinion and Research Study, the majority of travelers received their travel related information from the internet. Prior to travel, they utilize their desktops and laptops and during travel they utilize their smartphones or tablets. However, with both

methods the respondents indicated that they prefer a website over an app. As such it is recommended that efforts to market the region or like activities be coordinated. ³¹

³¹ William M. Cromer, *Analysis of the Public Opinion Studies of the Bay-to-Basin Project Memorandum*, November 14, 2013

5 TRAFFIC DATA COLLECTION

Traffic data collection is crucial, for transportation professionals, when making decisions about a variety of issues and concerns related to new development, metropolitan planning, roadway maintenance and operations, and funds allocation. As such, an important component of the overall effort for the Bay To Tahoe Basin Recreation and Tourism Travel Impact Study Basin Recreation and Tourism Rural Roadway Impact Study, was the evaluation of the existing traffic on the highway network within the Study Area. Existing data, available through the California Department of Transportation (Caltrans) and the multiple local jurisdictions located within the Study Area, is typically reported as the annual average daily traffic (AADT). AADT, population, and lane miles are the measures that are typically used for transportation planning, engineering, and funding activities. AADT is the total volume of vehicle traffic of a highway or road divided by 365 days. Although AADT is a simple measure of how busy a specific road is, it does not take into account whether or not the traffic originates from the locale in which it is travelling or if the vehicle is tourism based.

To better understand the impact that tourism has on the highways within the Study Area, it was determined that it would be beneficial to know what portion of existing traffic is associated with tourism activity. However, since the Study Area is rather large and covers four counties, traditional traffic collection methods, such as: manual observation (counting of vehicles or the deployment of Automatic Number Plate Recognition video cameras) was determined to be cost prohibitive. As such, it was determined to utilize Bluetooth sensor technology to monitor and collect data on traffic patterns using BluFax traffic surveillance equipment. Bluetooth sensor technology allowed for remote sensing of data through the deployment of a network of Bluetooth sensors throughout the Study Area.

5.1 BLUETOOTH DATA COLLECTION TECHNOLOGY OVERVIEW

Bluetooth is a trademarked telecommunications industry specification that allows electronic devices (such as mobile phones, computers, tablets, and car radios) to be interconnected. For example, it is the technology that allows mobile phones to wirelessly connect to an automobile to allow the user speak hands-free, using the automobile's speakers and microphone. The technology is effective at distances ranging from one foot to about 300 feet; depending on the power rating of the respective sub-systems. The Bluetooth protocol uses an electronic identifier in each device called a Media Access Control (MAC) address. The MAC identification address serves as an electronic nickname that allows electronic devices to keep track of who is who during data communications. It is these MAC addresses that are used as the basis for obtaining traffic information. Bluetooth equipped devices that are powered on and set in the discover mode, continuously transmit a unique identifier to allow establishing a connection with other devices. Bluetooth technology also allows for anonymous traffic monitoring, by capturing the MAC addresses of Bluetooth devices without obtaining or recording any personal information that may be associated with the user of the Bluetooth device.

Approximately, 10 percent of vehicles in California contain some type of Bluetooth device. When a network of Bluetooth sensors is deployed and a vehicle containing a detectable

Approximately 10 percent of vehicles in California contain some type of discoverable Bluetooth enabled device.

Bluetooth device passes by a device, the sensor is able to record the anonymous MAC identification address emitted by the enabled device, along with a time stamp. When the MAC identification address of a Bluetooth enabled device is observed at two or more sensors, it is possible to determine the speed, time of travel, and likely route of the vehicle transporting the Bluetooth enabled device by calculating the difference in the time stamps associated with the MAC identification address. Observations of multiple vehicles containing Bluetooth devices can provide a highly accurate estimate of traffic conditions, travel patterns, and time of travel.

5.2 BLUETOOTH SENSOR DEPLOYMENT

Twenty BluFax sensors (with Bluetooth sensing capabilities) were strategically placed throughout the Study Area, from the Sacramento region up to the Lake Tahoe Basin. To determine the locations for the sensors, the likely routes that tourists from the Bay Area and Sacramento regions would take to the

Twenty Bluetooth sensors were deployed from June 26, 2013 to July 12, 2013.

Study Area and surrounding communities were evaluated. The intent was to establish a network of sensors that would allow for the identification of tourists based on where they entered the network and where they went once inside the network of sensors. The sensors were deployed from June 26, 2013 to July 12, 2013. This time period allowed the establishment of regular traffic patterns before and after peak holiday travel (Fourth of July); which traditionally experiences a high level of tourism activity.

Table 5-1 identifies the sensor locations and the number of detections that each particular sensor recorded and **Figure 5-1** provides a map of the sensor locations. In total, there were 920,349 records recorded, with an average of just over 55,000 records per day. Of the total number of records, 168,546 unique Bluetooth MAC identification addresses were collected during the study period. It should be noted that the sensor at Location 18 was knocked down the evening of July 8, 2013; therefore the dataset for that particular location is incomplete.

Bay To Tahoe Basin Recreation and
Tourism Travel Impact Study

Table 5-1: Bluetooth Sensor Locations			
<i>Station Number</i>	<i>Location Description</i>	<i>County</i>	<i>Number of Detections</i>
1	Enterprise Boulevard/Interstate 80	Yolo	153,033
2	Elk Grove Boulevard/Interstate 5	Sacramento	84,596
3	Riverside Avenue/Interstate 80	Sacramento	154,751
4	El Dorado Hills Blvd/US 50	El Dorado	75,868
5	Jackson Road/State Route 16	Sacramento	5,831
6	State Route 88/State Route 104	Amador	11,409
7	State Route 49/State Route 20	Placer	16,575
8	Intestate 80/State Route 49	Placer	114,256
9	Cherry Acres Road/State Route 193	Placer	6,446
10	Schnell School Road/US 50	El Dorado	30,859
11	Main Street/State Route 49	Amador	10,214
12	Donner Pass Road/Interstate 80	Placer	58,297
13	Floriston Road/Interstate 80	Placer	40,836
14	Shaffer Mill Road/State Route 267	Placer	22,603
15	State Route 28 At California/Nevada State Line	Placer	23,379
16	State Route 89 In Tahoe City	Placer	18,958
17	State Route 89 Near Fallen Leaf Lake Road	El Dorado	10,914
18	State Route 89/US 50	El Dorado	17,465*
19	US 50 Near California/Nevada State Line	El Dorado	59,558
20	Nevada State Route 207/Shady Lane	Douglas	21,966

*Location 18 Unit Knocked Down by RV Evening of July 8, 2013

**Bay to Basin Recreation and Tourism
Rural Roadway Impact Study**
Station Zones
(May 2014)

Map Feature Key

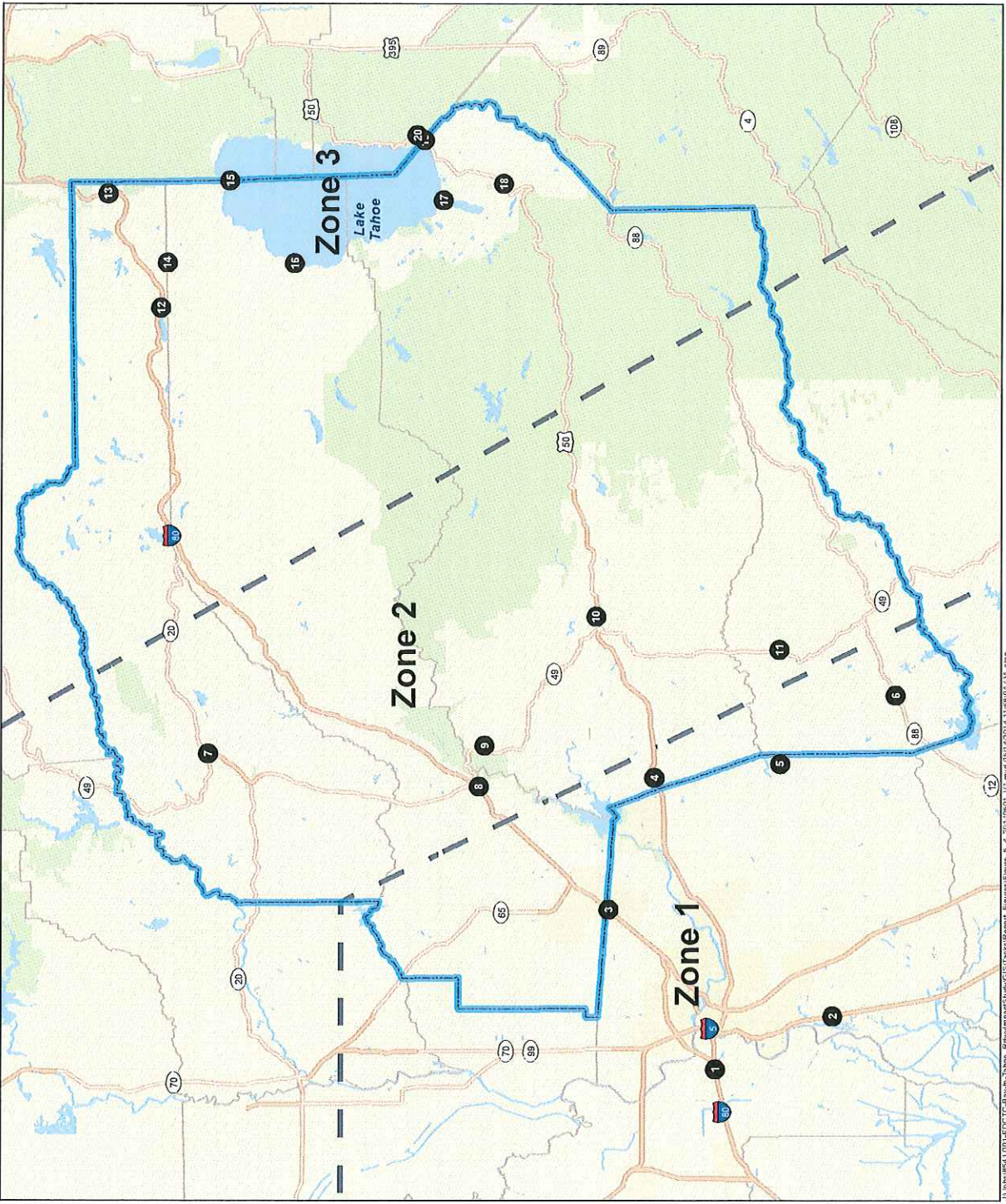
-  Sensor Locations
-  Station Zones
-  Project Study Area

1 inch = 50,000 feet





Figure 5-4



J:\GIS\1007-EDOT\Bay-to-Basin_Review\ImpactStudy\GIS\Assets\KeyMap_Figures\Figure_5_4_20145201_V1.mxd 001/2014 11:58:06 AM 3/8

5.3 BLUETOOTH TOURIST AND COMMUTER DATA ANALYSIS

One of the primary goals of collecting the Bluetooth data was to determine whether or not a specific traveler was a tourist or a commuter, on any given day during the study period. To complete this analysis, a home sensor location and home zone were identified for each unique Bluetooth identifier. The home station was determined to be the sensor location that had the maximum number of records for an individual Bluetooth identifier. Once the home sensor location was determined, the zone in which the sensor was located was determined to be the identifier's home zone. The Study Area was divided into three zones: Zone 1 was the Sacramento Area, Zone 2 was the area that generally encompasses the foothills, and Zone 3 consisted of the Tahoe Basin. **Table 5-2** identifies the Bluetooth sensor location zones and **Figure 5-2** illustrates the zones on a map.

Table 5-2: Zone Assignments For Bluetooth Stations		
<i>Zone Number</i>	<i>Zone Description</i>	<i>Bluetooth Home Stations</i>
1	Sacramento Area	1 – 6
2	Foothills	7 – 11
3	Tahoe Basin	12 - 20

Figure 5-2: Map of Zone Assignments

Once the home zone was determined for each Bluetooth identifier, a set of established rules were applied to the movements of the identifier. The rules were developed to identify whether or not an identifier was a tourist or a

The rules were applied on a daily basis. As such, an identifier could be designated as a commuter on one day and as a tourist on another.

commuter. The rules were applied on a daily basis. As such, an identifier could be designated as a commuter on one day and as a tourist on another. The established rules are as follows:

Rule 1: Any identifier that was only reordered at one sensor on any given day was discarded.

Rule 2: If an identifier was designated as a tourist and did not return back to the identifier's home zone, the identifier was designated as a tourist on subsequent days of travel.

Rule 3: If travel was only within Zone 1, the identifier was designated as a commuter.

Rule 4: If travel was only within Zone 2, the identifier was designated as a commuter.

Rule 5: If travel was only within Zone 3, the identifier was designated as a commuter.

