3.7 TRANSPORTATION, PARKING AND CIRCULATION

3.7.1 ENVIRONMENTAL SETTING

The Heavenly Mountain Resort Epic Discovery Project (Project) is located in South Lake Tahoe, California and Stateline, Nevada. The site is accessed by US Highway 50 (US 50) and intersecting local roadways. The Project will consist of a variety of summer activities at the existing Heavenly Mountain Resort including a mountain bike park, hiking/maintenance trails, zipline canopy tours and ropes courses, and mountain excursion tours. The main guest parking will be provided by the existing South Lake Tahoe public parking garage located on Bellamy Court on the east side of US 50. Additional existing parking is located at the nearby casinos in South Lake Tahoe.

3.7.1.1 Roadway Setting

Figure 3.7-1 shows the existing applicable roadway segments and intersections along US 50 that provide access to the Project area. The major roadways included in the analyses are described as follows:

US Highway 50 (US 50) is an east-west highway that passes through South Lake Tahoe and connects Sacramento, California to Carson City, Nevada and points beyond. Within in the study area, US 50 generally runs north-south. Throughout the majority of South Lake Tahoe, US 50 is a four-lane roadway with a two-way left-turn lane. The speed limit on US 50 near the Project area varies from 25 to 35 miles per hour (mph).

Pioneer Trail is a two-lane roadway in South Lake Tahoe that provides an alternative route to US 50 between South Lake Tahoe and Meyers. The posted speed limit in Pioneer Trail varies from 30 to 45 mph.

Lake Parkway is a two-lane loop road that intersects US 50 in Stateline, Nevada. Lake Parkway intersects Stateline Avenue and Park Avenue on the west side of US 50 and Heavenly Village Parkway on the east side of US 50. The posted speed limit on Lake Parkway varies from 25 to 35 mph.

Stateline Avenue is a two-lane roadway that extends west of US 50 to Lake Tahoe along the state line between California and Nevada. The majority of the land uses served by Stateline Avenue are lodging uses including hotels, motels, and local inns.

Transit Way is an approximately 700 foot roadway between US 50 and Bellamy Court designated for buses only. Transit Way provides access to the Stateline Transit Center which serves all South Tahoe and Lake and Valley Express transit routes.

Friday Avenue is an unstriped, two-lane roadway between US 50 and Manzanita Avenue on the west side of US 50. The majority of the land uses served by Friday Avenue are lodging uses including hotels, motels, and local inns.

Park Avenue/Heavenly Village Way is a two-lane roadway with a posted speed limit of 25 mph. West of US 50, the roadway is named Park Avenue and provides access to Lakeside Marina on Lake Tahoe. East of US 50, the roadway is named Heavenly Village Parkway. Heavenly Village Parkway intersects Lake

Parkway, and south/east of Lake Parkway provides access to Van Sickle Bi-State Park. Van Sickle Bi-State Park is open to guests in the summer and fall, and is gated in the winter and spring.

Bellamy Court is an unstriped, two-lane roadway that runs between Heavenly Village Parkway and Transit Way. Bellamy Court primarily serves South Tahoe and Lake and Valley Express transit routes, and also provides a small amount of on-street parking for nearby hotel guests and visitors.

3.7.1.2 Existing Traffic Volumes

Winter Traffic Volumes

Intersection turning movement counts were collected at the study intersections in December 2013 during the Friday PM (3:00 PM – 6:00 PM) and the Saturday Midday (12:00 PM - 2:00 PM) peak traffic periods. A comparison of Friday versus Saturday counts was conducted to determine which day had higher traffic volumes. Based on the existing winter data, Friday PM peak hour traffic volumes are higher than Saturday midday peak hour traffic volumes. The raw traffic count data is provided in Appendix 3.7-A.

Summer Traffic Volumes

Intersection turning movement counts were estimated at the study intersections using a ratio comparing summer and winter traffic volumes. A seasonal conversion factor was developed using existing traffic volume data from August 2013 and December 2013, obtained from the Caltrans Performance Measurement System (PeMS). PeMS data collected on US 50 at Midway Road was the closest data collection location to the Project area. The following traffic volume data was collected for this location:

- Northbound (eastbound) and southbound (westbound), Friday PM peak period (3:00 PM to 6:00 PM) traffic volumes for all Fridays in December 2013 (December 6, 13, 20, 27)
- Northbound (eastbound) and southbound (westbound), Friday PM peak period (3:00 PM to 6:00 PM) traffic volumes for all Fridays in August 2013 (August 2, 9, 16, 23, 30)

The hourly traffic volumes for winter and summer were averaged to calculate the difference between the seasons. The data showed that summer traffic volumes are approximately 16 percent higher than winter traffic volumes. Therefore, a 16 percent growth rate was applied to traffic volumes collected in December 2013 to develop typical summer traffic volumes at the study intersections. Traffic volumes were balanced between study intersections where necessary.

Table 3.7-1 shows the estimated existing intersection turning movement counts at the study intersections for the Friday PM peak period during summer. The existing intersection lane configurations, control types, and turning movement volumes are displayed on Figure 3.7-2.

1 Study Intersection
Gondola

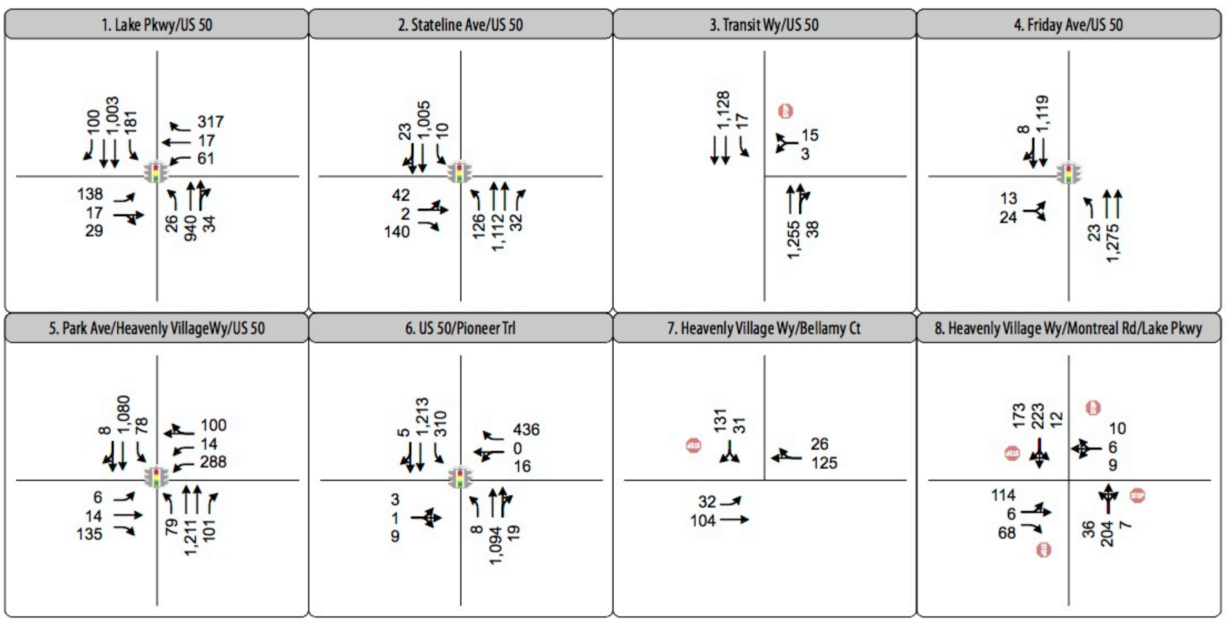
Figure 3.7-1
Study Area

Table 3.7-1

Existing Intersection Turning Movement Counts – Friday PM Peak Hour (Summer)

Intersection	Turning Movement Volume											
	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1. US 50/Lake Pkwy	26	940	34	181	1,003	100	138	17	29	61	17	317
2. US 50/ Stateline Ave	126	1,112	32	10	1,005	23	42	2	140	-	-	-
3. US 50/Transit Way	-	1,255	38	17	1,128	-	-	-	-	3	-	15
4. US 50/Friday Ave	23	1,275	-	-	1,119	8	13	-	24	-	-	-
5. US 50/Park Ave/Heavenly Village Way	79	1,211	101	78	1,080	8	6	14	135	288	14	100
6. US 50/ Pioneer Trail	8	1,094	19	310	1,213	5	3	1	9	16	0	436
7. Heavenly Village Way/ Bellamy Ct	-	-	-	31	-	131	32	104	-	-	125	26
8. Heavenly Village Way/ Lake Pkwy/ Montreal Rd	36	204	7	12	223	173	114	6	68	9	6	10

Source: Fehr & Peers 2014



❶	Study Intersection
PM	Peak Hour Traffic Volume
↗	Turn Lane
	Traffic Signal
	Stop Sign

Note: Traffic volumes are based on data collected in December 2013 and adjusted using historical trends to develop traffic volumes that reflect a PM peak hour on Friday in August.

Figure 3.7-2

Peak Hour Traffic Volumes and Lane Configurations - Existing Summer Friday Conditions

3.7.1.3 Historic Traffic Volumes

Table 3.7-2 illustrates annual average daily traffic (AADT) volumes from 2003 to 2011. AADT volumes on US 50 have decreased from approximately 2.5% to 3% per year during this time frame. Between 2003 and 2011, traffic volumes on US 50 in the Heavenly area fell by a total average of approximately 23%.

Table 3.7-2

Historic Average Daily Traffic Volumes – US 50

Segment	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Average Annual Growth
US 50 East of Pioneer Trail Road	37,500	37,500	NA	35,500	35,000	33,000	31,500	28,500	29,000	29,000	**-2.52%**
US 50 East of Park Avenue	34,000	33,500	NA	29,000	29,000	28,500	27,500	26,500	26,500	26,500	**-2.45%**
US 50 West of Stateline Avenue	33,000	33,000	NA	30,500	30,500	28,000	27,500	26,500	26,000	25,500	**-2.53%**
US 50 East of CA-NV Stateline	30,500	30,800	28,900	26,500	25,000	25,000	24,000	24,000	27,000	22,500	**-2.91%**

Sources: Caltrans Traffic Data Branch, 2014

3.7.1.4 Existing Traffic Conditions

Intersection Operations

Level of service is a qualitative measure of traffic operating conditions, whereby a letter grade, from A to F is assigned, based on quantitative measurements of delay per vehicle. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. In general, LOS A represents free-flow conditions, and LOS F represents severe delay under stop-and-go conditions.

The study intersections were analyzed using SimTraffic microsimulation software. SimTraffic applies the methodologies presented in the Transportation Research Board's *Highway Capacity Manual* (HCM) 2010. This software exceeds state-of-the-practice techniques by simulating real life driver behavior, and considering the roadway system as whole, rather than each individual intersection. SimTraffic more accurately assesses intersection operations along a congested corridor by considering the effects of adjacent intersections (i.e. queue spillback, etc.). Per standard practice, a minimum of ten SimTraffic runs were completed for each analysis scenario and the results were averaged to yield the findings.

Signalized Intersections

Traffic operations at signalized intersections were evaluated using the LOS method described in the 2010 HCM. A signalized intersection's LOS is based on the weighted average control delay measured in seconds per vehicle. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration. Table 3.7-3 summarizes the relationship between the control delay and LOS for signalized intersections.