Rule 6: If the identifier's home zone was Zone 1 and the identifier travelled to Zone 2, the identifier was designated as a tourist.

Rule 7: If the identifier's home zone was Zone 2 and the identifier travel to Zone 1, the identifier was designated a commuter.

Rule 8: If the identifier's home zone was determined to be Zone 1 and the identifier travelled to Zone 3, the identifier was designated a tourist.

Rule 9: If the identifier's home zone was determined to be Zone 2 and the identifier travelled to Zone 3, the identifier was designated a tourist.

Rule 10: If the identifier's home zone was determined to be Zone 3 and the identifier travelled to Zone 2, the identifier was designated a tourist.

Rule 11: If the identifier's home zone was determined to be Zone 3 and the identifier travelled to Zone 1, the identifier was designated as a tourist.

Once the rules were applied to each unique identifier, the percentage of commuters and tourists recorded at each station could be determined. Separate graphics that depict the percentage of commuters and tourists designated at each sensor location, during each day of the Bluetooth sensor deployment, can be found in **Appendix D. Figures 5-3 through 5-7** illustrate the percentage of Bluetooth identifiers designated as commuters and tourists at selected sensor station locations.

Figure 5-3 illustrates the percentage of commuters that were detected by the Bluetooth sensor installed at Location 1, Enterprise Boulevard and Interstate 80 in West Sacramento. As expected, on all days of the study, the percentage of commuters dominated the percentage of tourists, with an average of 91 percent of the Bluetooth identifiers detected designated as commuters. Tourist traffic peaked around

the Fourth of the July holiday and on the weekends; however the percentage of commuters was still significantly higher than the percentage of tourists designated.

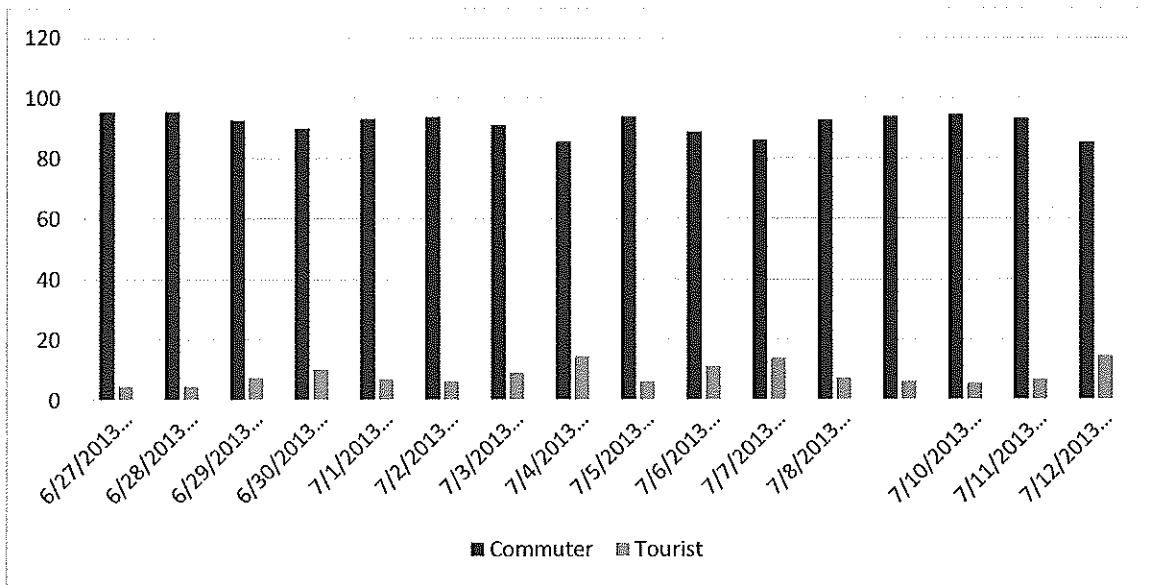


Figure 5-3: Percentage Commuters & Tourists Location 1 (Enterprise Blvd/I-80, West Sacramento)

Figure 5-4 depicts the percentage of commuters and tourists at Interstate 80 and State Route 49 in Auburn, California. On average, 55 percent of the Bluetooth identifiers detected were designated as tourists. As shown below, tourist activity peaked the weekend before the holiday, on the Fourth of July, and on the Sunday (July 7, 2013) after the Fourth of July holiday; when it is assumed travelers were returning home. Interstate 80 and State Route 49 is located in a tourist destination and is also a location that many tourists travel through to reach other tourist destinations in the greater Tahoe region and the surrounding communities.

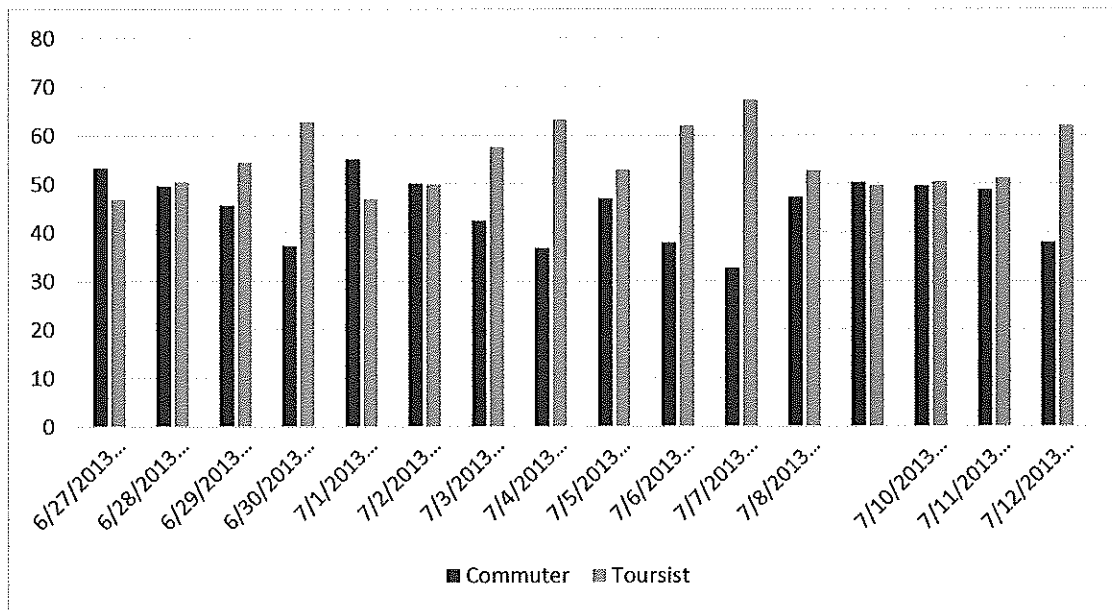


Figure 5-4: Percentage Commuters & Tourists Location 8 (Interstate 80/State Route 49)

Figure 5-5 depicts the percentage of commuters and tourists at Bluetooth Sensor Location 10, which was located in Placerville. The sensor at Location 10, recorded a significantly higher amount of tourists before, during, and after the Fourth of July Holiday. With the highest being 78.23 percent of Bluetooth identifiers detected were designated as tourists on July 7, 2013; which was the Sunday after the Fourth of July weekend, when it is assumed that a high number of travelers were returning home. During the weekdays after the Fourth of July holiday week (July 8, 2013 to July 11, 2013), the percentages of commuters and tourists were closer to being even, with an average of 51% of the Bluetooth identifiers detected designated as tourists. Similar to Location 8 in Auburn, Location 10 located in Placerville, is also a tourist designation and an area that tourists pass-through when travelling to tourist destinations in the greater Tahoe region and the surrounding communities.

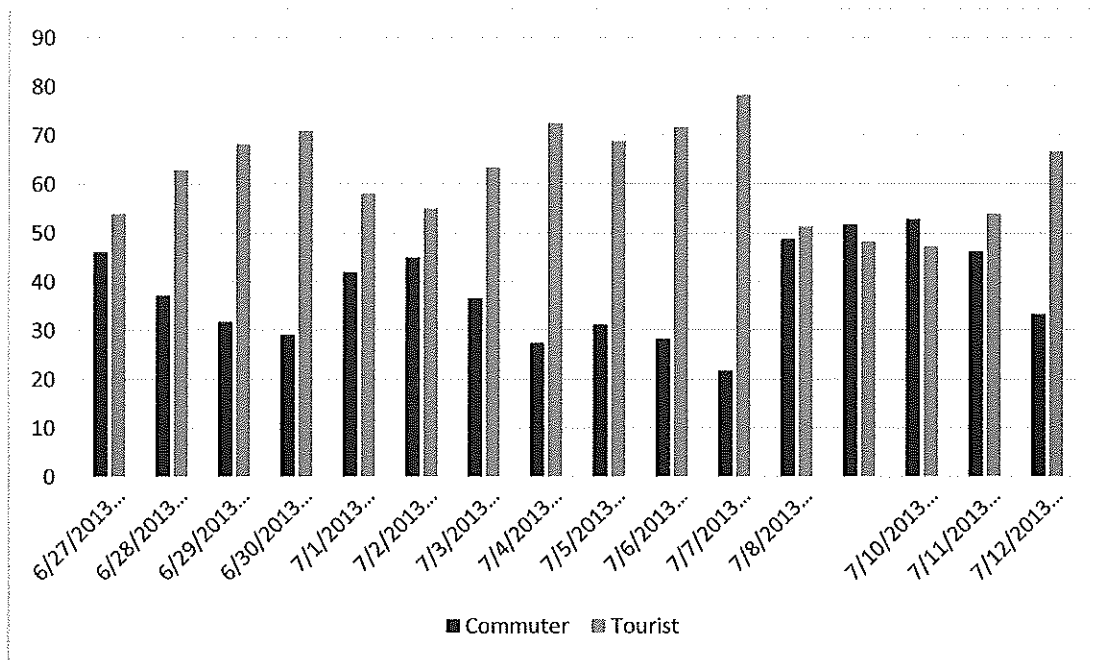


Figure 5-5: Percentage Commuter & Tourist Location 10 (Schnell School Road/Us 50)

Figure 5-6 illustrates the percentage of commuters and tourists detected at Location 16, which was located in Tahoe City. As illustrated, on average approximately 58 percent of the Bluetooth identifiers detected were designated as commuters and 42 percent were designated as tourists. As with the other locations, tourism related travel appears to increase during the Fourth of July holiday period. However, unlike Locations, 8 and 10, Location 16 detected more Bluetooth identifiers that were designated as commuters than those that were designated as tourists. It is assumed that this is related to the fact that Locations 8 and 10 are both geographical areas where tourists travelling from the Sacramento and Bay Area regions have to pass through them on the way to the tourist designations located in the Tahoe region and the surrounding communities. Whereas, Location 16 in Tahoe City most likely experiences less pass through traffic.

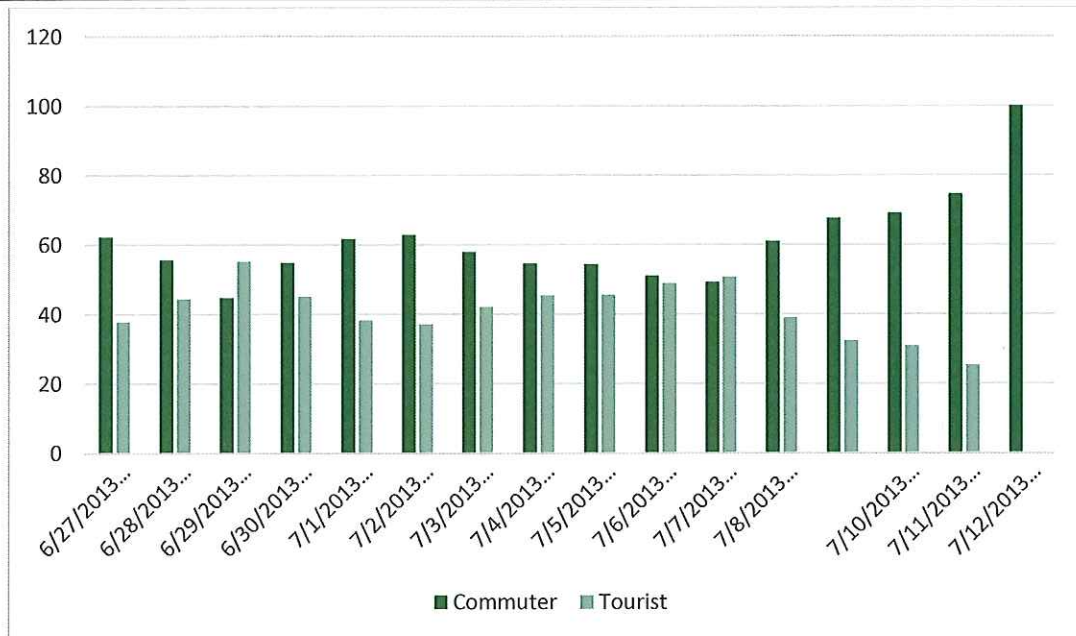


Figure 5-6: Percentage Commuter & Tourist Location 16 (State Route 89 Tahoe City)

Figure 5-7 illustrates the percentage of the Bluetooth identifiers designated as commuters and tourists at Location 19, in South Lake Tahoe. As shown, the percentage of commuters was significantly higher than the percentage of tourists on all days of the Bluetooth sensor deployment. However, similar to the other locations, tourist designations peaked around the Fourth of July holiday. On average, 70 percent of the Bluetooth identifiers were designated as commuters. The Market Study (discussed in Section 4), indicated that tourism in the South Shore area (overall) has declined in the past ten years and has only recently (within the last two years) exhibited slight increases. The decreased levels of tourism activity, paired with the fact that South Lake Tahoe is not a significant route for pass-through tourism related traffic, are likely the main factors that contributed to the significantly higher amount of commuter traffic detected at Bluetooth Sensor Location 19, when compared to other tourist related destinations in the Study Area.

On average, 70 percent of the Bluetooth identifiers were designated as commuters at Location 19 (South Lake Tahoe).

Declined levels of tourism activity, paired with the fact that South Lake Tahoe is not a significant route for pass through tourism related traffic, are the main factors that contributed to the significantly higher amount of commuter traffic detected.

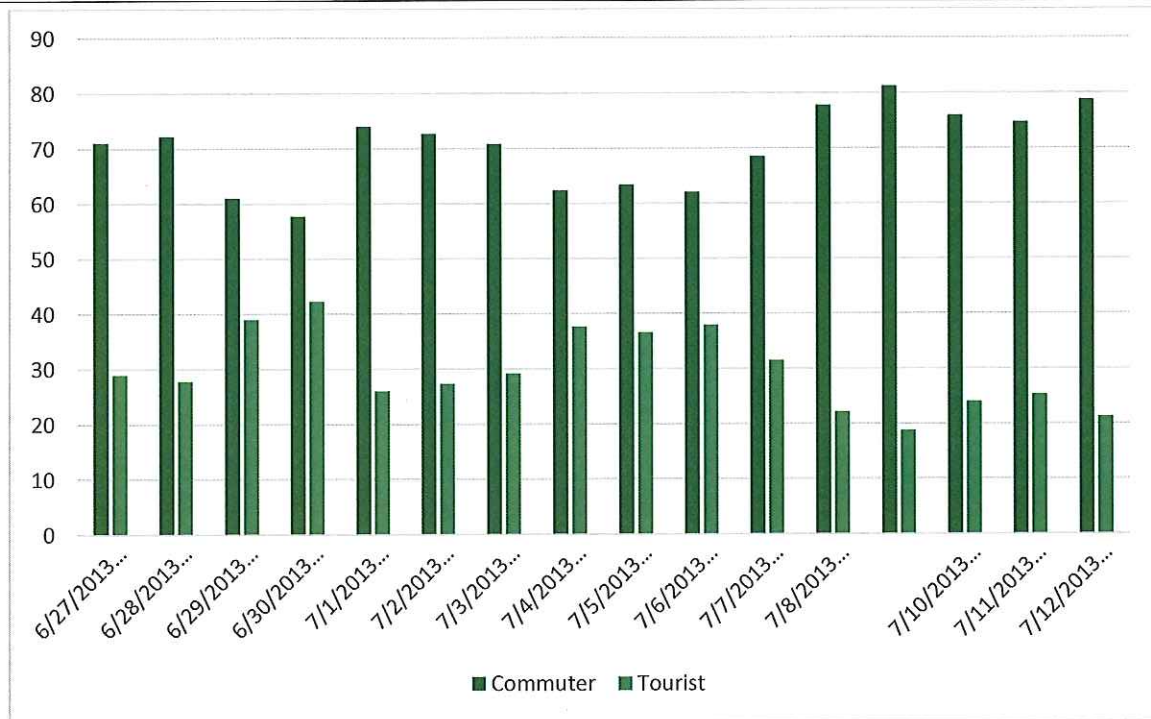


Figure 5-7: Percentage Commuters & Tourists Location 19 (Us 50 Near Stateline)

5.4 SPEED ANALYSIS

The Bluetooth sensors recorded a time stamp along with the Bluetooth identifier; therefore, it was possible to determine the time of travel for a specific Bluetooth identified, when the unique Bluetooth identifier was detected at two or more Bluetooth sensors. When analyzing the relationship between traffic count and speed, as expected, as number of tourists travelling increased, the speed of travel decreased. The more tourists utilizing the highway network within the corridor, in general, resulted in slower traffic and congestion. As such, it is reasonable to conclude that increased tourism traffic contributes to traffic congestion during peak tourism travel periods.

5.5 IMPLEMENTATION OF THE TRAFFIC DATA COLLECTION

Although the Bluetooth sensors were only deployed for a short period of time (July 27th to June 12th), the data provides valuable information related to tourism travel and associated impacts within the Study Area. Following are recommendations for implementation of the Bluetooth data analysis:

Traffic Data Collection Recommendation – 1 (TDC-1) Develop a User Population: As determined by the tourist and commuter traffic data analysis, significant amounts of traffic, in and around the communities within the Study Area, can be attributed to tourism. During peak tourism travel periods (such as the days before, during, and after a major holiday), the segments of highway that serve as both tourism destinations and as pass-through routes for tourists (such as: US 50 near Placerville, Interstate 80 near Auburn, and Interstate 80 near Truckee) can experience higher than 60 percent of traffic designated as tourist related traffic. Some of the areas within the Tahoe Basin that are popular tourist destinations can experience close to 50 percent of traffic to be associated with tourism related travel. Resources needed

to address ongoing impacts to the highway system associated with tourism related traffic are currently not captured in traditional transportation funding mechanisms; which are typically allocated based on population. The data collected during the Bluetooth traffic data analysis can be utilized to inform decision makers

on the high use of the highway system within the Study Area by tourists who live in the nearby population centers of the Sacramento and Bay Area regions. It is recommended to coordinate an effort amongst the affected jurisdictions, to pursue modification of transportation funding formulas to include consideration of not just the resident population but also the transient population. This user population would be reflective of the actual population that is using the transportation network within the Study Area.

Traffic Data Collection Recommendation – 2 (TDC-2) Support Placement of Tourist Travel Related

Amenities: The Bluetooth tourist and commuter data evaluation, in conjunction with the data collected during the Public Opinion and Research Study (Section 3), can be utilized to inform decisions regarding the implementation of tourist travel related amenities, such as: public restrooms, informational signage, public/private transit stops and routes, access improvements, lighting, etc. For

example, many of the respondents to the Public Opinion and Research Study, who indicated that they typically utilize US 50 to travel to the Study Area and the surrounding communities, stated that they would be more likely to stop in the communities surrounding the Study Area if there was better signage. The data collected during the Bluetooth tourist and commuter data analysis indicates that there is a high percentage of tourists that pass-through the Placerville area on US 50. Therefore, it would likely improve the tourists travel experience if informative signage was placed along US 50 in the Placerville area. Likewise, many of respondents in the Public Opinion and Research Study indicated that they would be willing to utilize public transit if it were easier to access and use. The Bluetooth tourism and commuter data analysis could also be utilized to inform the placement of transit stops and routes. Section 6 of this report provides a more in-depth discussion of recommended improvements.

Coordinate to pursue modification of transportation funding formulas to include consideration of not just the resident population but also the transient population. This would be the User Population.

Inform decisions regarding the implementation of tourist travel related amenities, such as: public restrooms, informational signage, public/private transit stops and routes, access improvements, lighting, etc.

Traffic Data Collection Recommendation

**– 3 (TDC-3) Inform the Dissemination of
Travel Information during Peak Tourism**

Periods: As expected, as tourism travel increases, the time of travel increases (speed of travel decreases). Analysis of speed of travel indicates that, increased speeds of travel can be experienced during non-peak hours. Therefore, information could be disseminated to travelers to inform them of peak travel

periods and encourage tourists to travel outside of those periods. One notable pattern observed from the Bluetooth data collection was that the highest percentage of identifiers designated as tourists and the slowest speeds of travel were experienced at most of the Bluetooth sensor locations on the Sunday following the Fourth of July holiday. Inform the public of peak travel periods and traffic safety or weather related issues through social media, websites and ITS components to tourists may encourage travelers to alter their time and/or day of travel, thereby reducing congestion caused by tourism.

Inform the public of peak travel periods and traffic safety or weather related issues through social media, websites and ITS components to tourists may encourage travelers to alter their time and/or day of travel, thereby reducing congestion caused by tourism.

6 TOURISM IMPACTS AND RECOMMENDED IMPROVEMENTS

Understanding the demands placed on the transportation network within the Study Area by tourism related travel, is an important dimension of assessing the overall impacts of tourism. Associated impacts not only impact the traveler experience but the affected communities also experience social and economic impacts. The associated impacts and the desire to address tourism travel needs compel the investment of more capital into the transportation network, whether it is in the form of signage and lighting, better highway access, or the further development of the public transit network. Based on the Public Opinion and Research Study, the completion of the Market Study and the traffic data collection exercise specific impacts related to

tourism and recommended

improvements to address the associated impacts were evaluated. The successful implementation of many of the recommended improvements, requires cross-jurisdictional coalescing of ideas and resources and the formation of regional partnerships not only at the public agency level but also with private partners.

The successful implementation of many of the recommended improvements requires cross-jurisdictional coalescing of ideas and resources and the formation of regional partnerships; not only at the public agency level but also with private partners.

6.1 TOURISM IMPACTS

Understanding tourism impacts is becoming even more even more important as budgets for public facility and infrastructure improvements become increasingly strained and tourism traffic is not typically accounted for in traditional funding mechanisms. Tourism within the Study Area generates traffic, and it in some areas the amount of traffic

generated may be enough to create congestion. Additionally, increased traffic congestion results in a number of problems, including economic costs due to delayed travel times, air pollution and accidents. As one roadway becomes congested, drivers may use others not necessarily intended for through traffic.

As a result, it is imperative that regional transportation planning efforts give consideration to the special transportation needs associated with tourism and the impacts caused by tourism to mitigate any negative impacts.

It is imperative that regional transportation planning efforts give consideration to the special transportation needs associated with tourism and the impacts caused by tourism to mitigate any negative impacts.

Traffic Increase: As discussed in Section 5 Traffic Data Collection, it was found that during peak tourism periods, areas that are located within tourism centers or in an areas where the locale must be passed through to get to a tourism opportunity, a significant amount of traffic can be attributed to tourism. On

average, 55 percent of the traffic detected at the Bluetooth station, located at the Interstate 80 and State Route 49 Interchange, was designated as tourists. Likewise, at the Bluetooth station that was located in Placerville at US 50 and Schnell School Road, 61 percent (on average) of the traffic detected was designated as tourists. The highest percentage of tourists designated, was on July 7, 2013, at 78.23 percent. In comparison, the Bluetooth station located on Interstate 80 in West Sacramento had 91 percent of the traffic designated as commuters and only 9 percent designated as tourists.

The portions of the Study Area that are located in pass through locales, such as Auburn on Interstate 80 and Placerville on US 50, experience significant levels of tourist related traffic year-round and particularly during peak tourism periods. Further east into the Tahoe Basin, the percentage of tourism related traffic is lower than the pass through locations; but is still considered significant with over 50 percent of the traffic typically attributed to tourists. According to the Market Study that was completed (as discussed in Section 4), overall tourism spending within the Study Area is projected to increase at a rate of about 3% annually. It is expected that tourist related traffic will increase at a similar rate or just below 3%.

Traffic Congestion: As tourism travel increased, the time to travel between any specific Bluetooth stations within the Study Area increased. Traffic Congestion has an impact on both the speed of travel and on the reliability of travel conditions. Reduced reliability of travel conditions, reduces the overall perceived travel experience. As discussed in Section 2, under the existing conditions analysis for the major highways within the Study Area (State Route 49, US 50, Interstate 80, and State Route 89), many of the segments of highway within the Study Area are currently operating at Level of Service (LOS) E or worse. LOS is a term used to qualitatively describe the operating conditions of a roadway based on factors such as speed, travel time, maneuverability, delay, and safety. The LOS of a facility is designated with a letter, A to F, with A representing the best operating conditions and F the worst. LOS E indicates that there is unstable traffic flow, delays and the route is experiencing low average speeds. LOS F indicates that the route is heavily congested, operating at extremely low speeds, demand exceeds capacity and high delays are experienced. In general, agencies require define LOS D or better as acceptable.