Unsignalized Intersections

The 2010 HCM describes the method for evaluating LOS and delay at unsignalized (all way stop controlled and side street stop controlled) intersections. LOS at unsignalized intersections is also defined by the average control delay per vehicle (measured in seconds). The control delay incorporates delay associated with deceleration, acceleration, stopping, and moving up in the queue. The average delay for the overall intersection is reported for all way stop controlled intersections. The average delay for the overall intersection (worst movement) is reported for side street stop controlled intersections. Table 3.7-3 summarizes the relationship between delay and LOS for unsignalized intersections. The delay ranges for unsignalized intersections are lower than for signalized intersections as drivers expect less delay at unsignalized intersections.

Table 3.7-3

Intersection LOS Criteria

LOS Description		Signalized Intersections (Avg. Control Delay)	Unsignalized Intersections (Avg. Control Delay)
A	Represents free flow. Individual users are virtually unaffected by others in the traffic stream.	0 to ≤ 10.0 sec/veh	0 to ≤ 10.0 sec/veh
B	Stable flow, but the presence of other users in the traffic stream begins to be noticeable.	>10.0 to ≤ 20.0 sec/veh	>10.0 to ≤ 15.0 sec/veh
C	Stable flow, but the operation of individual users becomes significantly affected by interactions with others in the traffic stream.	>20.0 to ≤ 35.0 sec/veh	>15.0 to ≤ 25.0 sec/veh
D	Represents high-density, but stable flow.	>35.0 to ≤ 55.0 sec/veh	>25.0 to ≤ 35.0 sec/veh
E	Represents operating conditions at or near the capacity level.	>55.0 to ≤ 80.0 sec/veh	>35.0 to ≤ 50.0 sec/veh
F	Represents forced or breakdown flow.	>80.0 sec/veh	>50.0 sec/veh

Source: *Highway Capacity Manual 2010*

The LOS standards for the jurisdictions with regulatory authority in the Lake Tahoe Basin are described below in the Regulatory Setting section of this Chapter.

The Friday PM peak hour was analyzed during the summer because this is generally when peak traffic volumes occur on the roadways. The existing summer intersection LOS and delay were calculated for the study intersections using SimTraffic 8 software which utilizes HCM 2010 methodology. Table 3.7-4 presents the LOS results for the study intersections under existing conditions.

As shown in Table 3.7-4, the study intersections operate at acceptable LOS during the summer Friday PM peak hour.

Table 3.7-4

LOS Results – Existing Summer Friday Conditions

Intersection	Control Type [1]	PM Peak	
		Delay [2]	LOS
1. US 50/Lake Pkwy	Signal	14	B
2. US 50/Stateline Ave	Signal	19	B
3. US 50/Transit Way	SSSC	3 (24)	A (C)
4. US 50/Friday Ave	Signal	7	A
5. US 50/Park Ave/ Heavenly Village Way	Signal	28	C
6. US 50/Pioneer Trail	Signal	22	C
7. Heavenly Village Way/Bellamy Ct	SSSC	2 (5)	A (A)
8. Heavenly Village Way/Lake Pkwy/Montreal Rd	AWSC	7	A

Source: Fehr & Peers 2014

Notes: [1] SSSC = Side Street Stop Control, AWSC = All Way Stop Control
[2] Delay is reported in seconds per vehicle for the overall intersection for signalized and all way stop controlled intersections, and for the overall intersection (worst movement) for side street stop controlled intersections.

3.7.1.5 Existing Ground Transit Facilities

Tahoe Transportation District (TTD) provides transit service to, from, and around South Lake Tahoe. BlueGO service operates three fixed routes (23, 50, and 53) throughout South Lake Tahoe, as well as Lake and Valley Express service between South Lake Tahoe, Carson City, Minden, and Gardnerville on two fixed routes (20x and 21x).

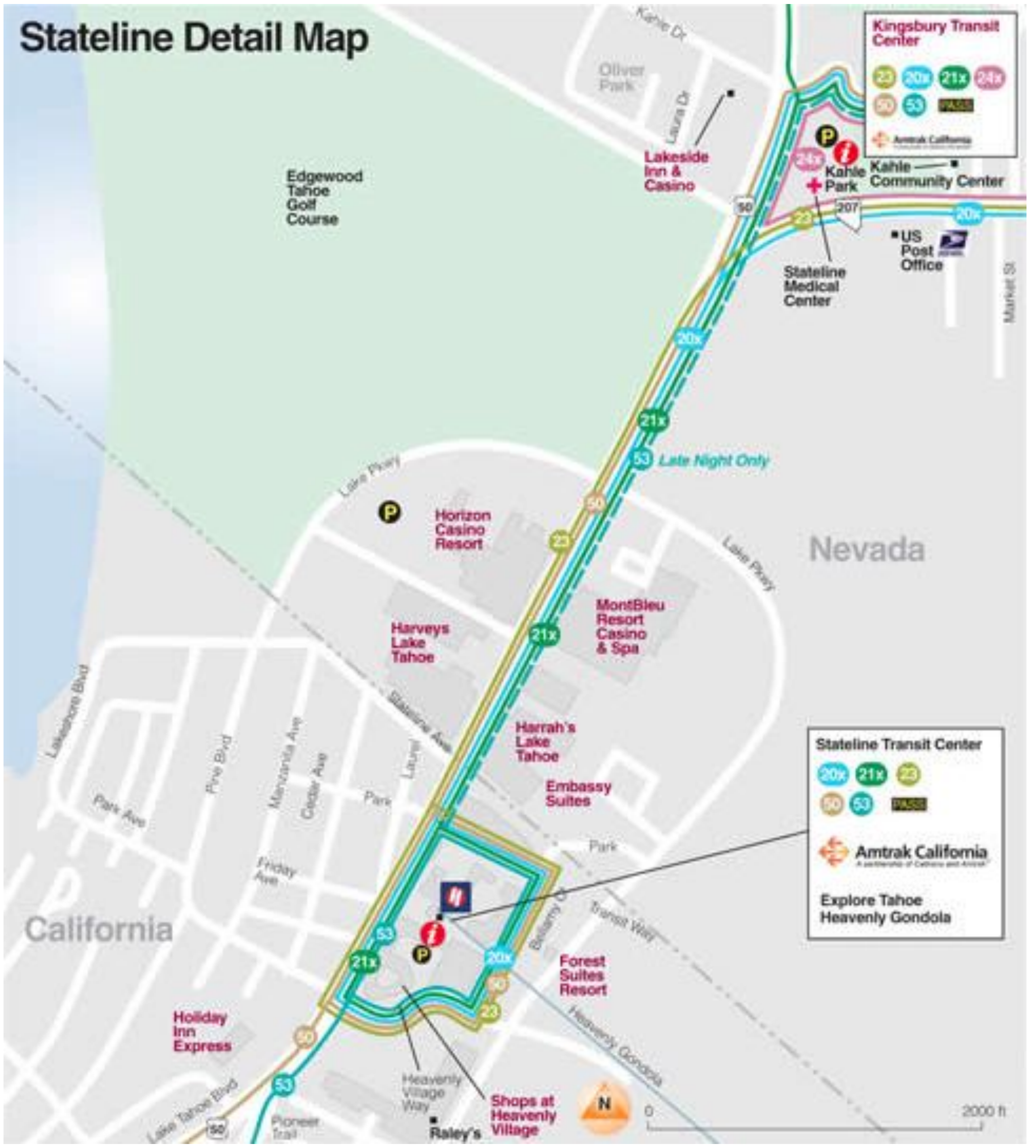
BlueGO route 23 service is provided daily from 7:20 AM to 12:25 AM, and from 12:30 AM to 1:25 AM on Fridays and Saturdays. Route 23 travels from the Stateline Transit Center to the Heavenly Boulder Lodge and Heavenly Stagecoach Lodge via US 50 and Kingsbury Grade.

BlueGO routes 50 and 53 provide service between to the Kingsbury Transit Center, the Stateline Transit Center and the South Y Transit Center. Route 50 primarily travels on US 50, while route 53 uses alternative roadways including Pioneer Trail, Johnson Boulevard, and Al Tahoe Boulevard. Route 50 service is provided daily from 5:15 AM to 11:04 PM. Route 53 service is provided daily from 6:45 AM to 10:40 PM; however, service to Lake Tahoe Community College is not provided on Sundays or holidays.

Lake and Valley Express route 20x provides service between South Lake Tahoe and Gardnerville via Kingsbury Grade. Weekday service is provided from 5:15 AM to 9:40 AM and from 3:40 PM to 6:40 PM. Weekend service is provided from 5:25 AM to 9:00 AM and from 2:35 PM to 7:30 PM.

Lake and Valley Express route 21x provides service between South Lake Tahoe and Carson City via US 50. Weekday service is provided from 5:30 AM to 9:33 AM and from 2:05 PM to 7:43 PM. Weekend service is provided from 5:30 AM to 9:28 AM and from 2:30 PM to 7:28 PM.

Figure 3.7-3. Existing Ground Transit Facilities and Routes (As of April 2014)



Notes: Route 24x is no longer in service.
Source: www.tahoetransportation.org

3.7.1.6 Existing Bicycle and Pedestrian Facilities

Bicycle and pedestrian facilities exist around much of the Lake Tahoe perimeter. In South Lake Tahoe, bike lanes exist on Heavenly Village Parkway and Pioneer Trail. There is also a bike path adjacent to US 50 south of Pioneer Trail. There are numerous pedestrian amenities in the downtown area of South Lake Tahoe, including wide sidewalks along the entire east side of US 50 and crosswalks at nearly every intersection. Sidewalks exist along portions of the west side of US 50, but some sections are not in good conditions or are closed due to construction on adjacent parcels.

Existing bicycle facilities in South Lake Tahoe are shown on Figure 3.7-4.

Figure 3.7-4. Existing Bicycle and Pedestrian Facilities

Source: www.tahoebike.org

3.7.1.8 Existing Parking Facilities

The following existing parking areas are open to the public and are within walking distance of the Heavenly gondola. Although no new parking will be specifically provided for the Project, patrons may park in these existing parking areas:

- South Lake Tahoe parking garage – Approximately 420 parking spaces (paid) located on Bellamy Court.
- Parking associated with the Stateline casinos. Harrah's parking is in closest proximity to the Heavenly Gondola.

3.7.2 REGULATORY SETTING

Numerous transportation-related standards and criteria apply to the Project area, reflecting the number of jurisdictions with regulatory authority over transportation conditions. Overall transportation system standards and performance targets applicable to the Project area are identified in *Mobility 2035: Lake Tahoe Regional Transportation Plan and Sustainable Communities Plan*, December 12, 2012 (*Mobility 2035*) which is a long range planning document that shapes the future of the Lake Tahoe Basin transportation system.

The Tahoe Regional Planning Agency (TRPA) maintains jurisdiction over aspects of transportation planning in the Lake Tahoe Basin with Caltrans overseeing California's State highway system and the Nevada Department of Transportation (NDOT) overseeing Nevada's State highway system. El Dorado County, Douglas County, and the City of South Lake Tahoe oversee local and secondary roadways in the area. An overview of the transportation and circulation standards applicable to the Project is identified in Table 3.7-5.

Table 3.7-5

Applicable Transportation, Parking and Circulation Standards

Jurisdiction/ Plan/Policy	Standard/Criteria
Tahoe Regional Planning Compact	The goal of transportation planning shall be: (A) To reduce the dependency on the automobile by making more effective use of existing transportation modes and public transit to move people and goods within the region; and (B) To reduce to the extent feasible air pollution which is caused by motor vehicles.
Lake Tahoe Regional Transportation Plan and Sustainable Communities Plan (Mobility 2035)	The Goals and Policies of Mobility 2035 reflect the consideration of environmental, social and economic factors in making transportation-related decisions. The goals of Mobility 2035 include the following: 1) reduce reliance on the private automobile; 2) provide for alternative modes of transportation; 3) serve the basic transportation needs of the citizens of Lake Tahoe; 4) support the economic vitality of the region; and 5) minimize adverse impacts on man and the environment.

Table 3.7-5

Applicable Transportation, Parking and Circulation Standards

Jurisdiction/ Plan/Policy	Standard/Criteria
Federal Planning Guidelines	In 1999, the Lake Tahoe Basin became a federal metropolitan planning organization (MPO). Federal regulations, pertaining to transportation, require that the MPO planning process provide for the consideration of projects and strategies that will: - increase the safety and security of the transportation system for motorized and non-motorized users; - enhance the integration and connectivity of the transportation system, across and between modes, for people and freight; - promote efficient system management and operation; - emphasize the preservation of the existing transportation system.
TRPA Goals and Policies	Establish LOS criteria for various roadway categories and signalized intersections. LOS criteria during peak periods shall be: - LOS C on rural recreational/scenic roads; - LOS D on rural developed area roads; - LOS D on urban developed area roads; - LOS D for signalized intersections; - LOS E may be acceptable during peak periods in urban areas, not to exceed four hours per day. The policies and objectives of this document also place high priority on constructing pedestrian and bicycle facilities in urbanized areas.
TRPA Thresholds	TRPA has nine threshold categories: air quality, water quality, soil conservation, vegetation, fisheries, wildlife, scenic, noise, and recreation. There is no threshold for transportation; however transportation system projects in the Lake Tahoe Basin can not degrade any of the other thresholds. Rather, TRPA must make findings that projects attain or maintain existing thresholds.
TRPA Thresholds: Air Quality	Air Quality has two transportation related standards: vehicle miles traveled (VMT) and traffic volumes on US 50. - US 50 Traffic Volumes – 7% reduction in traffic volume on the US 50 corridor from 1981 base year values, winter, 4 p.m. to 12 a.m. (equivalent to a reduction of 1,762 vehicles/day from 25,173 vehicles/day) - VMT – 10% reduction in VMT in the Lake Tahoe Basin from 1981 base year values (equivalent to 2,067,600 VMT.)
TRPA Code of Ordinances	Adherence to Chapter 12 requirements for traffic considerations, including VMT reduction policies and LOS goals for street and highway traffic, and Chapter 65 requirements for traffic analyses; the Code sections require reducing significant impacts to a less than significant level.
Tourist Core Area Plan	The Plan's overall goal for transportation is to provide strategies to enhance mobility patterns by enabling users to satisfy their travel needs while supporting the area's environmental, social, and recreational goals.
Caltrans District 3 Thresholds	Requires that measures be identified to mitigate significant impacts caused by project traffic on State highways. The following are considered to be significant impacts: - Project impacts that cause the highway or intersection LOS to deteriorate beyond LOS D. If LOS is already "E" or "F", then quantitative measure of increased queue lengths and delay should be used to determine appropriate mitigation measures.

Table 3.7-5

Applicable Transportation, Parking and Circulation Standards

Jurisdiction/ Plan/Policy	Standard/Criteria
Other	Signal warrant criteria as established by the Federal Highway Administration Manual on Uniform Traffic Control Devices.

Source: Fehr & Peers 2014

3.7.2.1 Key Transportation Impact Areas

The TRPA Environmental Checklist for transportation and circulation and the CEQA Appendix G Checklist are provided below. These checklists were used to develop the key transportation impact areas and significance criteria.

TRPA Environmental Checklist

Will the Project result in:

- Generation of 100 or more new Daily Vehicle Trip Ends (DVTE)?
- Changes to existing parking facilities, or demand for new parking?
- Substantial impact upon the existing transportation systems, including highway, transit, bicycle or pedestrian facilities?
- Alterations to present patterns of circulation or movement of people and/or goods?
- Alterations to waterborne, rail, or air traffic?
- Increase in traffic hazards to motor vehicles, bicyclists, or pedestrians?

CEQA Appendix G Checklist

Will the Project:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks

- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
- Result in inadequate emergency access
- Result in inadequate parking capacity
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)

3.7.2.2 Traffic Volumes

TRPA Standards

Chapter 65: Air Quality/Transportation of the TRPA *Code of Ordinances* (adopted December 2012, amended November 2013) provides the following definitions related to traffic volumes:

- Significant Increase - an increase of more than 200 daily vehicle trips, as determined from the TRPA trip or other competent technical information.
- Minor Increase - an increase of more than 100 but nor more than 200 daily vehicle trips, as determined from the TRPA trip or other competent technical information.
- Insignificant Increase - an increase of 100 or fewer daily vehicle trips, as determined from the TRPA trip or other competent technical information.

If a project results in a significant increase in daily vehicle trips, all traffic and air quality impacts must be mitigated consistent with the environmental thresholds, the Goals and Policies, the *Regional Transportation Plan*, and the *1992 Air Quality Plan*.

3.7.2.3 LOS Standards

Generally, Caltrans is responsible for the operation of California's State Highway system and NDOT is responsible for the operation of Nevada's State Highway system. Each jurisdiction has defined LOS standards for their facilities; however, TRPA has jurisdictional authority of roadways within the Lake Tahoe Basin. TRPA LOS standards were used to determine significant impacts for the project. Based on TRPA standards, LOS D was used as the threshold.

TRPA Standards

The *Regional Transportation Plan – Mobility 2035* which serves as the Transportation Element of the TRPA *Regional Plan* (December 2012) states:

> Level of service criteria for the Region's highway system and signalized intersections during peak periods shall be:
>
> - LOS C on rural recreational/scenic roads
> - LOS D on rural developed area roads
> - LOS D on urban developed area roads
> - LOS D for signalized intersections

- LOS E may be acceptable during peak periods in urban areas, not to exceed four hours per day
- These vehicle LOS standards may be exceeded when provisions for multimodal amenities and/or services (such as transit, bicycling, and walking facilities) are adequate to provide mobility for users at a level that is proportional to the project-generated traffic in relation to overall traffic conditions on affected roadways.

TRPA currently has no adopted standard for unsignalized intersections; therefore, the standard for signalized intersections was used to determine impacts at unsignalized intersections.

Tourist Core Area Plan

For intersections and roadway segments within the *Tourist Core Area Plan* (TCAP) (City of South Lake Tahoe, October 2013) area, the Traffic and Circulation Goals and Policies section states:

> Strive to maintain a level of service (LOS) D or better on all arterials, collectors, and at signalized intersections. This LOS standard may be exceeded during peak periods, not to exceed 4 hours per day when provisions for multi-modal amenities and/or services (such as transit, bicycling, and walking facilities) are adequate to provide mobility for users.

Caltrans Standards

Caltrans' *Guide for Preparation of Traffic Impact Studies* (December 2002) states:

> Caltrans endeavors to maintain a target LOS at the transition between LOS C and LOS D on State highway facilities, however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. If an existing State highway facility is operating at less than the appropriate target LOS, the existing MOE (measures of effectiveness) should be maintained.

Caltrans has prepared Transportation Concept Reports (TCR) for each State Route (SR) and Interstate Highway within California. The TCR defines existing level of service by segment and provides the concept (target) level of service by segment. The *US Highway 50 TCR* (Caltrans District 3, 2010) identifies the following existing LOS, however the concept level of service for the segment of US 50 within the Project area is not identified:

- Existing LOS C in weekday peak with increased congestion during peak summer periods.

Caltrans District 3

For roadways and intersections in California, Caltrans District 3 considers the following to be significant project impacts:

- Deterioration of State highway or intersection LOS beyond LOS D.

NDOT Standards

NDOT considers the following to be a significant impact to traffic operations:

Deterioration of state highway facility operations (intersections, state highways, and ramp terminals) beyond LOS D.

El Dorado County Standards

The 2004 El Dorado County *General Plan* states:

> Level of service for County-maintained roads and state highways within the unincorporated areas of the county shall not be worse than LOS E in the Community Regions or LOS D in the Rural Centers and Rural Regions.

City of South Lake Tahoe Standards

The Transportation and Circulation Element of the South Lake Tahoe *General Plan* (adopted May 2011) states:

> The City shall establish a minimum level of service standard “D” for all City streets and intersections. Up to four hours per day of LOS “E” shall be considered acceptable. LOS shall be considered based on average delay for the intersection as a whole for signalized intersections, and for the worst approach for intersections controlled by stop signs or roundabouts. LOS shall be evaluated for a busy, but not peak traffic, day in the peak seasons.

3.7.2.4 Air Quality and Vehicle Miles of Travel

VMT is a computed value, which correlates to the extent of an area’s reliance on private automobile for trip-making. The TRPA transportation model forecasts the number of trips made on the highway network and the distance between trip origins and destinations for each trip purpose. Total VMT is the sum of all of these trip lengths. VMT is often used to estimate vehicle emissions and impacts to air quality.

TRPA Thresholds

The *2011 Threshold Evaluation Report* (TRPA, October 2012) includes the following two air quality management threshold standards that relate to transportation facilities in the Region:

- Vehicle Miles Traveled: Reduce vehicle miles traveled in the Basin by 10% of the 1981 base year values (equivalent to 2,067,600 VMT).

According to *Mobility 2035*, “modeled vehicle miles traveled (VMT) by passenger vehicles per weekday in the Region are shown to have decreased from a peak of 2.5 million miles per day in 1986 to under 2 million in 2010. This 2010 level meets the TRPA threshold standard of 2.07 million. This decrease in VMT is matched by a corresponding drop in the Region’s GHG emissions. However, the Region forecasts that with renewed economic vitality, both VMT and vehicle emissions may increase in the coming decades without investment in improved transportation choices. Chapter 3, Sustainable Communities Strategy, details the Region’s strategies for reducing GHG emissions in the coming decades.”

TRPA Code of Ordinances

Chapter 65: Air Quality/Transportation of the TRPA *Code of Ordinances* (adopted December 2012, amended November 2013) provides the following definitions related to traffic volumes:

- Significant Increase - an increase of more than 200 daily vehicle trips, as determined from the TRPA trip or other competent technical information.
- Minor Increase - an increase of more than 100 but nor more than 200 daily vehicle trips, as determined from the TRPA trip or other competent technical information.
- Insignificant Increase - an increase of 100 or fewer daily vehicle trips, as determined from the TRPA trip or other competent technical information.

If a project results in a significant increase in daily vehicle trips, all traffic and air quality impacts must be mitigated consistent with the environmental thresholds, the Goals and Policies, the *Regional Transportation Plan*, and the *1992 Air Quality Plan*.

3.7.2.5 Parking Requirements

TRPA Standards

TRPA's *Mobility 2035* provides the following parking-related policies:

- Encourage shared parking and other parking management strategies.
- Encourage parking management programs that provided incentives to improvements benefiting transit users, pedestrians, and bicyclists.
- Encourage parking management strategies that are tailored to the needs of each specific location and promote pedestrian and transit use.

Tourist Core Area Plan

The TCAP provides the following parking-related goals and policies:

Goal T-6: Provide adequate parking facilities that are integrated with and support a walkable, vibrant Tourist Core.

- Encourage underground parking where feasible, shared parking, reduced parking, or on-street parking to promote a pedestrian friendly main street in the Tourist Core.
- Allow projects in pedestrian areas, areas with concentration of overnight accommodations, and in areas served by transit to reduce the parking requirement of the Citywide Parking Ordinances and waive the onsite parking requirement if a parking study and a plan is completed and approved.

Tourist Core Area Plan Development and Design Standards

The City of South Lake Tahoe supports a "park once" atmosphere where visitors park once and patronize multiple businesses. To encourage this, parking facilities should be designed to accommodate cross-access to/from adjacent properties to allow parking areas to become joint use facilities. The Development and Design Standards provide the following parking standards:

- Parking shall be located underground, behind a building, or on the interior side or rear of the site.