It is reasonable to assume that as tourism increases and associated traffic increases, increases in tourism related traffic will contribute to the further deterioration of LOS for the route

Increases in tourism related traffic will contribute to the further deterioration of LOS.

segments within the Study Area that area currently operating at LOS E or LOS F. This determination is supported by the traffic data collection and evaluation exercise (further discussed in Section 5), that found as tourist related traffic increased the time to travel between any two locations within the Study Area decreased.

Impacts to the Roadway Lifecycle: Pavement condition and deterioration are heavily influenced by Average Annual Daily Traffic (AADT) level and the amount of truck traffic that utilize a specific route. As shown by the traffic data collection effort discussed in Section 5, there is significant use of the highway

system within the study related to tourism. This increased use related to tourism activities, above and beyond the use associated with the resident population, contributes to the degradation of the roadway over time. Pavement, shoulders, striping, and roadway markers are all prone to degradation and require routine maintenance to ensure they are in good working order and to ensure the safety of the travelling public. Additionally, the weather conditions require snow removal, chains, and the application of sand and salt; which contribute to the degradation of the condition of the highway at an accelerated pace. It is reasonable to assume that as tourism travel increases, the associated impacts to the condition of the highway system, within the Study Area, will also increase. It is important for affected jurisdictions give consideration to this matter when determining pavement lifecycle.

Increased Maintenance Costs: The cost for annual maintenance for the roadways within the Study Area is increased as a result of traffic associated with tourism activities. Both the state highway and the local roadway network experience increased traffic related to tourism; which results in an increase in the need for routine maintenance activities. More vehicles utilizing the roadway network results in the need for increased: litter pick and removal, guardrail repair, shoulder backing, sign repairs, and repair of the road surface. According to Caltrans, highways within the Study Area typically cost x percent more to maintain than highways elsewhere.

Maintenance budgets rarely get adjusted to accommodate increases in traffic and remain relatively constant regardless of an increase in traffic. Rural jurisdictions often have to prioritize maintenance concerns related to safety and operational efficiency over preservation of capital investment. Over time this can lead to significant degradation of roadways. As such, there is a growing need to effectively link both maintenance costs and roadway condition to future traffic increases associated with both the resident population and the tourism population. Tourism within the Study Area is expected to increase, on average, at 3 percent annually; it is anticipated that tourism traffic and the associated maintenance cost will also increase at a similar rate.

Traveler Experience: One of the factors that contributes to whether or not a traveler views a tourism experience as positive or not, is the ease in which the traveler is able to get to their destination. Congestion, poor roadway condition, decreased accessibility, travel time reliability, lack of way finding, and lack of public transit connectivity all contribute to the degradation of the traveler experience. Negative traveler experience has direct implications on future tourism decisions. For example, if a tourist experiences significant travel time delays going to or returning home from a specific destination, they would be less likely to decide to return to that specific destination in the future. Consequently, if increases in tourism that are not adequately planned for, result in increased traffic congestion, increased time of travel, and impacts to roadway condition, the traveler experience will degrade over time. As such, the traveler experience has an associated impact –negative and positive- on regional economies of the communities within the Study Area.

The traveler experience has an associated impact –negative and positive- on regional economies of the communities within the Study Area.

6.2 MEASURES TO ADDRESS TOURISM IMPACTS AND IMPROVE THE TRAVELER EXPERIENCE

To mitigate the impacts associated with tourism travel, a multi-pronged, region-wide approach is needed. Below are recommended measures that should be considered to address tourism impacts:

Intelligent Transportation Systems: Intelligent Transportation Systems (ITS) involves applying advanced technologies, such as lighted message signs, communication with the traveler, and information processing to vehicles and transportation infrastructure. ITS strategies, such as: lighted message boards, systems that predict and communicate real-time travel times, areas of congestion, and a time of travel, could be utilized to manage congestion associated with peak travel times for tourists. Some examples of ITS types of improvements that could be

constructed include: changeable message signs, traffic counting devices, traffic monitoring equipment, and accident detection equipment. As indicated by the Bluetooth study, July 7, 2013 experienced the highest level of tourists at all Bluetooth Stations within the Study Area. July 7, 2013 was the Sunday after the Fourth of July holiday, and therefore it is assumed that tourists were headed back home. Evaluation of travel times for that day indicated that the increased tourism related traffic resulted in reduced speeds and time of travel. ITS solutions would improve the capability of agencies to manage the transportation system and the ability of travelers and commercial carriers to make informed choices about when and how to travel.

ITS strategies, such as: systems that predict and communicated real-time travel times, areas of congestion, and a time of travel, could be utilized to manage congestion associated with peak travel times for tourists.

and therefore it is assumed that tourists were headed back home. Evaluation of travel times for that day indicated that the increased tourism related traffic resulted in reduced speeds and time of travel. ITS solutions would improve the capability of agencies to manage the transportation system and the ability of travelers and commercial carriers to make informed choices about when and how to travel.

To incorporate ITS solutions, to better manage traffic, the following are recommended:

- **Intelligent Transportation System Recommendation 1 (ITSR-1):** Information gathering technologies, such as: surveillance and detection cameras, traffic sensors, and infrastructure sensors, have the ability to collect real-time information more thoroughly and more frequently than transportation professionals have been able to do in the past. This will allow transportation officials to determine traffic conditions within the Study Area on a real-time basis which could be used to manage traffic during peak period, inform the traveler, and improve the movement of goods through the region during peak travel periods. It is recommended that the jurisdictions within the region collaborate on information gathering technologies to allow for traffic congestion to be managed on a real-time regional basis.
- **Intelligent Transportation System Recommendation 2 (ITSR-2):** Information sharing technologies provides a number

It is recommended that information gathering technologies be used in conjunction with information sharing technologies to maximize the benefit to managing traffic and improving the visitor experience.

methods to share travel information. Changeable message signs, highway advisory radio, web sites, and specialized warning systems (such as weather related warnings) are stationary technologies used routinely to share information with travelers. It is recommended that jurisdictions within the Study Area coordinate the installation and operation of additional changeable message signs to provide real time travel information to travelers on the highway. Changeable message signs are electronic traffic signs that could be used to provide motorist with important information about traffic congestion, incidents, roadwork, travel times, special events or speed limits on a specific highway segment. The signs could also be used to recommend alternative routes, limit travel speed, warn of duration and location of problem or simply provide alerts or warnings. For example, if a traveler was aware that they would face significant congestion and the predicted travel time would be increased over the normal condition, they would have the option to modify travel plans to avoid congestion. This would not only allow for better metering of holiday traffic but could also encourage travelers to further explore the communities surrounding the greater Study Area. It is recommended that information gathering technologies be used in conjunction with information sharing technologies to maximize the benefit to managing traffic and improving the visitor experience.



Improve Parking Opportunities: Parking is one of the first experiences that people have when traveling to a destination. Convenient and affordable parking are considered a sign of welcome. Parking that is difficult to find, inadequate, inconvenient or expensive will frustrate users and can contribute to spillover (motorists parking where they should not). As a result, inadequate

parking supply can create problems to both users and nonusers. Many of the project partners, have indicated that inadequate parking availability or underutilized large parking lots or structures negatively impact the small businesses in their communities. Likewise, 57 percent of the respondents to the telephone survey (further discussed in Section 3), indicated that it was important to improve parking opportunities in the communities within

the Study Area. The phone surveys also indicated that visitors are interested in parking their vehicles and utilizing public transportation services while

Convenient and affordable parking are considered a sign of welcome.

visiting a locale. This suggests that consideration of access to public transportation services should be considered when planning new parking facilities. The lack of easily accessible and adequate parking, not only deters some visitors from stopping in specific locations, but also results in people driving unnecessarily driving around looking for parking spots, increases pedestrian and vehicle conflicts, and increases the potential for minor accidents. To better serve the visitor population the following it is recommend that the following are considered:

- **Parking Recommendation 1 (PR-1):** Provide better signage to direct visitors to parking facilities.
- **Parking Recommendation 2 (PR-2):** Construct small cluster parking lots, in and around tourist destination instead of one large lot.

- **Parking Recommendation 3 (PR-3):** Incorporate on-street parking where feasible to better serve small businesses.
- **Parking Recommendation 4 (PR-4):** Partner with tourist destination operators to construct parking facilities in and around major tourist opportunities.
- **Parking Recommendation 5 (PR-5):** Consider transit, pedestrian, and bicycle needs and access points when planning new parking facilities.

Improve Access: Tourists not familiar with a specific destination, are less likely to venture off the highway and explore surrounding communities, if the access on and off of the highway is perceived to be difficult. Visitors like to know what services, restaurants and activities are available at specific highway exits and

that access back onto the highway will not be difficult. 60 percent of the respondents to the phone surveys, indicated that better highway ingress and egress access was important to increasing the likelihood that they would stop in one of the smaller communities in the Lake Study Area. Respondents that typically use US 50, were even more likely to identify better highway access as an important component to deciding whether or not to stop at any of the communities along US 50.

Travelers that typically use US 50, were even more likely to identify better highway access as an important component to deciding whether or not to stop at any of the communities along US 50.

To address concerns regarding highway access the following are recommended:

- **Access Recommendation 1 (AR-1):** Place informational signage regarding the services and amenities provided at specific exits.
- **Access Recommendation 2 (AR-2):** Install way finding signage to for returning to highway on-ramp.
- **Access Recommendations 3 (AR-3):** Review ramp configurations to determine if modifications are needed to improve access, such as: construction of acceleration or deceleration lanes, shoulder widening, safety improvements, lighting, etc.

Lighting: With the low level of ambient light present along the roadways within the Study Area it can be difficult to navigate ingress and egress points to the highway and travelling on the darkened highway can be perceived as challenging. While it is important to control light pollution in the rural communities in and around the Lake Study Area, strategic placement of lighting can improve the traveler experience. Respondents to the user survey, especially those who utilized US 50 as their primary route, indicated that better lighting would improve the likelihood that they would stop in the communities surrounding the Lake Study Area.

To address concerns regarding lighting the following are recommended:

- **Lighting Recommendation 1 (LR-1):** Ensure all exits that lead to traveler services, such as gas stations, food establishments, bathrooms, etc. are well lit.
- **Lighting Recommendation 2 (LR-2):** Consider the use of LED adaptive lighting that would allow for energy savings and the ability to dim the street lights at certain times of the day. Controls

that allow operators to adjust street lighting power to meet minimum performance criteria and even to adaptively alter light levels based on changing conditions offer energy savings and reduce unneeded light pollution.

Transit Connectivity and Ease of Access: Existing transit opportunities to and within the Lake Study Area and the surrounding communities are disconnected, difficult to access, and are overall not user friendly. Although, there are transit operations scattered throughout the Study Area they are not connected in a manner that provides connectivity between communities or ease of access. One of the major foundations of tourism is the travel or transport component. A destination is, in many respects, defined by its ability to provide appropriate visitor access into a destination and dispersal throughout the destination. The dispersal of visitors throughout the region can provide economic and social benefits, including: improved congestion and traffic management, reduced air pollution, and can diversify visitor spending. Visitors are more likely to visit a specific area if it is perceived as easy to access. As traffic congestion within the Study Area increases, opportunities for transit will become even more important.

Respondents to the user survey indicated that currently there is very low use of transit by tourists. This finding has also been supported, anecdotally, by transit operators within the Study Area.

Interestingly, over half of the respondents to the user survey indicated that they would be willing to try transit if it were easier to use and more connected.

Over half of the respondents to the user survey indicated that they would be willing to try transit if it were easier to use and more connected.

To improve transit connectivity and ease of access the following are recommended:

- **Transit Connectivity and Ease of Access Recommendation 1 (TCR-1):** Coordinate transit on a regional basis to improve connectivity. Identify routes that connect between tourist destinations throughout the entire region, in and outside of the Tahoe Basin.
- **Transit Connectivity and Ease of Access Recommendation 2 (TCR-2):** Identify transit routes from major populations centers (Sacramento and the Bay Area) and connecting transit services and routes to tourist destinations.
- **Transit Connectivity and Ease of Access Recommendation 3 (TCR-3):** Identify parking opportunities for travelers who wish to drive a vehicle to a tourist destination, park and explore the area using local transit services, walking, and biking.

Local communities would benefit through reduced congestion, increased visitor spending, and better traveler behavior by reducing the incidents of parking illegally, proper access of tourism destinations, and through reduced impacts on the environment.

- **Transit Connectivity and Ease of Access Recommendation 4 (TCR-4):** Determine transit routes and connections to recreation opportunities.
- **Transit Connectivity and Ease of Access Recommendation 5 (TCR-5):** Plan future transit services to accommodate seasonal influx of visitors. Modified schedules, adaptive transit spots (based on seasonal recreation interests, and allow for the fluctuation in the level of service offered to accommodate peak periods of tourism.
- **Transit Connectivity and Ease of Access Recommendation 6 (TCR-6):** Establish public private partnerships to provide transit connectivity to privately owned tourism destinations or recreational sites.
- **Transit Connectivity and Ease of Access Recommendation 7 (TCR-7):** Consider the establishment of a cross jurisdictional transit pass system that is accepted by transit providers throughout the Study Area.

Improved Dissemination of Traveler Information: Travelers receive information a variety of ways. Travelers seek information prior to travel and also during travel. Currently, there is not a coordinated effort, amongst the various public and private entities located within Study Area, to disseminate traveler information. Information regarding traffic congestion, transit opportunities, parking availability, tourism opportunities, and seasonal weather concerns would improve the travel experience by allowing travelers to make informed decisions on when, where and how to travel. Visitors would have the opportunity to travel during non-peak periods, to utilized transit services during peak tourism periods, and could be better informed on the tourism opportunities provided by the greater Study Area. Not only would the traveler benefit but the local communities would benefit as well; through reduced congestion, increased visitor spending, and better traveler behavior by reducing the incidents of parking illegally, proper access of tourism destinations and through reduced impacts on the environment.

According to the opinion polling completed, respondents indicated that they typically receive information by word of mouth and from the internet. If a traveler was able to access real-time information that would improve the travel experience, it would be more likely that a specific visitor would decide to make a repeat trip to the area.

To improve transit connectivity and ease of access the following are recommended:

- **Traveler Information Recommendation (TIR-1):** Develop a mechanism to provide real-time travel related information via the internet.
- **Traveler Information Recommendation (TIR-2):** Coordinate on the development of a traveler information dissemination strategy amongst the various public and private entities within the Study Area.
- **Traveler Information Recommendation (TIR-3):** Coordinate the development a traveler information dissemination study with the ITS solution previously discussed. Traveler information should be tied to the real-time collection of traffic related information (congestion, time of travel, weather conditions, etc.) that can be obtained through various ITS elements. Likewise, messaging posted on changeable message signs should be consistent with information disseminated on the internet.

- **Traveler Information Recommendation (TIR-4):** Establish public private partnerships to assist with the metering of traffic. For example, staggering of hotel check in and out times could assist with the metering of traffic.

6.3 CONSISTENCY WITH EXISTING PLANNING EFFORTS

The Study Area crossing multiple jurisdiction boundaries that are responsible for transportation planning efforts, and the maintenance and operation of the roadway network within the Study Area. Each of the entities rely upon transportation planning documents to guide transportation planning efforts and improvements. Each county has a Regional Transportation Plan (RTP) or Plans that guide transportation planning efforts in that County. The Lake Tahoe Basin is unique in that the geographical area that falls under the Tahoe Regional Planning Agency boundaries is covered under a separate RTP, than those prepared on a county-wide basis. The RTPs contain facts, analysis, and history about transportation in the represented region and lists transportation projects and programs for Federal, State, and local funding. In maintaining, improving, and implementing the RTP, the responsible Regional Transportation Planning Agency (RTPA) helps to develop transportation plans, transportation projects, and implement transportation related programs including efforts to secure needed Federal, State, and local funds. Additionally, Caltrans manages the Caltrans System Management Plans and Interregional Transportation System Plans for regional and interregional routes managed by Caltrans. These Caltrans specific planning documents are discussed on page 69 of this Study. The RTPAs for each geographical area are described below.

Amador County: In Amador County, the Amador County Transportation Commission (ACTC) is the State designated Regional Transportation Planning Agency (RTPA) and Local Transportation Commission (LTC) serving the Amador Region. The ACTC completed an update to the RTP in 2004 and is currently in the process of completing a 2014 update to the RTP. ³²

El Dorado County: In El Dorado County, the El Dorado County Transportation Commission (EDCTC) is the designated RTPA. As the RTPA, the EDCTC serves as the planning and programming authority for transportation projects on the western slope of El Dorado County, excluding those areas within the Tahoe Regional Planning Agency boundaries. The EDCTC adopted the RTP to provide a clear vision of the regional transportation goals, objectives, and policies, complimented by short-term and long-term strategies for implementation. ³³

Nevada County: In Nevada County, The Nevada County Transportation Commission (NCTC) serves as the designated RTPA. NCTC adopted the 2010 Nevada County Regional Transportation Plan (RTP) on July 20, 2011. The 2010 RTP documents the short-term (2010-2020) and long-term (2020-2030) regional

³² Amador County Transportation Commission, 2004 Amador County Regional Transportation Plan Update

³³ El Dorado County Transportation Commission, El Dorado County Regional Transportation Plan 2010-2030

transportation policy direction, multi-modal regional transportation needs, and sets forth a financially constrained action plan to meet those needs.³⁴

Placer County: In Placer County, the Placer County Transportation Planning Agency (PCTPA) is designated RTPA for Placer County with the exception of the geographical area of the County that falls under the jurisdiction of the Tahoe Regional Planning Agency. PCTPA adopted the 2035 RTP for Placer County in 2010.³⁵

Lake Tahoe Basin: In the Lake Tahoe Basin the Tahoe Regional Planning Agency (TRPA) and the is the Tahoe Metropolitan Planning Organization (TMPO) take joint responsibility for maintaining and updating the Lake Tahoe region's RTP. The RTP is the transportation element of the Lake Tahoe Regional Plan. Called Mobility 2035, the transportation plan seeks to improve mobility and safety for the commuting public while at the same time delivering environmental improvements throughout the transportation network.³⁶

California Department of Transportation: Caltrans is responsible for interregional transportation planning and serves as owner and operator of the state's highway system. Caltrans prepares Transportation Concept Reports (TCRs) that focus on particular state highway routes and Corridor System Management Plans (CSMPs) that serve as a comprehensive, integrated management plan for increasing transportation options, decreasing congestion, and improving travel times for larger transportation corridors. Caltrans District 3 has prepared CSMPs for Interstate 80, US 50 and State Route 89 within the study area. Caltrans is also responsible for developing the Interregional Transportation Strategic Plan (ITSP), which consolidates and communicate key elements of its ongoing long- and short range planning efforts. The ITSP is a counterpart to the RTPs developed by the RTPAs. As such, it is not only important to ensure consistency with each of the CSMPs, the TCRs, and the ITSP, but also with Caltrans stated Mission: Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.³⁷

Themes that are common to the various planning documents and to Caltrans overall mission and associated goals are summarized in the **Table 6-1** below:

³⁴ Nevada County Transportation Commission, Nevada County 2010 Regional Transportation Plan

³⁵ Placer County Transportation Planning Agency, Placer County 2035 Regional Transportation Plan, 2010

³⁶ Tahoe Regional Planning Agency (TRPA) and the Tahoe Metropolitan Planning Organization, Regional Transportation Plan, Mobility 2035

³⁷ <http://www.dot.ca.gov/hq/paffairs/about/mission.htm>

<i>Theme</i>	<i>ACTC</i>	<i>Caltrans</i>	<i>EDCTC</i>	<i>NCTC</i>	<i>PCTPA</i>	<i>TRPA & TMPO</i>
Provide and maintain a safe, efficient, and convenient transportation system.	✓	✓	✓	✓	✓	
Reduce environmental impacts and improve quality of life.	✓			✓	✓	✓
Invest strategically in transportation services and facilities to improve mobility for people and goods movement.		✓	✓	✓	✓	
Enhance integration and connectivity of multi-modal transportation system.		✓	✓			✓
Strengthen economy by investing in transportation system.		✓	✓	✓	✓	✓

As shown, many of the RTPAs and Caltrans share the same commitment to improving the transportation system in a manner that reduces impacts on the environment, improves mobility, embraces the integration and connectivity of the multi-modal transportation system and enhances the economy. One of the primary factor in accomplishing these objectives is addressing tourism traffic needs and impacts needs along with the needs of the resident based population. The recommendations provided in this section of the report, are complementary to the overarching themes or goals identified the affected Counties’ RTPs. However, without a holistic and regional approach to implementation of the recommendations contained in this study, the benefits that could be realized by recognizing and addressing the unique needs and conditions related to tourism travel would be diminished.

6.4 IMPLEMENTATION OF THE TOURISM IMPACTS AND RECOMMENDATIONS

Below are specific recommendations for the implementation of the tourist impact assessment and the associated recommendation to address the identified impacts.

Tourism Impact Recommendation 1 (TI-1) Identify Existing Projects to Implement the Identified

Recommendations: As existing projects that are planned and designed, consideration should be given to the incorporation of the recommendations contained in Section 6-2. For example, highway improvement projects should give consideration to the strategic placement of changeable message signs, improving lighting conditions, or improving highway access. Local agencies should also conduct specific evaluations of their jurisdictional areas to identify specific locations for these types of improvements.

It is important that the tourism population is recognized as a separate population from the resident based population to ensure the needs of the traveler are considered and the associate impacts are defined.

³⁸ Trans Sierra Coalition

Tourism Impact Recommendation 2 (TI-2) Tourist Population as a Recognized Population: For the purposes of transportation planning, it is important that the tourism population is a recognized population in addition to the resident based population, to ensure the needs of the traveler are considered and the associate impacts are defined. Tourists or visitors have separate needs while travelling. Existing transportation planning efforts and transportation funding mechanisms typically do not recognize the tourist population as a separate entity. As such, this often results in tourism travel needs not being met, the impacts associated with tourism travel not being mitigated on a consistent basis, and the lack of the resources needed to address ongoing elevated maintenance and operational costs and to construct improvements needed to absorb the additional traffic.

Tourism Impact Recommendation 3 (TI-3) Future RTP Updates: Future updates to the RTPs should not only give consideration to the measures recommended to address tourism impacts on the rural highway system, but to also facilitating the coalescing of planning efforts of the various affected jurisdictions. Long range planning efforts should give consideration to the fact that tourism is a very key factor in the health of the region's economy and the tourism industry continues to grow, the associated impacts will only continue to be exasperated if not adequately addresses. Moving towards a more sustainable tourism industry, largely relies on an integrated transportation component that gives consideration to congestion, parking, transit connectivity, and the visitor experience.

Moving towards a more sustainable tourism industry, largely relies on an integrated transportation component that gives consideration to congestion, parking, transit connectivity, and the visitor experience.

Tourism Impact Recommendation 4 (TI-4) Regional Partnerships: Regional implementation of many of the recommendations contained in Section 6.2, is needed to maximize the potential benefit that could be realized. A regional partnership could facilitate the development of an interconnected transit system, would allow for congestion associated with peak travel period to be addressed on a region wide basis and would benefit the regional economy by improving the visitor experience. Additionally, ITS projects would be more effective if implemented on a regional basis, access to recreational locations and tourism opportunities could be enhanced, and dissemination of regionally significant travel related information would be more effective and streamlined.

Tourism Impact Recommendation 5 (TI-5) Public/Private Partnerships: Many of the tourism opportunism available in the Study Area are owned and operated by private entities. The private entities have a vested interest in improving the visitor experience and as such addressing the impact of tourism travel is beneficial to their overall goals. Forming public/private partnerships to address transit, parking, and the collection and dissemination of travel information would be mutually beneficial to both the affected public jurisdictions and the private tourism bases business located throughout the region.

7 FUNDING ANALYSIS & PERFORMANCE MEASURES

The rural transportation network within the Study Area consists of streets, highways, railways, airports, bicycle routes, and walkways. This network provides residents, businesses and tourists with the ability to access destinations and services and move goods within the Study Area. Regional and local governments and Caltrans share the responsibility for the network's construction, operation, and maintenance. Funding to pay for these activities comes from a variety of federal, state, and local taxes, fees and assessments, and private investments.

One of the primary factors that is utilized to determine most allocations of funding, is the size of the resident populations. The rural areas within the Study Area have small resident populations but must operate and maintain a disproportionate number of the region's road miles and a user population that is significantly elevated by the tourism based population.

The rural areas within the Study Area have small resident populations but must operate and maintain a disproportionate number of the region's road miles and a user population that is significantly elevated by the tourism based population.

Tourism is one of the primary economic drivers within the Study Area. The health of the tourism market is largely reliant upon the effectiveness and efficiency of the area's transportation system. If tourists are not able to easily access a tourist destination, the tourism market would be greatly impacted and it would be expected that associated decreases in tourism related spending would be realized. Likewise, increased levels of tourism, results in impacts to the transportation network; which are currently not addressed in traditional transportation funding mechanism. As such, it is imperative that existing funding mechanisms, future needs of the transportation network as related to tourism, and potential future funding sources are evaluated.