3.7.2.6 Bicycle and Pedestrian Circulation

TRPA Standards

TRPA's *Mobility 2035* provides goals and policies that promote walkable, mixed-use centers and bicycle and pedestrian friendly communities. Mobility 2035 also states that intersections and driveways shall be designed and sited to minimize impacts on public transportation, adjacent roadways and intersections, and conflicts with bicycle and pedestrian facilities.

Tourist Core Area Plan

The TCAP encourages the creation of a functional, safe, convenient, and integrated pedestrian and bikeway system which provides access to recreation, retail and entertainment opportunities as an alternative to vehicle trips. The TCAP also encourages the development of complete streets in the South Shore Area that allow for multiple uses including automobiles, bikes and pedestrian.

City of South Lake Tahoe Standards

The Transportation and Circulation Element of the South Lake Tahoe *General Plan* (adopted May 2011) provides goals and policies that encourage the improvement of bicycle and pedestrian connections between all neighborhoods and communities, and the integration and linking of existing city bicycle paths with the regional bicycle network.

3.7.2.7 Transit Access

TRPA Standards

TRPA's *Mobility 2035* provides goals and policies that promote walkable, mixed-use centers, transportation enhancements, and environmental improvements that increase the viability of transit systems. Additional policies require major commercial interests and employers to provide or participate in joint shuttle services or provide transit use incentives to their guests, patrons, and employees. Such programs could include: carpool and vanpool matching programs, employee shuttles, on-site secure bicycle storage and shower facilities, flexible work hours, and parking and transit use incentives.

Tourist Core Area Plan Standards

The TCAP provides the following transit-related goals and policies that promote the use and expansion of multi-modal transportation options including transit for visitors and residents.

3.7.2.8 Safety

TRPA Standards

TRPA's *Mobility 2035* provides the following goals and policies related to safety:

> Goal 10: Regional Roadways - Upgrade regional roadways as necessary to improve safety, and provide for a more efficient, integrated transportation system.

- Reduce traffic conflicts by limiting or controlling turning movements from multiple parking lot access points onto major Regional travel routes and major local roadways; by designing and siting driveways to minimize impacts to Regional traffic flow, and by utilizing shared access points and shared driveways where feasible.

3.7.2.9 Construction Traffic

TRPA Standards

Construction activity may result in a significant impact if it generates traffic above that which will be generated under normal operation. If construction traffic exceeds traffic generated in the normal operating condition, LOS must be analyzed for the construction condition. Site grading, such as excavation, filling, and clearing of vegetation or other disturbance of the soil, in the Lake Tahoe basin is strictly regulated by TRPA *Code of Ordinances*, Chapter 33, and not allowed during the winter season from October 15 to May 1. Construction activity is a temporary condition and will not permanently affect the environmental setting.

3.7.3 EVALUATION CRITERIA WITH POINTS OF SIGNIFICANCE

Based on the environmental thresholds, standards, and transportation related criteria of the TRPA, Caltrans, NDOT, El Dorado County, and the City of South Lake Tahoe, Table 3.7-6 presents the evaluation criteria and significance thresholds used to analyze the Project. An impact is considered significant if conditions presented in Table 3.7-6 are met or exceeded.

Table 3.7-6

Evaluation Criteria with Point of Significance – Transportation, Parking and Circulation

Evaluation Criteria	Significance Threshold	Justification
TRANS-1. Will the Project result in the generation of 200 or more new Daily Vehicle Trip Ends (DVTE)?	An increase of 200 or more new daily vehicle trips	TRPA Code of Ordinances (Chapter 65)
TRANS-2. Will the Project result in a substantial impact upon the existing transportation systems, including roadways and intersections?	Deterioration of level of service to unacceptable levels (LOS E or F) at the study intersections	Mobility 2035; Tourist Core Area Plan; Caltrans; NDOT; El Dorado County General Plan; South Lake Tahoe General Plan; Highway Capacity Manual (HCM) 2010
TRANS-3. Will the project result in changes to existing parking facilities or create a demand for parking that cannot be served by existing parking facilities?	Parking demand exceeds existing supply	Mobility 2035; Tourist Core Area Plan
TRANS-4. Will the project result in a substantial impact upon the existing transportation systems, including bicycle or pedestrian facilities?	Conflicts with adopted policies, plans, or programs supporting alternative transportation Creates conflicts between bicycles/pedestrians and vehicles	Mobility 2035; Tourist Core Area Plan

Table 3.7-6

Evaluation Criteria with Point of Significance – Transportation, Parking and Circulation

Evaluation Criteria	Significance Threshold	Justification
TRANS-5. Will the project results in a substantial impact upon the existing transportation systems, including transit facilities?	Conflicts with adopted policies, plans, or programs supporting alternative transportation Creates impacts or delays to transit services; Adequate transit not provided for major summer and winter recreational activities	Mobility 2035; Tourist Core Area Plan
TRANS-6. Will the project result in alterations to the present patterns of circulation or movement of people and/or goods?	The Project interferes with regional traffic flow, safety, public transportation, adjacent roadways and intersections, and bicycle and pedestrian facilities	Mobility 2035; City of South Lake Tahoe
TRANS-7. Will the project result in substantial increased traffic congestion on mountain roadways and trails?	Substantial increase in daily traffic on existing mountain maintenance roadways.	US Forest Service
TRANS-8. Will the project result in a temporary impact upon existing transportation systems due to construction traffic?	Construction related traffic causes unacceptable level of service at study intersections	Mobility 2035; Tourist Core Area Plan; Caltrans; NDOT; El Dorado County General Plan; South Lake Tahoe General Plan; Highway Capacity Manual (HCM) 2010; TRPA Code of Ordinances
TRANS-9. Will with project result in an increase in traffic hazards to motor vehicles, bicyclists, or pedestrians?	Inadequate intersection and driveway design that causes impacts on public transportation, adjacent roadways and intersections, conflicts with bicycle and pedestrian facilities, traffic flow and safety Substantially increase hazards due to a design feature or incompatible uses Results in inadequate emergency access	Mobility 2035; Tourist Core Area Plan

Source: Fehr & Peers 2014

3.7.4 PROJECT ANALYSIS METHODOLOGY

3.7.4.1 Summer Trip Generation

Typically, traffic volumes in the Lake Tahoe Basin are highest during the summer months. The Friday PM peak hour is the typical analysis period because it is generally when peak traffic volumes occur within the Tahoe Basin.

The Project will increase summer visitation to Heavenly Mountain Resort. The amenities that are part of the Project will be accessed via the Heavenly Gondola in Heavenly Village. Visitor parking will be provided in the existing South Lake Tahoe Parking Garage on Bellamy Court and the existing Stateline casino parking lots. Employee parking will be provided in the surface parking lot that is located behind the Raley's shopping center on the south west corner of the Heavenly Village Way/Lake Parkway intersection.

Currently, Heavenly Mountain Resort has approximately 110,000 visitors during the summer season, which occurs between June 15th and September 15th (approximately 90 days). Table 3.7-7 displays the anticipated increase in visitors and employees due to the Project.

Table 3.7-7

Project Visitation and Employees

	Total During Summer Season (June 15-Sept. 15)	Average Day	Peak Day
Visitors	49,466 New Visitors	550 New Visitors	1,000 New Visitors
Employees	250 New Employees	175 New Employees On-Site	200 New Employees On-Site

Source: Heavenly Mountain Resort 2014

The Project is a unique land use and there are not readily available trip generation rates to use in the analysis. In addition, there are not comparable existing land uses or resorts that offer the same mix of amenities. Therefore, trip generation rates could not be directly developed from national data (such as the Institute of Transportation Engineers' *Trip Generation Manual, 9th Edition*) or land use surveys of similar land uses.

Trip generation estimates for the Project were developed using Lake Tahoe Basin summer visitor survey data, average vehicle occupancy surveys conducted at the South Lake Tahoe Parking Garage, and the peak day visitation and employee levels presented in Table 3.7-7.

Visitor Trip Generation

Visitors to the Project will generally fall into three categories:

- Day Trip Visitors: These are tourists that are already staying within the Tahoe Basin but outside of the Stateline/Heavenly Village Area and visit the Project as a day trip or are outside of the Basin but just come for the day to visit the Project (for example a day visitor from Reno, Carson City, or Sacramento).
- Close Proximity Visitors: These are tourists that are already staying within the Stateline/Heavenly Village Area and choose to visit the Project as one of their activities.
- Locals: These are people who live within the Lake Tahoe Basin (either as full-time or part-time residents) and visit the Project.

Each of these visitor types has a unique set of mode split travel characteristics. The TRPA 2010 Summer Travel Mode Share Survey was used to determine the proportion of new visitors that would fall into each category and their respective mode splits. The raw Summer Travel Mode Share Survey data was used to develop Stateline and Heavenly Village area specific characteristics. The survey was conducted at several sites throughout the Tahoe Basin including within Stateline, within Heavenly Village, and at the Heavenly Gondola Base. These surveys were extracted from the overall survey database and were reviewed. The survey included 22 questions that were designed to gain information on three areas: residential status, travel patterns, and respondent demographics.

The following questions/data were useful for determining visitor/local status, place of residence/lodging, and travel characteristics for the Project trip generation analysis:

- Site location: Gondola, Heavenly Village, Harrah's, Harvey's, Other South Stateline
- Are you a full-time resident of the Tahoe Basin? Are you a seasonal resident? Or are you visiting the Tahoe Basin on vacation or business?
- If you are a visitor/seasonal resident, how many nights will you be staying in the Tahoe Basin?
- What is the name and address of the place that you are staying?
- How did you get here (to the survey location, i.e. – car, walk, bike, transit, etc.)?
- How long will you stay at this activity (at the survey location)?

The survey data used in the trip generation analysis is provided in Appendix 3.7-A. Table 3.7-8 displays the visitor category and travel characteristics based on the 2010 Summer Travel Mode Share Survey and the number of new visitors within each category based on a peak day visitation of 1,000 new visitors.

Daily Trip Generation

The data presented in Table 3.7-8 represents people trips (i.e. number of trips per person/visitor). To convert people trips to automobile trips for vehicle trip generation purposes, average vehicle occupancy data collected at the South Lake Tahoe Parking Garage located on Bellamy Court (the garage that provides pay-for-parking at Heavenly Village) was used. Vehicle occupancy surveys were conducted on Saturday, December 14, 2013 between 11:00AM and 3:00PM. The surveyors collected information on the number of people per vehicle entering the garage. Based on the survey, the average vehicle occupancy is 2.43 people per vehicle. As shown in Table 3.7-8, 546 people are expected to drive to the Project; therefore, based on the average vehicle occupancy rate of 2.43 people per vehicle, the resulting number of vehicles is 224. Each vehicle will make two trips (one trip to the Project and one trip from the Project) resulting in 448 daily vehicle trips on a peak day. Daily trips generated by each visitor category are:

- Category 1: 218 trips
- Category 2: 150 trips
- Category 3: 80 trips

Table 3.7-8

Project Visitor Travel Characteristics

Characteristic		Category 1: Day Visitor (Regional/ Outside Project Vicinity)	Category 2: Visitor Already Staying Within Immediate Vicinity of Heavenly Village	Category 3: Locals	Total
Proportion of Visitors by Category		27%	61%	12%	100%
Resulting Visitors (1,000 new visitors total)		270 people	610 people	120 people	1,000 people
Mode Split	Auto	98% = 265 people	30% = 183 people	82% = 98 people	55% = 546 people
	Walk	0%	68% = 415 people	6% = 8 people	42% = 423 people
	Bicycle	0%	0%	10% = 12 people	1% = 12 people
	Transit	2% = 5 people	2% = 12 people	2% = 2 people	2% = 19 people

Source: Fehr & Peers 2014; TRPA 2010Summer Travel Mode Share Survey

Peak Hour Trip Generation

The final step to visitor trip generation for the Project is determining how much traffic is generated during each hour of operation. Heavenly Mountain Resort has indicated that the Project will be open daily from 9:00 AM to 7:00 PM (10 hours of operation). The 2010 Summer Travel Mode Share Survey found that most visitors stay at an activity for approximately 3 hours on average. Table 3.7-9 displays the arrival/departure pattern assumptions and trip generation by hour for the Project. The time of day trip generation assumes that the arrivals and departures are generally uniform except for the first three hours and last three hours of the day. During the first three hours, arrivals will be higher and departures will be minimal and during the last three hours departures will be higher and arrivals will taper off.

New visitors to the Project will generate 448 total new daily trips and 57 total new PM peak hour trips (23 inbound trips and 34 outbound trips). Table 3.7-10 summarizes the visitor trip generation by category.

Table 3.7-9

Project Visitor Arrival and Departure by Time of Day

Arrivals/ Departures	Time of Day										Total
	9-10AM	10-11AM	11-12PM	12-1PM	1-2PM	2-3PM	3-4PM	4-5PM (PEAK)	5-6PM	6-7PM	9AM-7PM
% of Arrivals Occurring During Hour	15%	15%	15%	10%	10%	10%	10%	**10%**	5%	0%	100%
% of Departures Occurring During Hour	0%	5%	10%	10%	10%	10%	10%	**15%**	15%	15%	100%
Vehicles Arriving	34	34	34	22	22	22	22	**23**	11	0	224
Vehicles Departing	0	11	22	22	22	22	23	**34**	34	34	224
Total Hourly Vehicles	34	45	56	44	44	44	45	**57**	45	34	448

Source: Fehr & Peers 2014

Table 3.7-10

Summary of Visitor Trip Generation

Visitor Category/ Employee	Total Visitors Driving	Daily Trips[1]	PM Peak Hour Trips[2]		
			Total	Inbound	Outbound
Category 1 Visitor	265 people	218	28	12	16
Category 2 Visitor	183 people	150	19	7	12
Category 3 Visitor	98 people	80	10	4	6
TOTAL	**546 people**	**448**	**57**	**23**	**34**

Source: Fehr & Peers 2014

Notes: [1] Daily Trips = Total Visitors Driving / 2.43(average trip length) x 2 trips per day.
[2] PM peak hour trips by category were determined by calculating the ratio of daily trips by category to the total daily trips. For example, Category 1 has 218 daily trips, which is 49% of the total (218/448).

Employee Trip Generation

As shown in Table 3.7-7 the Project will have a total of 200 new employees on-site on a peak day. The Project will operate from 9:00 AM to 7:00 PM. Based on information on Heavenly Mountain Resort employees, shifts will start at 7:30 AM (approximately 1.5 hours before opening) and end at approximately 7:30 PM (approximately 0.5 hour after closing). The trip generation analysis assumes four employee shifts (8 hours each plus 1 hour for lunch), with employees split evenly between the shifts as follows:

- Shift 1: 7:30 AM to 4:30 PM, 50 employees in the shift
- Shift 2: 8:30 AM to 5:30 PM, 50 employees in the shift
- Shift 3: 9:30 AM to 6:30 PM, 50 employees in the shift
- Shift 4: 10:30 AM to 7:30 PM, 50 employees in the shift

US Census Data (2008-2012 American Community Survey – provided in Appendix 3.7-A) was used to determine the average travel time to work for people who work within South Lake Tahoe and Stateline. The data indicates that the average travel time is approximately 20 minutes; therefore, the work commute will generally occur within a half-hour of the shift start and end. Therefore, the PM peak commute will occur as Shift 1 ends and employees commute home between 4:30-5:00PM.

US Census Data was also used to determine the mode split of “arts, entertainment, recreation, accommodation, and food service” employees working within South Lake Tahoe and Stateline. Table 3.7-11 displays the mode split, number of employees by mode, and daily and PM peak hour trip generation for new employees.

New employees will generate 280 daily vehicle trips and 34 PM peak hour (outbound) trips.

Total Project Trip Generation

The total summer project trip generation including visitors and employees is shown in Table 3.7-12. As shown in the table, the project will generate 728 total daily trips and 91 total PM peak hour trips.

Table 3.7-11

Employee Trip Generation

Employee Travel Mode	Mode %[1]	Average Auto Occupancy[2]	Daily Trip Generation				PM Peak Hour Trip Generation			
			Emp. By Mode	Autos	Trips per Auto[3]	Daily Trips	Emp. By Mode	Autos	Trips per Auto[3]	PM Peak Trips
Drive Alone	63%	1 person/veh	126	126	2	252	31	31	1	31
Carpool	17%	2.43 people/veh	34	14	2	28	8	3	1	3
Transit/Shuttle	3%	N/A	6	N/A	N/A	N/A	2	N/A	N/A	N/A
Walk	14%	N/A	28	N/A	N/A	N/A	7	N/A	N/A	N/A
Bicycle	3%	N/A	6	N/A	N/A	N/A	2	N/A	N/A	N/A
TOTAL	**100%**	**N/A**	**200**	**140**	**N/A**	**280**	**50**	**34**	**N/A**	**34**

Source: Fehr & Peers 2014; 2008-2012 American Community Survey; Means of Transportation to Work By Industry (US Census Bureau)

Notes: [1] From US Census Data

[2] From South Lake Tahoe Parking Garage Auto Occupancy Surveys. Average auto occupancy applied to employees that commute by carpool. Note that the average auto occupancy and carpool percentage is likely conservative because Heavenly Mountain Resort provides employee housing for 33% of its workforce and most of the employees in employee housing carpool because auto ownership amongst employees is low.

[3] Daily trips per auto is 2: one trip in and one trip out (assumes that employees do not leave for lunch). PM peak hour trips per auto is 1: one trip out (commute trip home).

N/A – Not Applicable

Table 3.7-12

Total Summer Trip Generation

Trip Type	Daily Trips	PM Peak Hour Trips		
		Total	Inbound	Outbound
Visitor	448	57	23	34
Employee	280	34	0	34
TOTAL	**728**	**91**	**23**	**68**

Source: Fehr & Peers 2014

Trip Distribution

Trips were distributed to the roadway network based on the location of parking and origin characteristics of each visitor category and employees. Parking for visitors will be provided in the South Lake Tahoe Parking Garage on Bellamy Court (adjacent to Heavenly Village) and likely within the free parking areas offered by the Stateline casinos. Harrah's surface parking lot on Lake Parkway is in closest proximity to Heavenly Village and will likely be an attractive parking option for Project visitors. Employee parking will be provided in the surface parking lot that is located behind the Raley's shopping center on the south west corner of the Heavenly Village Way/Lake Parkway intersection.

The trip distribution for each visitor category and employees is described as follows:

- Category 1 – Day Trip Visitors: These are tourists that are already staying within the Lake Tahoe Basin but outside of the Stateline/Heavenly Village Area and visit the Project as a day trip, or are outside of the Basin but just come for the day to visit the Project (for example a day visitor from Reno, Carson City, or Sacramento). 65% of Category 1 visitors are assumed to originate in California and 35% in Nevada. Nevada will have a higher percentage of day visitors from outside of the Tahoe Basin because of proximity whereas more visitors within the Tahoe Basin (but outside of the Heavenly Village vicinity) will be from California because of proximity.
- Category 2 – Close Proximity Visitors: These are tourists that are already staying within the Stateline/Heavenly Village Area and choose to visit the Project as one of their activities. The trip distribution assumes that 40% of vehicle trips will originate from California south of Park Avenue, 40% will originate from Nevada north of Lake Parkway (i.e. the Kingsbury Grade area), and 20% will originate from the area between Lake Parkway and Park Avenue.
- Category 3 – Locals: These are people who live within the Tahoe Basin (either as full-time or part-time residents) and visit the Project. Based on US Census data, approximately 75% of the overall Tahoe Basin population is in California and 25% is in Nevada. Therefore, these percentages were applied to Locals visiting the Project.
- Employees: Based on US Census data, approximately 75% of the overall Tahoe Basin population is in California and 25% is in Nevada. In addition, Heavenly Mountain Resort provides employee housing in a variety of apartments, hotels, and other residential uses for at least 33% of their workforce and in general, the housing is in close proximity to the resort. The trip distribution assumes that 25% of employees originate from Nevada north of Lake Parkway, 65% live in California south of Park Avenue, and 10% will originate from the area between Lake Parkway and Park Avenue.

The trip distribution and PM peak hour trip assignment for visitors and employees are shown on Figure 3.7-5. Figure 3.7-6 displays the overall total PM peak hour trip assignment.

Figure 3.7-5

Trip Distribution

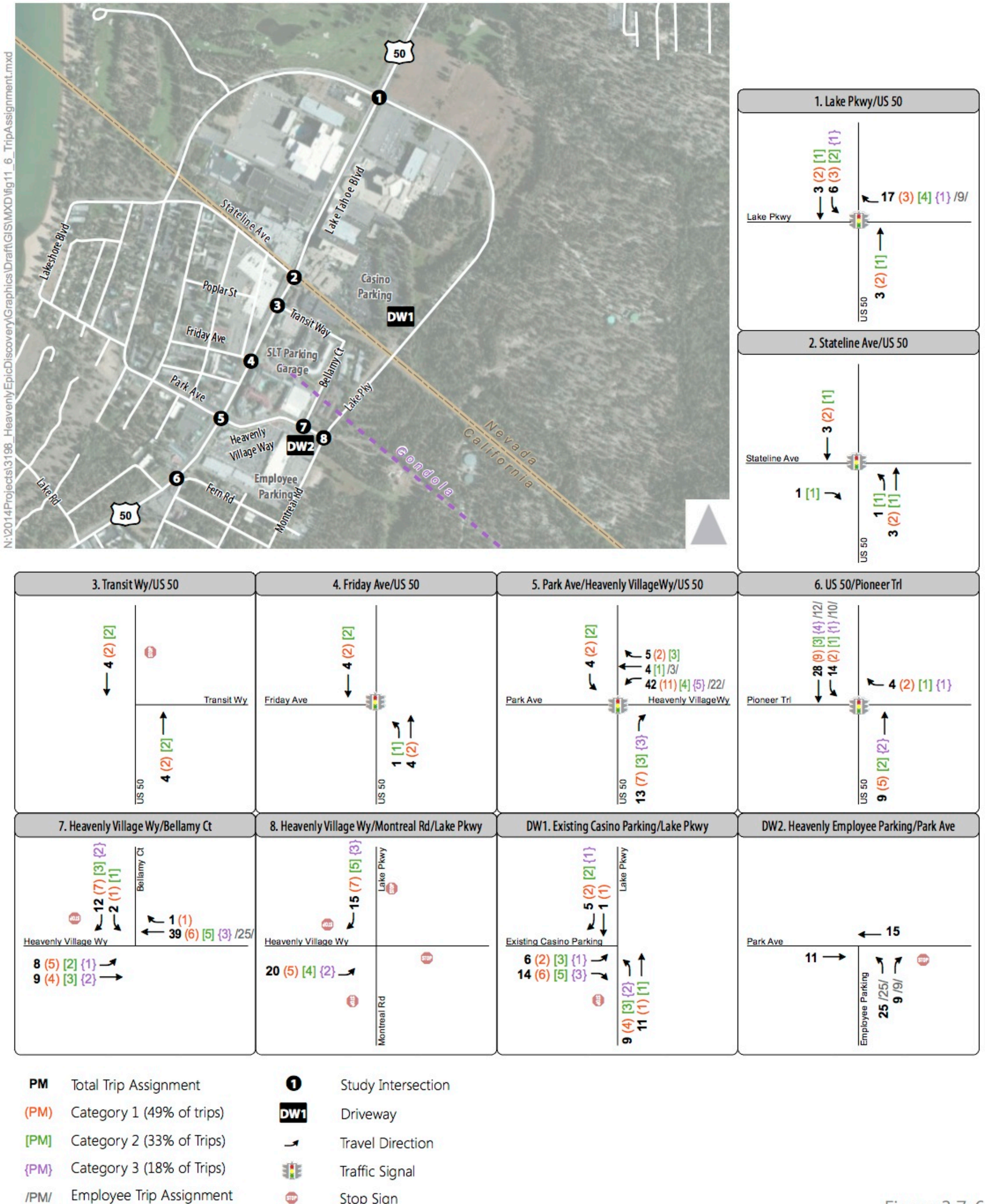


Figure 3.7-6

Project Trip Assignment - PM Peak Hour (Summer)