7.1 OVERVIEW OF EXISTING FUNDING

Today, California's transportation system is facing an immediate funding crisis and without action at federal, state, or local levels, it is unlikely the available sources of public funding will fulfill existing funding needs or the future development of regionally significant state highways. Recent studies and evaluations of the funding challenges confronting the California, strongly indicate that for a number of reasons, the funding necessary simply to maintain existing state highway, local road, and mass transit infrastructure, even at the levels of service and quality they are at today, are grossly inadequate. State and federal funding streams available to preserve transportation systems, have not kept pace with the demands on them. Continued reliance on existing revenues and failing to develop expanded or new revenue sources for all components of the State's transportation system, will result in persistent decay of one of the state's transportation system; which will likely result in associated impacts to the economy.

Additionally, the worsening state of repair of California's roads, highways, bridges, and public transit infrastructure will result in long-term increased costs of maintenance and rehabilitation.

While there have been many studies and analyses that document the transportation funding crisis, ranging from numerous private sector reports to public agency documentation, the recently completed Statewide Transportation System Needs Assessment, prepared under the direction of the California Transportation Commission (CTC), is the most recent and comprehensive overview of this dire situation. According to the Statewide Transportation System Needs Assessment, the total cost of all system preservation, system management, and system expansion projects during the ten-year study period (2011 to 2020) is nearly \$538.1 billion. Of this total, the cost of system preservation projects (both rehabilitation projects and maintenance costs), during the study period, is \$341.1 billion. As stated in the report, the costs for system preservation were based on the goal of meeting accepted standards that would bring transportation facilities into a “state of good repair” within the ten-year study period. These goals would lead to higher levels of investment in system preservation than are typically reflected in existing transportation plans and capital improvement programs.³⁹

The cost of planned system management projects and system expansion projects, over the same time period, was estimated at \$197 billion. However, it was also estimated that there is less than half amount of funding needed for these type of projects. The cost estimates used by the CTC, were primarily based on adopted Regional Transportation Plans (RTPs), which for the most part are identified to be fiscally constrained; which means that the number and types of projects are limited to those for which revenues can be reasonably identified during the planning period.⁴⁰

The Statewide Transportation System Needs Assessment estimated that revenue from all funding sources, during the ten-year study period, is projected at \$242.4 billion, which

For all types of transportation programs over the ten-year period, there is an estimated shortfall of about \$295.7 billion.

represents about 45 percent of the overall estimated costs of projects and programs that were identified in the needs analysis. For all types of transportation programs over the ten-year period, there is an estimated shortfall of about \$295.7 billion. This was based on the assumption that revenues for preservation (rehabilitation and maintenance) are provided at historical levels (43.4%), and that the amount of revenue available for system expansion and system management projects during this period would be \$94.7 billion, or approximately 48 percent of the estimated costs of needed projects.⁴¹

7.2 TRANSPORTATION FUNDING SOURCES

The availability of funding for transportation was evaluated in the Needs Assessment completed by the CTC. Many Existing funding sources are strained, in decline, or are not adequate to fund existing transportation needs within the State of California. Below is a high-level overview of the various funding sources:

³⁹ California Transportation Commission, 2011 Statewide Transportation Needs Assessment

⁴⁰ Smith, Watts, and Martinez, LLC. Bay to Basin Funding Analysis, 2014

⁴¹ California Transportation Commission, 2011 Statewide Transportation Needs Assessment

Gasoline Tax (State): Funds at the state level available for transportation systems are generated from a state excise tax on gasoline and diesel fuels and weight fees imposed on commercial vehicles. This is a result of a revision to state transportation taxes, through a “swap” in law of the relevant tax bases done in 2010. The Fuel Tax Swap provided for a combination of lowering the sales and use tax rate applicable to sales of motor vehicle fuel, excluding aviation gasoline, and simultaneously raised the state excise motor vehicle fuel tax. Additionally, the Fuel Tax Swap raised the sales tax rate applicable to sales of diesel fuel and simultaneously lowered the state excise tax on diesel fuel. State revenues provide approximately 22 percent (\$53.1 billion) of the total funds devoted to transportation infrastructure. However, the Tax Swap increment is reliant on an annual “true-up” that seeks to maintain revenue neutrality with what the Proposition 42 sales tax on gas would have provided; thus, this is a potentially volatile revenue source that will fluctuate with overall price and total gallon sales. This will further exacerbate revenues that fund the State Transportation Improvement Program (STIP) (RTIPs and ITIP), as well as the State Highway Account, which funds the State Highway Operation and Protection Program (SHOPP).⁴²

It is estimated that through 2016-17, revenues will increase by about 1.8 percent for gasoline and 2.8 percent for diesel, each year. However, as discussed previously, under the Tax Swap, the application of the “true-up” mechanism in the Fuel Tax Swap program has reflected that the economic reality that growth in fuel sales is not matching the CTC projection. It is unknown, whether this is attributable to ongoing economic malaise, traveler behavioral adjustments, or more efficient vehicles or alternative fueled vehicles. As such, it is anticipated that fuel sales will continue to remain flat or decline.⁴³

It is anticipated that fuel sales will continue to remain flat or decline.

Weight Fees: Truck weight fees account for almost \$1 billion in annual revenue and were originally put in place to offset the damage that heavy trucks cause. Through 2016-17, weight fee revenues are anticipated to increase by a rate of 2.3 percent which is consistent with the ten year growth rate. However, these revenues are no longer available to fund state SHOPP projects as they have been legislatively designated to provide state General Fund relief through their dedication to offset General Fund costs of bond debt service for Proposition 1B and 1A.⁴⁴

Federal Obligation Authority (OA), Moving Ahead for Progress in the 21st Century Act (MAP-21): On July 6, 2012, Moving Ahead for Progress in the 21st Century Act (MAP-21) was signed into law; which reauthorized the nation’s surface transportation laws at current spending levels through September 2014. The law went into effect on October 1, 2012. Under MAP-21, the Transportation Enhancements program is re-named the Transportation Alternatives Program (TAP), with the 12 eligible project categories consolidated into six categories. The bill eliminated the bike/pedestrian safety and education programs, transportation museums, and the acquisition of scenic and historic easements categories.

⁴² Smith, Watts, and Martinez, LLC. Bay to Basin Funding Analysis, 2014

⁴³ Ibid.

⁴⁴ Ibid.

TAP now includes the Safe Routes to School (SRTS) program and the Recreational Trails Program (RTP). MAP-21 focusses on the following goals: safety, infrastructure condition, congestion reduction, system reliability, freight movement and economic vitality, environmental sustainability, and reduced project deliver delays.

State and local transportation agencies benefit from annual allotments from the federal government, based on formula distributions from federal taxes on fuels. If future federal funding levels remain at the current level, California is projected to receive \$30.9 billion in federal transportation funds over the ten-year time period (2011 to 2020); which amounts to 13 percent of total funding identified to be needed for the state's transportation system. However, until future federal re-authorization legislation is approved the specific amount of federal transportation funding that will be allocated to California is unknown.⁴⁵

The Congestion Mitigation and Air Quality (CMAQ) funds are included in MAP-21 and are targeted at transportation projects that benefit both congestion and air quality. Projects must undergo an air quality analysis demonstrating emissions reductions. In general, projects that add capacity are not eligible under this program. Projects previously approved for CMAQ funds, include the purchase of transit vehicles, High Occupancy Vehicle (HOV) lanes, rail stations, and signal interconnects.

The approval of MAP-21 in 2012, essentially extended the SAFETEA-LU funding level, consistent with the CTC projections. The CTC projected that California's share of the annual August redistribution of federal OA is assumed to be \$109 million per year based on the average received from 2007-08 through 2009-10.

Proposition 42: Proposition 42 was placed on the ballot by the Legislature, and approved by the voters in March 2002, as part of an agreement to address the state's 2001-02 budget deficit. Proposition 42 made permanent a five-year temporary transfer of the sales taxes paid on motor vehicle fuels, originally approved by the Legislature in 2000. Proposition 42 constitutionally dedicated these funds to transportation programs, including street and highway construction and maintenance and transit operations. Proposition 42 allows the Legislature to suspend the transfer by a two-thirds vote subject to a gubernatorial declaration that the transfer would have a negative impact on the state's finances.

No pre-Proposition 42 loan repayments are anticipated in the near term and other loan repayments will occur in the year consistent with state statute; which is closer to the end of the decade. However, by way of an update to this projection, in Governor Brown's 2014-15 State Budget proposal, it was proposed to accelerate \$350 million in repayments of outstanding General Fund obligations to 2014-15, which would not otherwise be due until 2021.

Local Revenue Sources (Local): Local municipalities utilize a variety of funding sources to construct transportation related improvements; which may include: dedicated sales taxes, redevelopment funds, special grants, general funds and other sources. These sources of revenue range from a statewide 0.25 percent tax on the sale of all goods and services for transit purposes, locally approved sales taxes, traffic impacts fees that are typically dedicated to addressing traffic associated impacts of specific

⁴⁵ Smith, Watts, and Martinez, LLC. Bay to Basin Funding Analysis, 2014

developments and a very limited amount of local property taxes, and transit fares. According to the CTC Needs Assessment, “Local funds account for about 65 percent of all revenues for transportation infrastructure.”

Local transportation sales taxes, requiring local voter approval of an expenditure plan and the accompanying tax rate, have proven to be an important feature of California’s transportation funding landscape, providing a total of more than \$4 billion annually, and accounting for more than half of the funding for improvements to the state highway system. However, the Counties within the Bay To Tahoe Basin Recreation and Tourism Travel Impact Study Basin Study Area do not have a transportation sales tax measure, approved by voters. One challenge that is faced by smaller rural counties is that due to low population the amount of revenue that can be estimated is inherently limited by a smaller level of economic activity.

Another challenge faced by Counties that would like to present a transportation sales tax to voters, is the requirement for a two-thirds majority voting in favor of the measure. Counties that have a voter approved transportation sales tax are considered “Self Help Counties”. Self Help Counties have an advantage when presenting extensions to the transportation sales tax measures to the voters by demonstrating the tangible success of the project constructed under the original tax program. Counties that are approaching voters for the first time with a new tax measure do not have this success of previous tax measures to rely on to prove the importance of such a measure to voters. Reduction of the required voter threshold for the creation of new tax programs is unlikely to receive legislative approval or statewide voter approval.

7.3 TRANSPORTATION FUNDING PROGRAMS

Transportation funding is distributed throughout the state through a variety of federal, state, and local funding programs. Funding resources that support many of the funding are severely limited, running out, or are significantly strained by the large number of projects that require funding. Below is an evaluation of the availability of existing programs and the availability of funds.

Surface Transportation Program (Federal): MAP-21 establishes the Surface Transportation Program (STP). The STP is intended to fund a wide range of transportation projects, from capital improvements to planning activities. Projects previously approved for STP funds include freeway interchanges, roadway widening, signal installation, road rehabilitation, and planning studies. Once each State’s total Federal-aid apportionment is calculated, amounts are set aside for Metropolitan Planning and the Congestion Mitigation and Air Quality Improvement Program, and the remainder is divided among the rest of the formula, which is primarily based on population.

Federal Statewide Transportation Improvement Program (FSTIP)/Federal Transportation Improvement Program (FTIP): All federally funded projects and regionally significant projects (regardless of funding) must be listed in an FSTIP/FTIP per federal law. The various Metropolitan Planning Organization (MPOs) are responsible for developing and maintaining the FTP. The Sacramento Area Council of Governments (SACOG), as the federally designated Metropolitan Planning Organization (MPO) for the six-county Sacramento Region, and as such the SACOG prepares and adopts the Metropolitan Transportation Improvement Program (MTIP) MTIP every two years. The MTIP covers a

four-year period and must be financially constrained by year, meaning that the amount of dollars committed to the projects (also referred to as “programmed”) must not exceed the amount of dollars estimated to be available.⁴⁶ The MTIP feeds into the FTIP.

Within the Study Area, El Dorado and Placer Counties are members of SACOG, the MPO for the Sacramento Region. Within the Lake Tahoe Basin, the Tahoe Regional Planning Agency (TRPA) is the identified MPO. A project is not eligible to be programmed in the FSTIP/FTIP, until it is programmed by the CTC in the STIP, or approved through an MPO for inclusion into the FTIP. Projects located in non-MPO rural areas are directly listed in the FSTIP.

State Transportation Improvement Program (STIP) (State): STIP projects are capital projects needed to improve transportation. Typical STIP-funded projects, include state highway and local road improvements, public transit, pedestrian and bicycle facilities, grade separations, transportation system management, transportation demand management, sound walls, inter-modal facilities, safety, and environmental enhancement and mitigation.

The STIP is a multi-year capital improvement program of transportation projects on and off the State Highway System, funded with revenues from the Transportation Investment Fund and other funding sources. STIP programming generally occurs every two years. The programming cycle begins with the release of a proposed fund estimate in July of odd-numbered years, followed by California Transportation Commission (CTC) adoption of the fund estimate in August (odd years).⁴⁷ State resources for the STIP area severely deficient to fund the amount of planned projects and needed improvements.