3.7.4.4 VMT Analysis

Vehicle Miles of Travel (VMT) within the Lake Tahoe Air Basin (LTAB) was calculated using the daily trip generation results for the Project and average trip length numbers calculated based on the visitor category location characteristics and employee location characteristics described in the "Trip Distribution". Average trip length was developed for California based visitors and employees and Nevada bases visitors and employees as follows:

- Category 1 – Day Trip Visitors: 65% of Category 1 visitors are assumed to originate in California and 35% in Nevada.
    - Average trip length for California based visitors: 8.1 miles (distance on US 50 to the South Lake Tahoe City Limits at Airport Road averaged with the distance to the California LTAB boundary).
    - Average trip length for Nevada based visitors: 14 miles (distance on US 50 and SR 28 to the mid-point of Nevada around the Lake averaged with the distance to the Nevada LTAB boundary).
- Category 2 – Close Proximity Visitors: The trip distribution assumes that 40% of vehicle trips will originate from California south of Park Avenue, 40% will originate from Nevada north of Lake Parkway (i.e. the Kingsbury Grade area), and 20% will originate from the area between Lake Parkway and Park Avenue.
    - Average trip length for California and Nevada based visitors: 1 mile (farthest distance traveled for this category).
- Category 3 – Locals: 75% originate in California and 25% originate in Nevada.
    - Average trip length for California based visitors: 21 miles (distance on US 50 and SR 89 to mid-point of California around the Lake).
    - Average trip length for Nevada based visitors: 13 miles (distance on US 50 and SR 28 to mid-point of Nevada around the Lake).
- Employees: The trip distribution assumes that 25% of employees originate from Nevada north of Lake Parkway, 65% live in California south of Park Avenue, and 10% will originate from the area between Lake Parkway and Park Avenue.
    - Average trip length for California and Nevada based employees: 12.8 miles (based on US Census Data: 2008-2012 American Community Survey for workers in Stateline and South Lake Tahoe).

Table 3.7-13 displays the maximum daily VMT generated by the Project within the California and Nevada Lake Tahoe Air Basins. The project will generate a total of 7,491 new VMT on a peak operating day.

Table 3.7-13

Project Generated Peak Day VMT

Visitor Category/ Employee	California Based VMT			Nevada Based VMT			Total VMT
	Daily Trip Generation	Average Trip Length (miles)	VMT	Daily Trip Generation	Average Trip Length (miles)	VMT	
Category 1 Visitor	140	8.15	1,141	78	13.99	1,091	2,232
Category 2 Visitor	75	1.0	75	75	1.0	75	150
Category 3 Visitor	60	21	1,260	20	13	260	1,520
Total for Visitors	*275*	*9.0*	*2,476*	*173*	*8.24*	*1,426*	*3,902*
Employees	210	12.82	2,692	70	12.82	897	3,589
TOTAL	**485**	**10.66**	**5,168**	**243**	**9.56**	**2,323**	**7,491**

Source: Fehr & Peers 2014

3.7.5 ENVIRONMENTAL IMPACTS AND RECOMMENDED MITIGATION

IMPACT: **TRANS-1. Will the Project result in the generation of 200 or more new Daily Vehicle Trip Ends?**

Table 3.7-12 documents the project trip generation estimates for the Proposed Action and Alternatives. The trip generation estimates are not expected to change between project alternatives.

CEQA and TRPA

Analysis: *Significant Impact, All Action Alternatives*

As shown in Table 3.7-12, the Project will generate more than 200 net new daily vehicle trip ends. The creation of more than 200 new daily trips is a significant impact based on the evaluation criteria for TRANS-1.

Mitigation: **TRANS-1. Traffic and Air Quality Mitigation Program**

The Project applicant shall contribute to the Air Quality Mitigation Fund in accordance with Chapter 65 – Traffic and Air Quality Mitigation Program of the TRPA Code of Ordinances. The air quality mitigation fee shall be assessed in accordance with the mitigation fee schedule in the TRPA Rules of Procedure. Fees generated by the air quality mitigation fee are used to support programs/improvements that reduce VMT, improve air quality, and encourage alternative modes of transportation.

After Mitigation: *Less than Significant Impact, All Action Alternatives*

Implementation of mitigation measure TRANS-1 will reduce the impact to a less than significant level because fees generated by the air quality mitigation fee are used to support programs/improvements that reduce VMT, improve air quality, and encourage alternative modes of transportation.

NEPA

Analysis: *No Adverse Effects, All Action Alternatives*

Traffic effects associated with increased summer activities are analyzed above under CEQA and TRPA, and conclude that with payment of mandatory mitigation fees, would not result in adverse effects to traffic operations.

IMPACT: TRANS-2. Will the Project result in a substantial impact upon the existing transportation systems, including roadways and intersections?

Project generated traffic volumes were added to existing traffic volumes at the study intersections for existing plus project intersection level of service analysis. Table 3.7-14 shows the level of service results. Figure 3.7-7 shows the existing plus project traffic volumes at the study intersections.

CEQA and TRPA

Analysis: *Less than Significant Impact, All Action Alternatives*

As shown in Table 3.7-14 the study intersections are expected to operate at acceptable levels of service with and without the Project. Therefore, the Project will not cause a significant impact.

Mitigation: No mitigation is required.

NEPA

Analysis: *No Adverse Effects, All Action Alternatives*

Traffic effects associated with increased summer activities are analyzed above under CEQA and TRPA.

Table 3.7-14

LOS Results – Existing Plus Project Summer Friday Conditions

Intersection	Control Type [1]	Existing		Existing Plus Project	
		PM Peak		PM Peak	
		Delay [2]	LOS	Delay [2]	LOS
US 50/Lake Pkwy	Signal	14	B	17	B
US 50/Stateline Ave	Signal	19	B	23	C
US 50/Transit Way	SSSC	3 (24)	A (C)	7 (24)	A (C)
US 50/Friday Ave	Signal	7	A	11	B
US 50/Park Ave/ Heavenly Village Way	Signal	28	C	36	D
US 50/Pioneer Trail	Signal	22	C	26	C
Heavenly Village Way/ Bellamy Ct	SSSC	2 (5)	A (A)	2 (5)	A (A)
Heavenly Village Way/Lake Pkwy/Montreal Rd	AWSC	7	A	9	A

Source: Fehr & Peers 2014

Notes: [1] SSSC = Side Street Stop Control, AWSC = All Way Stop Control
[2] Delay is reported in seconds per vehicle for the overall intersection for signalized and all way stop controlled intersections, and for the overall intersection (worst movement) for side street stop controlled intersections.

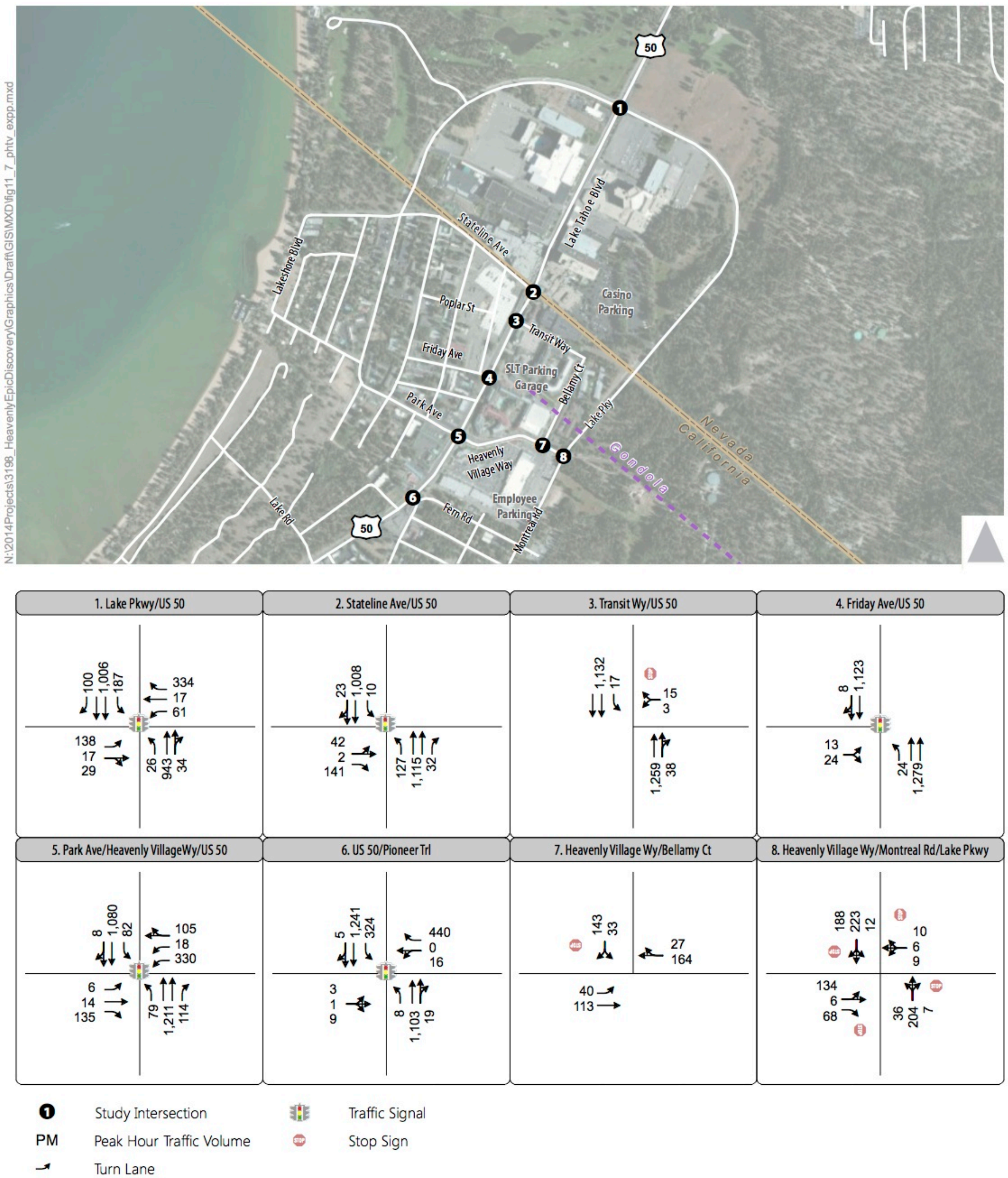


Figure 3.7-7

Peak Hour Traffic Volumes and Lane Configurations - Existing Plus Project Summer Friday Conditions

IMPACT: TRANS-3. Will the Project result in changes to existing parking facilities or create a demand for parking that cannot be served by existing parking facilities?

The project will utilize existing parking supply located in the South Lake Tahoe parking garage on Bellamy Court (approximately 420 parking spaces) and existing parking at the Stateline casinos. As shown in Table 3.7-15, based on the project trip generation and daily parking accumulation, the project will generate a maximum parking demand of 69 new parking spaces.

Table 3.7-15

Project Visitor Parking Accumulation By Hour

Arrivals/ Departures	Time of Day									
	9-10AM	10-11AM	11-12PM	12-1PM	1-2PM	2-3PM	3-4PM	4-5PM	5-6PM	6-7PM
Vehicles Arriving	34	34	34	22	22	22	22	**23**	11	0
Vehicles Departing	0	11	22	22	22	22	23	**34**	34	34
Parking Accumulation (parking accumulation for previous hour + arriving vehicles – departing vehicles)	**34**	**57**	**69**	**69**	**69**	**69**	**68**	**57**	**34**	**0**

Source: Fehr & Peers 2014

Monthly parking demand data for the South Lake Tahoe parking garage was provided by City of South Lake Tahoe staff for July and August 2013. In July 2013, 13,603 guests took a parking ticket to enter the garage, and in August 2013, 11,724 parking tickets were taken. In addition, the garage had 33 active monthly parking permits in July and 39 in August. The following assumptions were used to estimate existing summer parking demand in the City of South Lake Tahoe parking garage:

- On average 440 parking tickets were taken per day in July 2013 and 378 were taken per day in August 2013 (monthly total divided by number of days in the month).
- Since July 2013 had a higher parking demand, the July data was used to estimate the garage parking demand.
- Half of the vehicles taking a parking ticket are associated with the Embassy Suites hotel and are assumed to remain parked all day. Therefore, for a July day, 220 vehicles were associated with the hotel and would take up a parking space for a whole day.

- The other half of the vehicles taking a ticket (220) are assumed to be day visitors with similar arrival/departure and length of stay characteristics as the project visitors.

- The vehicles with monthly parking permits were assumed to park in the garage for a whole day.

Table 3.7-16 displays the estimated summer demand for the existing South Lake Tahoe parking garage.

Table 3.7-16

Existing South Lake Tahoe Parking Garage Parking Accumulation By Hour

Arrivals/ Departures	Time of Day									
	9-10AM	10-11AM	11-12PM	12-1PM	1-2PM	2-3PM	3-4PM	4-5PM	5-6PM	6-7PM
Visitor Vehicles Arriving	33	33	33	22	22	22	22	**22**	11	0
Visitor Vehicles Departing	0	11	22	22	22	22	22	**33**	33	33
Visitor Parking Accumulation (parking accumulation for previous hour + arriving vehicles – departing vehicles)	33	55	66	66	66	66	66	55	33	0
Parking Accumulation for Hotel Visitors	220	220	220	220	220	220	220	220	220	220
Parking Accumulation for Monthly Permit Holders	33	33	33	33	33	33	33	33	33	33
Total Garage Parking Demand	**286**	**308**	**319**	**319**	**319**	**319**	**319**	**308**	**286**	**253**

Source: Fehr & Peers 2014

The estimated average summer day parking demand for the South Lake Tahoe parking garage is approximately 320 vehicles. The total garage parking supply is 420 vehicles; therefore on an average summer day there are approximately 100 empty parking spaces.

The maximum project visitor parking demand is 69 parking spaces, which could be accommodated in the South Lake Tahoe parking garage. In addition, free parking is available in nearby casino parking lots and will likely be used by project visitors. The project parking demand can be accommodated within existing parking structures and parking lots.

Employees will generate 140 inbound and 140 outbound trips. If all employees are parked at the same time (due to shift overlaps), the parking demand is 140 parking spaces. Employee parking will be provided in the surface parking lot that is located behind the Raley's shopping center on the southwest corner of the Heavenly Village Way/Lake Parkway intersection. Heavenly Mountain Resort currently has a year-round lease agreement with the property owner of the parking lot. The parking lot is currently used by employees of Heavenly during the winter season, which has approximately 75 to 100 more employees than the summer season. According to Heavenly staff, parking capacity in the employee parking lot has never been as issue during the winter. The parking lot has approximately 300 surface parking spaces and based on observations could accommodate the 140 space employee parking demand.

CEQA and TRPA

Analysis: *Less Than Significant Impact, All Action Alternatives*

As shown in Tables 3.7-15 and 16, existing parking supply at the South Lake Tahoe Parking Garage is adequate to accommodate the predicted demand for the Proposed Action and Alternative. Therefore, the Project will not cause a significant impact.

Mitigation: No mitigation is required.

NEPA

Analysis: *No Adverse Effects, All Action Alternatives*

Parking effects associated with increased summer activities are analyzed above under CEQA and TRPA.

IMPACT: TRANS-4. Will the Project result in a substantial impact upon the existing transportation systems, including bicycle or pedestrian facilities?

CEQA and TRPA

Analysis: *Less than Significant Impact, All Action Alternatives*

The Project will provide several amenities for bicyclists and pedestrians, including mountain bike parks and hiking trails, within the project site. A multi-use connecting trail, the Panorama Trail, would be developed to facilitate safe and efficient movement of visitors between activities and activity areas and establish a link to Heavenly Village and surrounding public lands. The Panorama Trail would connect the East Peak Mountain Bike Park to the existing Tahoe Rim Trail and Van Sickle Bi-State Park and Heavenly Village.

Bicyclists and pedestrians will be allowed to use existing on mountain maintenance roads which will also be used by Heavenly vehicles; however, as described below as part of Impact TRANS-7, the average travel speed of Heavenly vehicles on the maintenance roads is low (15 - 20 miles per hour) and the Project will add less than 32 trips per day to the various roadways. Therefore, this impact is considered less than significant.

Mitigation: No mitigation is required.

NEPA

Analysis: *No Adverse Effects, All Action Alternatives*

Bicycle and pedestrian facility effects associated with increased summer activities are analyzed above under CEQA and TRPA.

IMPACT: TRANS-5. Will the Project result in a substantial impact upon the existing transportation systems, including transit facilities?

CEQA and TRPA

Analysis: *Less than Significant Impact, All Action Alternatives*

Implementation of the Project will not include any new transit facilities, and will not interfere with existing transit facilities. As shown in Table 3.7-14, the Project will not create a significant impact at the study intersections, and therefore will not create impacts to transit services. This impact is considered less than significant.

Mitigation: No mitigation is required.

NEPA

Analysis: *No Adverse Effects, All Action Alternatives*

Transit facility effects associated with increased summer activities are analyzed above under CEQA and TRPA.

IMPACT: TRANS-6. Will the Project result in alterations to the present patterns of circulation or movement of people and/or goods?

CEQA and TRPA

Analysis: *Less than Significant Impact, All Action Alternatives*

Implementation of the Project will not include changes to existing access and circulation elements of the project area. Patrons of the Project will use existing parking facilities. As shown in Table 3.7-14, the Project will not create an impact at the study intersections, and therefore will not impact patterns of circulation or movement of people and/or goods. This impact is considered less than significant.

Mitigation: No mitigation is required.

NEPA

Analysis: *No Adverse Effects, All Action Alternatives*

Circulation and access effects associated with increased summer activities are analyzed above under CEQA and TRPA.

IMPACT: TRANS-7. Will the Project result in substantial increased traffic congestion on mountain roadways and trails?

CEQA and TRPA

Analysis: *Less than Significant Impact, All Action Alternatives*

On mountain roadway congestion effects associated with increased summer activities are analyzed below under NEPA.

Mitigation: No mitigation is required.

NEPA

Analysis: *No Adverse Effect, All Action Alternatives*

The project will generate on-site trips both for maintenance and as one of the project amenities. One of the project components is a Mountain Excursion Tour. The Mountain Excursion Tour would connect the three mountain activity centers and would offer guided tours to various locations around the upper mountain. See Chapter 2, Figure 2-1 for the full route of this tour. The tour would employ vehicles to transport participants around the ski area on existing summer maintenance roads. The vehicles would travel a continuous loop and would stop at designated locations along the route to pick up and drop off participants. The vehicles would be driven by Heavenly employees who would also serve as interpretive guides. This activity would operate exclusively during the summer.

Heavenly Mountain Resort provided the following characteristics of the Mountain Excursion Tour:

- Average travel speed of 15-20 miles per hour
- 2 vehicles will provide tours twice per day and 2 vehicles will pick up zipline participants at the bottom of East Peak and Sky Meadows and return them to the top of the Gondola. The pick-ups will occur as needed for four hours per day.

Therefore, the Mountain Excursion Tour will generate approximately 8 trips as part of the tour and 24 trips picking up zipline participants (assumes a trip by each vehicle every 20 minutes during the 4 hour period).

The current use of the summer maintenance roads is minimal (approximately 10 vehicles per day use the maintenance roads with various destinations on the mountain) and the Mountain Excursion Tour will add less than 32 new trips per day on various existing roadways. Given the low number of new trips, the fact that the excursion vehicles will be operated at low speeds by Heavenly employees, and the low frequency, the Mountain Excursion Tour will not significantly increase congestion on existing on mountain maintenance roads.

IMPACT: TRANS-8. Will the Project result in a temporary impact upon existing transportation systems due to construction traffic?

CEQA and TRPA

Analysis: *Less than Significant Impact, All Action Alternatives*

Construction activity and construction staging for the project will occur within Heavenly Mountain Resort. Construction related traffic is anticipated to be less than traffic generated by the Project. As shown in Table 3.7-14, the Project will not create a significant impact at the study intersections, and therefore is not anticipated to create impacts due to temporary construction traffic. This impact is considered less than significant.

Mitigation: No mitigation is required.

NEPA

Analysis: *No Adverse Effects, All Action Alternatives*

Construction access effects associated with increased summer activities are analyzed above under CEQA and TRPA.

IMPACT: TRANS-9. Will the Project result in an increase in traffic hazards to motor vehicles, bicyclists, or pedestrians?

CEQA and TRPA

Analysis: *Less than Significant Impact, All Action Alternatives*

The Project will utilize existing roadways and parking facilities within South Lake Tahoe. No new roadways or access driveways will be created as part of the Project. Existing bicycle and pedestrian facilities will remain. The Project will not create any hazards that will impact motor vehicles, bicyclists, or pedestrians. This impact is considered less than significant.

Mitigation: No mitigation is required.

NEPA

Analysis: *No Adverse Effects, All Action Alternatives*

Traffic hazard effects associated with increased summer activities are analyzed above under CEQA and TRPA.

3.7.6 CUMULATIVE CONDITIONS ANALYSIS METHODOLOGY

3.7.6.1 Traffic Volume Forecasts

Cumulative conditions (2035) background traffic volumes were developed using the TRPA travel demand model. The cumulative version of the model includes planned land uses and transportation projects within the study area. The US 50 South Shore Community Revitalization Project (Loop Road) was included in the model. The increase in traffic volumes account for background growth based on land use assumptions in the Lake Tahoe Regional Plan. A difference method analysis was performed, which takes the difference between future year and base year traffic volumes from the model and adds them to existing traffic counts at the study intersections to develop future year forecasts. This method corrects any potential anomalies within the model and assures an accurate estimation of future year traffic volumes. Figure 3.7-8 shows the cumulative no project conditions traffic volumes at the study intersections.

3.7.6.2 Cumulative No Project Intersection Operations

Cumulative conditions intersection LOS and delay were calculated for the study intersections using SimTraffic 8 software which utilizes HCM 2010 methodology. Table 3.7-17 presents the LOS results for the study intersections under cumulative conditions.