According to the February 28, 2014 STIP Staff Recommendation completed by the CTC, the new STIP program will have approximately \$3.45 billion when added to the base of the programming in the prior STIP. This adds about \$1.232 billion in new STIP funding capacity with two new years of programming, 2017-2018 and 2018-2019. Although there is an overall increase, the 2014 STIP Fund Estimate indicated negative capacity for some program; while only the flexible funds from the State Highway Account provided positive program capacity. Even with the added capacity, the STIP is over programmed in the first three years of the STIP period (2014-15 through 2016-17) by about \$83 million⁴⁸

Interregional Transportation Improvement Program (ITIP): The ITIP is the 25% reservation of State Transportation Improvement Program (STIP) resources under direct programming control of Caltrans, subject to approval by the CTC. The interregional road system (IRRS) serves the movement of people and goods between regions and consists of a list of the state highway routes included in the system. There currently are 87 IRRS routes in statute, seven of which were added by legislation since

The following highways within the Study Area are considered High Emphasis Routes: SR 50, I-80, SR 89, SR 28, SR 89, and SR 267.

⁴⁶ Sacramento Area Council of Governments, A Guide to 2013/2016 Metropolitan Transportation Improvement Program

⁴⁷ California Department of Transportation, <http://www.dot.ca.gov/hq/LocalPrograms/STIP.htm>

⁴⁸ California Transportation Commission, 2014 STIP Staff Recommendation, February 28, 2014

the original system plan was developed. In intervening years since the IRRS was enacted, Caltrans has built on the IRRS to develop the Interregional Transportation System Plan (ITSP); which relies on a focus on High Emphasis Routes, of which there are 34. Of the 34 High Emphasis Routes, a sub-set of 10 Focus Routes was identified; which receive the highest attention for programming of ITIP funds. The ITSP, as presently being updated, lays out a recommended course of actions and considerations for the Interregional Improvement Program (IIP) for the 20-year planning period of 2012 to 2032. The following highways within the Study Area are considered High Emphasis Routes: SR 50, I-80, SR 89, SR 28, SR 89, and SR 267. However, none of these are considered Focus Routes and consequently, would not likely receive programming recommendations from Caltrans, particularly in the absence of supplemental funding.⁴⁹

As discussed below, the state resources available for the STIP, and therefore, the ITIP, are severely restricted looking forward. Consequently, unless substantial new revenue resources are made available or funding criteria are changed to reflect the user population to support the STIP, even upgrading any of the designated regional IRRS routes in the Bay to Tahoe Basin Recreation and Tourism Travel Impact Study Basin Study Area to a focus category nor developing a different funding allocation formula would provide capital improvement relief.

State Highway Operation and Protection Program (SHOPP) and Minor Program (State): The SHOPP Plan provides input for the funding distribution in the State Transportation Improvement Program (STIP) fund estimate. The purpose of the SHOPP is to maintain and preserve the investment in the State Highway System (SHS) and its supporting infrastructure. Projects in the SHOPP are limited to capital improvements relative to maintenance, safety, and rehabilitation of State highways and bridges, capital improvements that do not add a new traffic lane to the system.

The sole funding source for the SHOPP is the State Highway Account (SHA), which is funded primarily through excise taxes on gasoline and diesel fuel. SHA funding is declining as a result of reduced fuel consumption, funding shortfalls in the

Federal Highway Trust Fund, and redirection of funding for highway maintenance. As stated in the Caltrans 2011 SHOPP Plan, the projected SHA funding available for the SHOPP is \$1.8 billion a year, which is 24 percent of the estimated need. Because funding is insufficient to preserve and maintain the existing transportation infrastructure, Caltrans has stated that they will focus available resources on the most critical categories of projects in the SHOPP (safety, bridge, and pavement preservation). As such, the SHS will continue to deteriorate. Caltrans also states indicated that the percentage of lane miles of highway pavement in a distressed condition is projected to increase from 26 percent to 40 percent during the next ten years.⁵⁰

Unless substantial new revenue resources are made available to support the STIP, even upgrading any of the designated regional routes in the Study Area to a focus category would not provide capital improvement relief.

⁴⁹ Smith, Watts, and Martinez, LLC. Bay to Basin Funding Analysis, 2014

⁵⁰ California Department of Transportation, 2011 Ten-Year State Highway Operation and Protection Program Plan Fiscal Years 2012-2013 Through 2021-2022, January 2011

Regional Surface Transportation Program (RSTP) (State): The RSTP was established by California State Statute, utilizing Surface Transportation Program Funds that are identified in Section 133 of Title 23 of the United States Code. A RSTP project is required to be approved by the MPO for inclusion on the FTIP.

Projects eligible for funding from the RSTP include:

- Construction, reconstruction, rehabilitation, resurfacing, restoration, and operational improvements on Federal-aid highways and bridges.
- Mitigation of damage to wildlife, habitat, and ecosystems caused by a transportation project funded under RSTP.
- Capital costs for transit projects eligible for assistance under the Federal Transit Act and publicly owned intracity or intercity bus terminals and facilities.
- Carpool projects, fringe and corridor parking facilities and programs, and bicycle transportation and pedestrian walkways on any public roads in accordance with Section 217 of Title 23, U.S.C.
- Highway and transit safety improvements and programs, hazard elimination, projects to mitigate hazards caused by wildlife, and railway-highway grade crossings. Safety improvements are eligible on public roads of all functional classifications
- Highway and transit research and development and technology transfer programs.
- Capital and operating costs for traffic monitoring, management and control facilities and programs.
- Surface transportation planning programs.
- Transportation enhancement activities.
- Transportation control measures listed in Section 108 (f)(1)(A) (other than clauses xii & xvi) of the Clean Air Act.
- Development and establishment of management systems under Section 303 of Title 23, U.S.C.
- Wetlands mitigation efforts related to RSTP projects.

Environmental Improvement Funding, Conservancy Funding: Within the Lake Tahoe Basin, the Environmental Improvement Program (EIP) encompasses hundreds of capital improvements, research, and program support projects designed to achieve and maintain environmental thresholds that protect Tahoe's unique and valued resources. The purpose of these projects is to strive to repair damage to water and air quality, forest health, fish and wildlife, scenic views and to improve public access to Lake Tahoe's abundant recreational opportunities. The State of California fulfilled its funding commitment in the first decade of the EIP through projects funded primarily through California Tahoe Conservancy, State Parks, and Caltrans. More than \$446 million has been committed to EIP projects by the State of California from funds made available through Propositions 204, 12, 40, 50, 84, and other sources.

7.4 FUTURE TRANSPORTATION FUNDING OPPORTUNITIES

Given the rural nature of the Study Area, funding for transportation is especially limited. Many of the previously discussed funding programs are allocated on formulas that factor in

Many funding program allocated resources based on formulas that factor in population.

population. As such, it will be imperative that in addition to evaluating existing sources of funding, it is also necessary to evaluate emerging transportation funding opportunities.

Local Revenues: Throughout California, many county transportation agencies have adopted local dedicated transportation sales taxes. Each county delivers voter-approved (by super-majority) transportation sales tax measures that fund transit, highway, freight, bicycle, pedestrian and other mobility programs. Together, these counties supplement approximately \$3 to \$4 billion each year to California’s transportation infrastructure, creating jobs, expanding mobility and enhancing local communities and the environment.

However, since Proposition 62 (1986) imposed a new constitutional requirements on local “special” taxes that requires voter approval by a two-thirds majority approval, voter approval of transportation sales tax measures has been difficult to come by. To address this issue and the ever growing demand for increased transportation funding, a transportation policy priority has developed to seek a reversal resulting in a reduction of the voter threshold to 50 or 55%. At this time, voter appetite for addressing approving a reduction in the voter threshold has not demonstrated adequate support, thus leaving further extensions, renewals and new local taxes sought by counties without these taxes, in doubt. As such, the likelihood of developing a local expenditure plan based on a transportation sales tax measures that would address regional needs in the key corridors is low.⁵¹

The likelihood of developing a local expenditure plan based on a transportation sales tax measures that would address regional needs in the key corridors is low.

California Transportation Infrastructure Priorities (CTIP): In recognition of the transportation funding challenge confronting the state and Governor Brown called upon the California State Transportation Agency (CalSTA) to convene a working group to examine the current status of the state’s transportation system and the future related challenges. As such, the California Transportation Infrastructure Priorities Working Group (CTIP) was formed, which consisted of numerous stakeholders and first convened in April 2013. In sequence, the next steps involved establishing four modal area working, with these starting their own working sessions in May 2013, to be followed by collaboration in the fall of 2013 of the larger CTIP group, with the objective to produce recommendations for the consideration of the Governor for 2014. The working group developed the CalSTA, California Transportation Infrastructure Priorities; Vision and Interim Recommendations. Featuring a focus on “fix it first”, the Secretary intends to continue the work of the CTIP Work Group into 2014 seeking concepts to provide long-term, sustainable state and local funding.

Active Transportation Program (ATP): The newly reshaped Active Transportation Program (ATP) divides \$129.5 million between the state and regions subject to CTC guidelines. Part of this restructuring of the ATP, included retention of the Environmental Enhancement and Mitigation (EEM) Program to continue to remain as a stand-alone program, administered by the Natural Resource Agency. Traditionally, the

⁵¹ Smith, Watts, and Martinez, LLC. Bay to Basin Funding Analysis, 2014

EEM has been funded with a transfer from the State Highway Account (SHA); with a recent proposal by Governor Brown, \$12 million will be made available in 2014-15. Additionally, the ATP program bill guarantees the Safe Routes To School (SR2S) program at least \$24 million for three years with at least \$7.2 million available for non-infrastructure program needs.

AB 99 (2013), which authorized the restructuring of ATP, provides that 40 percent of available resources will go to urban MPOs, ten percent of the funds to projects nominated in small urban and rural regions, with the remaining funds to the California Transportation Commission for statewide project grants. The goals of the ATP are to:

- Increase the proportion of trips accomplished by biking and walking.
- Increase the safety and mobility of non-motorized users.
- Advance the active transportation efforts of regional agencies to achieve greenhouse gas reduction goals.
- Enhance public health, including reduction of childhood obesity through the use of programs including, but not limited to, projects eligible for Safe Routes to School Program funding.
- Ensure that disadvantaged communities fully share in the benefits of the program.
- Provide a broad spectrum of projects to benefit many types of active transportation users.

Many of the recommendations included in this study to address tourism impacts within the Study Area are consistent with the overall goals of the ATP.

Cap and Trade Funding for Transportation: California's Cap-and-Trade Regulation took effect on January 1, 2012 and is administered by the Air Resources Board. To date, the Air Resources Board has held six auctions, with a seventh auction planned for May 2014. Currently, Greenhouse Gas (GHG) emissions from electricity and large industrial sources are subject to the cap. The sale of allowances consigned to auction by electric distribution utilities resulted in proceeds of \$836 million, to be used as directed by the California Public Utilities Commission or governing boards for ratepayer benefits consistent with the goals of AB 32. In addition, the five auctions to date have generated \$532 million in state auction proceeds.

The Governor is currently proposing to invest \$850 million of Cap and Trade proceeds to support existing and pilot programs that will promote GHG reductions and meet SB 535 goals. This amount includes repayment of \$100 million of the 2013 Budget loan, with the remaining balance being repaid within the next few years. Additionally the Governor's budget proposes to invest in both near-term emission reductions and projects that support California's longer-term climate targets.

Specifically, the Cap and Trade Expenditure Plan proposes investments in the following programs: rail modernization, sustainable communities, low carbon transportation and high speed rail. Many of the recommendations in this Study, are consistent with transit and sustainable communities' objectives. Allowing tourists to reach a destinations in a more efficient and effective manner, through transit connectivity, and the development of a transportation system that is not only effective and efficient but also promotes biking and walking, would lead to more sustainable communities, and reduced impacts to the environment. It will be important to track the Cap and Trade Program into the future to determine if

funds will be available to contribute funding to improvements to the transportation network within the funding area.

7.5 IMPLEMENTATION OF FUNDING RELATED EFFORTS

Although, the future of transportation funding is not stable in the long-term and is strained in the short-term, there are modest opportunities to advance the projects and recommendations identified in this report to address the impact of tourism

on the rural roadway network within the Study Area. The information presented, can be used to inform future transportation planning and funding efforts. For example, it was previously assumed that visitors from the Bay Area and Sacramento Regions rely heavily on I-80 and US 50 to travel

There are modest opportunities to advance the projects and recommendations identified in this report to address the impact of tourism on the rural roadway network within the Study Area.

to the Study Area. From Public Opinion and Research effort and the traffic data collection effort, concrete data has been obtained that better defines where the traveler is originating from, how they travel, what route is typically used on a seasonal basis, the impact that increased tourism has on congestion and the condition of the highway and the needs of the travel are better understood. The data also supports the need for public transit options, better connectivity to tourism destinations, and the need for enhancements to highway access, parking, lighting, signage, and the distribution of traveler information.

Although the traditional state transportation funding system is strained, emerging new sustainable funding opportunities exist that could play an important role in meeting the goals of the Bay To Tahoe Basin Recreation and Tourism Travel Impact Study Basin study findings in the near term.

Funding Recommendation 1 (F-1) Active Transportation Program (ATP): The ATP presents a real opportunity for projects identified in the study to obtain funding. As such, it will be necessary to carefully vet projects to ensure they align with the published CTC guidelines. While this statewide competitive category under CTC control will provide the basis for grants requests, the competition from across the state will be intense. Similarly, it is likely that the rural category will have competition as the overall amount available through in the category are constrained. It is recommended to package improvements that address tourist impacts and needs together to ensure into one project to address as many of the ATP goals as possible with any specific project. The Implementation Table in Section 8, identifies ATP goals and the applicability to various recommendations in this Study.

Funding Recommendation 2 (F-2) Cap and Trade: The Governor's 2014-15 Budget proposes to provide \$100 million under the Cap and Trade program for sustainable transportation investments. This may be an opportunity for Tahoe regional entities to package infrastructure projects that address tourism related congestion and or reduce GHG emissions, through operational improvements, transit, complete streets programs, and/or ITS solution to take advantage of these funding generated from the Cap and Trade Program. Many of these types of projects area also consistent with ATP goals.

Funding Recommendation 3 (F-3) Cross-Regional Cost-Sharing: Streets & Highways code Section 188.8, subdivision (c) provides for a cooperative process for eligible STIP agencies to "pool" STIP shares. With the understanding developed through the basic research supporting this Study, that demonstrates that 4,155,889 visitors make 7,902,043 visits annually from the combined Bay Area and Sacramento regions, a plausible proposal could be developed to approach partner agencies, through Section 188.8 (c), to request them to provide modest levels of assistance from their STIP resource, pooled with those of Placer, El Dorado counties and TRPA. As the authority in Section 188.8 (c) is structured on a voluntary basis, such an approach would have to rely on clearly demonstrating that the annual 8 million visitor trips from areas, such as Sacramento (SACOG) and San Jose and San Francisco (MTC) are enough of a priority to the respective region motorists to encourage such collaboration.⁵²

Funding Recommendation 4 (F-4) Continue Project Readiness Activities: Although not strictly a funding consideration, one important of transportation planning is to ensure agencies have the capacity to plan and develop projects to a state of readiness. This provides the opportunity in the event enhanced or new funding sources are provided on a regional or statewide basis. With the suite of traveler improvements identified in this Study, pending approval by appropriate overseers, a foundation of programs and projects can be identified for prioritization for moving into a state of readiness to compete for new federal, state or regional funding sources if and when they are provided. This Study provides the data and performance measures to support the development of ready projects. It is recommended that on a region wide basis thought be given to the consideration of improvements.

⁵² Smith, Watts, and Martinez, LLC. Bay to Basin Funding Analysis, 2014

8 IMPLEMENTATION OF STUDY

The success of addressing tourism related impacts to the rural transportation system within the Study Area and to accommodate likely growth in the tourism market will be dependent on a multi-pronged cross-regional implementation effort. Public agencies and private stakeholder will each have an important role in the planning and execution of specific activities. One of the biggest challenges faced during implementation, will be the complex nature of the transportation planning process and associated funding programs. The intent of this Section is to outline Performance Measures that could be applied to future transportation planning efforts, to identify overarching guiding principles that should serve as a basis for implementation, and to provide an analysis of the specific recommendation measure in regards to each measures consistency with existing planning efforts and major funding programs.

8.1 PERFORMANCE MEASURES

It is imperative that transportation agencies plan, build, and operate transportation systems that, in addition to achieving the important goals of mobility and safety, support a variety of economic, environmental, GHG and air quality, and community objectives. These include: addressing existing traffic congestion, protecting natural resources, improving public health, strengthening the economy, addressing tourism needs, addressing maintenance and operation, greenhouse gas emissions and air quality, and improving mobility. As such, during the course of this study, performance measures were developed that are focused on the characteristics of the rural transportation system and the relationship to urban travel patterns in the context of the tourist-based economy of the Lake Tahoe Region. It is intended that these performance measures will allow decision-makers to: quickly observe the effects of a proposed transportation plan or project, monitor trends in transportation system performance over time, substantiate future funding opportunity requirements and can be used by local and regional transportation agencies to target investments more effectively.

These performance measures were presented to the PAC for refinement and adoption. The performance measures identified below, include both quantitative (level of service, travel time, etc.) and qualitative (traveler perception, community perception, etc.) measures. It is recommended that these Performance Measures be utilized to measure the applicability and success of the implementation of specific projects or strategies that are intended to address tourism impacts within the Study Area or accommodate the future tourism market.

Bay To Tahoe Basin Recreation and
Tourism Travel Impact Study

Table 8-1: Quantitative Measures

<i>Performance Measure</i>	<i>Unit of Measure</i>	<i>Method of Measure</i>	<i>Performance Target</i>
Traffic Safety	Accidents per Million Vehicle-Miles	"Before & After" collision data summaries from Caltrans Safety Branch	Reduce accident rates by at least 10% over 5 years subsequent to improvement
Traffic Operations & Mobility	Average Vehicle Delays (Time lost to congestion), Volume/Capacity Ratio, Level of Service	Delay/LOS computation Before and After	Reduce delays by 5% or sustain LOS at/above agency-mandated minimum policy thresholds
Emissions/Air Quality Impacts & Smart Mobility Goals	Vehicle Miles Traveled (VMT) Multi-modal mobility/LOS Carpooling/Ridesharing Transit mode share Proportion of Alternate Fuel Vehicles Public perception of natural environment as an asset	Automobile VMT Before and After VMT for non-auto modes HOV lane usage data On-board rail and bus ridership surveys DMV records of registered hybrid/plugin/alt-fuel vehicles User Surveys	Reduce Automobile-based VMT by at least 5% subsequent to implementation
Visitorship	Annual Average Daily Traffic (AADT) and Peak Month ADT Demands	ADT counts Before and After	Increase external annual visitorship (AADT) commensurate with CA/NV Statewide population growth rates
Maintenance/System Condition	Pavement condition	Caltrans Travelway (Rigid & Flexible) LOS	Travelway LOS 82
Maintenance/System Condition	Travel Diffusion	Travel Diffusion LOS	Travel Diffusion LOS 87
Maintenance/System Condition	Landscaping, Rest Areas, Vista Points, Park n Ride Lots	Recorded Use of Facilities	Landscaping LOS 71, Roadside Rest LOS 84, Vista Points LOS 83, Park n Rides LOS 77
General Traveler Experience	Qualitative Rating Scale (Excellent, Average, Bad) Length of Stay (number of nights stayed in Study Area)	Before-after visitor interviews Resort/hotel/motel sales data	10% increase the number of visitors with improved traveler experience over 5 years Improve number of visitors staying longer by at least 10% over 5 years

Bay To Tahoe Basin Recreation and
Tourism Travel Impact Study

Table 8-1: Quantitative Measures

<i>Performance Measure</i>	<i>Unit of Measure</i>	<i>Method of Measure</i>	<i>Performance Target</i>
Traveler Experience Enhancement through Use of Advanced Traveler Information Systems (ATIS)	Number of Google hits/searches for Study Area info or real-time traffic Number of Tahoe App downloads Number of visitors tuning in to Highway Advisory Radio	Before-after data comparison of proprietary market data from vendors/businesses	10% increase in number of ITS or ATIS users over 5 years
Marketability, Market Reach	Average distance of tourist home zip code from Study Area	Before-after data comparison from user interviews Before-after counts	Improve number of visitors coming from farther origins by at least 10% over 5 years. Increase number of recreation related business and locations.
Economic Growth (Tourism related)	Rentals/tickets sold at Ski Resorts Sales tax revenues at wineries, businesses, etc.	Before-after revenue comparisons	Improve sales/revenues by at least 10% over 5 years
Economic Growth (Local economy related)	Number of new building permits issued by local agencies Number of second-home owners in the Study Area	Compare annual summary of building permit activity Before-after comparisons of APN ownership data	Increase building permit issuance rates commensurate with regional population growth rates Improve number of second-home owners by at least 10% over 5 years
New Visitorship	Number of First-time visitors	user interviews	Increase number of first-time visitors by at least 10% over 5 years
Repeat Visitorship	Number of Repeat Visitors	user interviews	Increase number of repeat visitors by at least 10% over 5 years

8.2 GUIDING PRINCIPLES

Throughout this Study, there are many specific recommendations that are intended to: address the impacts to the transportation system associated with tourism, address the needs of the tourist while travelling, and to address the likely future growth of tourism within the Study Area. Within Section 2 through Section 7 there are specific recommendations that are relevant to the content of the specific section. Likewise, in Section 8.3 there is a table that summarizes all of the recommendations. In addition to these specific implementation measures, it was determined that there are also overall guiding

principles that should be embraced to maximize the benefit of recommendations contained herein. The guiding principles (as described below) are intended to serve as a framework for implementation. In order for the identified measures to be successful it will be imperative that they are incorporated into existing mechanisms for planning and funding transportation improvements.

Develop a Regional Tourism and Transportation Coalition: Many of the recommendations contained herein, require regional coordination and implementation, in order for maximum benefit to be realized. As such, it is recommended that a regional tourism and transportation coalition be formed that includes all impacted jurisdictions within the Study Area. A regional tourism and transportation coalition could be used to explore funding strategies; such as the potential to pool STIP resources or to explore the potential to combine populations for the purpose of competing for transportation at the urban population level rather than at rural populations level. Additionally, many of the specific recommendations, related to the management of tourism related congested, would be more successful in reducing congestion related to tourism if they were implemented on a system wide basis within the Study Area. Therefore, a regional tourism and transportation coalition would facilitate the development and implementation of system wide tourism traffic management program.

Consistency with Transportation Planning Documents: In order to effectively address tourism related impacts to the transportation system and to accommodate the likely future growth of tourism, transportation agencies must account for the tourism population, tourist related impacts, and future tourism growth in transportation planning documents. Regional Transportation Plans (RTPs), developed by Regional Transportation Planning Agencies (RTPAs) or Metropolitan Planning Organizations (MPOs) need to give consideration to the needs and impacts associated with tourism. Tourists are a large faction of the total user group that utilizes the transportation system within the Study Area. Currently this portion of the user group is not accounted for in traditional transportation planning mechanism or funding programs. As such, the impacts and needs associated with tourism are not adequately addressed.

Develop a Suite of Projects within Each Jurisdictional Agency: There are many recommendations contained in this report that will require capital investment for implementation. It is recommended that each jurisdictional agency conduct an analysis of the existing transportation system, within the Study Area, to develop a suite of projects that are consistent with the recommendations that are contained in this study. It is also recommended that agencies look for opportunities to incorporate improvements that address identified tourist impacts or needs into existing planned projects. The suite of projects should be then incorporate appropriate transportation planning documents.

Regional Transit Connectivity: The transit system within the overall Study Area is generally disconnected and not easily accessible or easy to use. Within the Lake Tahoe Basin there are more abundant transit services; however, they lack connectivity with the greater region located outside of the basin. Additionally, transit opportunities from major population centers (the Bay Area and Sacramento Regions) are disconnected, not easy to use and require many transfers among various transit opportunities and lack last mile connecting services. An efficient transit system is a key factor to addressing tourist related congestion, greenhouse gas emissions, and impacts to the overall

environment. Regional transit connectivity would also improve the visitor experience and would provide a reliable method of travel for visitors who do not have vehicles.

To improve the overall effectiveness and efficiency of the transit system, it is imperative that transit operators provide more reliable connections within service areas and between services areas, make it easier to pay fares, improve way-finding signage and reduce overall travel times. By making multi-operator transit trips easier and more convenient, transit operators can attract new transit riders and retain existing riders. Poor connectivity makes transit unattractive to new customers by rendering travel frustrating, time-consuming and costly.

Public/Private Partnerships: Many of the implementation measures related to improving the traveler experience or to the dissemination of traveler related information would benefit from a public and

8.3 IMPLEMENTATION SUMMARY

The implementation measures recommended in this Study, are intended to: address impacts to the transportation network associated with tourism, the needs of the tourist and to address the likely future growth in tourism within the Study Area. **Table 8-2** provides a summary of each of the recommendations and an analysis of each measure's consistency with existing transportations planning efforts, consistency with the overall goals of Active Transportation Program (ATP) and Moving Ahead for Progress in the 21st Century Act (MAP-21). In addition, the applicability of the Performance Measures identified in **Table 8-1** to each implementation measures is also provided.