As shown in Table 3.7-17, the side street approach of the US 50/Transit Way intersection is expected to operate at LOS E during the summer Friday PM peak hour. The overall intersection will operate at LOS A. The remaining study intersections are expected to operate at acceptable levels of service.

Table 3.7-17

LOS Results – Cumulative Summer Friday Conditions

Intersection	Control Type [1]	PM Peak	
		Delay [2]	LOS
US 50/Lake Pkwy	Signal	19	B
US 50/Stateline Ave	Signal	27	C
US 50/Transit Way	SSSC	9 (42)	A (E)
US 50/Friday Ave	Signal	17	B
US 50/Park Ave/ Heavenly Village Way	Signal	32	C
US 50/Pioneer Trail	Signal	27	C
Heavenly Village Way/Bellamy Ct	SSSC	2 (5)	A (A)
Heavenly Village Way/Lake Pkwy/Montreal Rd	AWSC	9	A

Source: Fehr & Peers 2014

Notes: [1] SSSC = Side Street Stop Control, AWSC = All Way Stop Control
[2] Delay is reported in seconds per vehicle for the overall intersection for signalized and all way stop controlled intersections, and for the overall intersection (worst movement) for side street stop controlled intersections.
Bold indicates unacceptable operations.

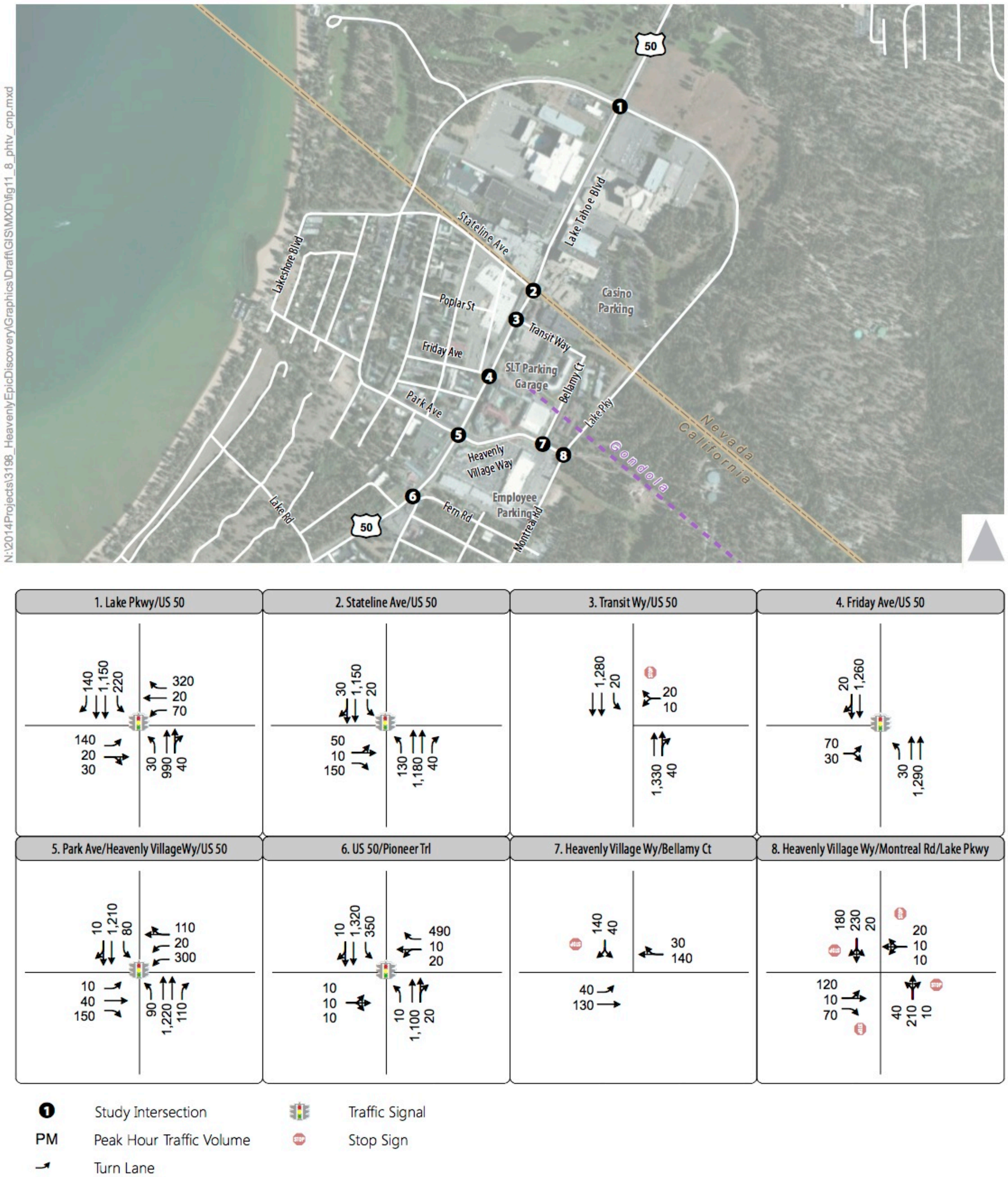


Figure 3.7-8

Peak Hour Traffic Volumes and Lane Configurations - 2035 No Project Summer Friday Conditions

3.7.7 CUMULATIVE IMPACTS AND MITIGATION MEASURES

IMPACT: TRANS-C1: Will the project result in a substantial impact upon cumulative transportation systems, including roadways and intersections?

Project generated traffic volumes were added to cumulative no project traffic volumes at the study intersections for cumulative plus project intersection level of service analysis. Table 3.7-18 shows the level of service results. Figure 3.7-9 shows the existing plus project traffic volumes at the study intersections.

Table 3.7-18

LOS Results – Cumulative Plus Project Summer Friday Conditions

Intersection	Control Type [1]	Cumulative		Cumulative Plus Project	
		PM Peak		PM Peak	
		Delay [2]	LOS	Delay [2]	LOS
US 50/Lake Pkwy	Signal	19	B	19	B
US 50/Stateline Ave	Signal	27	C	29	C
US 50/Transit Way	SSSC	9 (42)	A (E)	9 (44)	B (E)[3]
US 50/Friday Ave	Signal	17	B	18	B
US 50/Park Ave/ Heavenly Village Way	Signal	32	C	41	D
US 50/Pioneer Trail	Signal	27	C	27	C
Heavenly Village Way/ Bellamy Ct	SSSC	2 (5)	A (A)	3 (7)	A (A)
Heavenly Village Way/Lake Pkwy/Montreal Rd	AWSC	9	A	10	A

Source: Fehr & Peers 2014

Notes: [1] SSSC = Side Street Stop Control, AWSC = All Way Stop Control
[2] Delay is reported in seconds per vehicle for the overall intersection for signalized and all way stop controlled intersections, and for the overall intersection (worst movement) for side street stop controlled intersections.
[3] The analysis period represents the absolute peak hour. The LOS E condition is not expected to exceed 4 hours of the day and therefore is not considered a significant impact.
Bold indicates unacceptable operations.

CEQA and TRPA

Analysis: *Less than Significant Impact, All Action Alternatives*

As shown in Table 3.7-18, the Project is not expected to deteriorate the LOS at the study intersections to unacceptable conditions. Although the side street approach of the US 50/Transit Way intersection will operate at LOS E, this condition is not expected to exceed 4 hours of the day. Additionally, the intersection is expected to operate at LOS E without the Project, and the Project will increase the delay for the side street approach by 2 seconds. Therefore, this impact is considered less than significant.

Mitigation: No mitigation is required.

NEPA

Analysis: *No Adverse Effects, All Action Alternatives*

Cumulative future year traffic effects associated with increased summer activities are analyzed above under CEQA and TRPA.

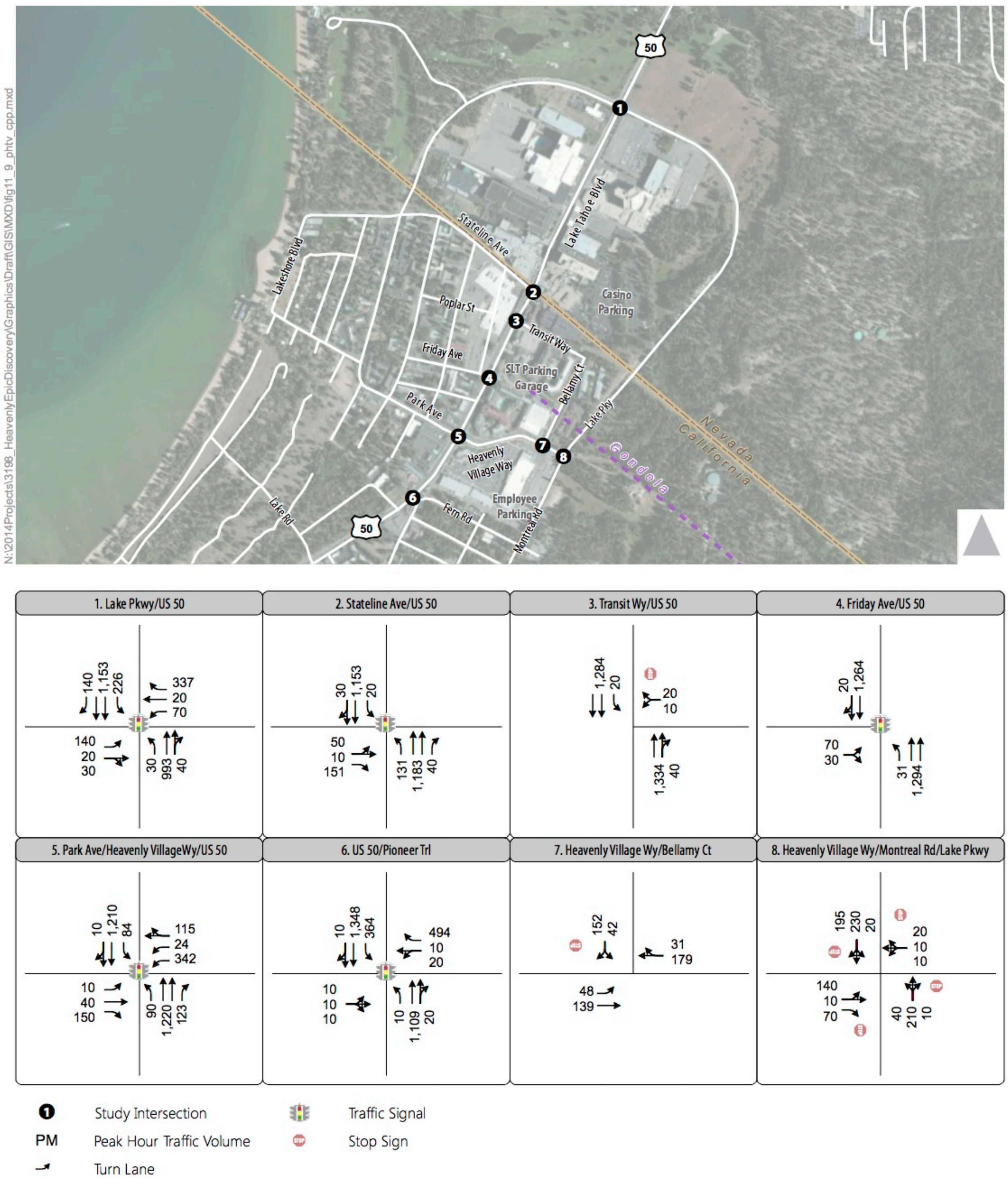


Figure 3.7-9

Peak Hour Traffic Volumes and Lane Configurations - 2035 Plus Project Summer Friday Conditions